D2.12 SCALE-UP DEMONSTRATION REPORT

WP 2

March 30th, 2021

The report describes all implemented demonstration activities, informational/promotional material used, tools used to collect feedback, and present the collected feedback and analysis thereof. The report will be published two times during the course of the project, to capture the distinct phases of the demonstration activities.

DOCUMENT IDENTIFICATION

Project Acronym	**IoF2020**
Project Full Title	Internet of Food and Farm 2020
Project Number	731884
Starting Date	January 1st, 2017
Duration	4 years
H2020 Call ID & Topic	IOT-01-2016
Date of the DoA	2017-2021
Website	www.iof2020.eu
File Name	IoF2020_D2.12 Scale-up Demonstration Report
Date	March 30th, 2021
Version	6.0
Status	Final
Dissemination level	CO: Confidential
Authors	Vladimir Crnojević, Milica Trajković Jovana Vlaškalin, Denis Kučević, Zoran Trpovski, Igor Živković, Gordana Ostojić, Danijela Vesin, Jarissa Maselyne, Nikita Standaert, Eva Maes, Anneleen De Visscher, Chari Vandenbussche, Reinout Godaert, Evi Lippens
Contact details of the coordinator	George Beers george.beers@wur.nl

PROJECT SUMMARY

The internet of things (IoT) has revolutionary potential. A smart web of sensors, actuators, cameras, robots, drones, and other connected devices allows for an unprecedented level of control and automated decision-making. The project Internet of Food & Farm 2020 (IoF2020) explores the potential of IoT-technologies for the European food and farming industry.

The goal is ambitious: to make precision farming a reality and to take a vital step towards a more sustainable food value chain. With the help of IoT technologies, higher yields and better-quality produce are within reach. Pesticide and fertilizer use will drop, and overall efficiency is optimized. IoT technologies also enable better traceability of food, leading to increased food safety.

Thirty-three use-cases organized around five trials (arable, dairy, fruits, meat, and vegetables) develop, test, and demonstrate IoT technologies in an operational farm environment all over Europe, with the first results already demonstrated within the first quarter of 2018, and final results validated at the end of 2020.

IoF2020 uses a lean multi-actor approach focusing on user acceptability, stakeholder engagement, and the development of sustainable business models. IoF2020 aims to increase the economic viability and market share of developed technologies while bringing end-users' and farmers' adoption of these technological solutions to the next stage. The aim of IoF2020 is to build a lasting innovation ecosystem that fosters the uptake of IoT technologies. Therefore, key stakeholders along the food value chain are involved in IoF2020, together with technology service providers, software companies, and academic research institutions.

Led by the Wageningen University and Research (WUR), the 100+ members consortium includes partners from agriculture and ICT sectors and uses open source technology provided by other initiatives (e.g. FIWARE). IoF2020 is part of Horizon2020 Industrial Leadership and is supported by the European Commission with a budget of €30 million.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This document provides an overview of demonstration activities conducted during the final year of the project, showcasing the latest advancements and product developments of the 33 UCs towards the public and, more importantly, towards potential end-users.

This report, entitled: Deliverable 2.12 “Scale-up Demonstration Report” has the objective to present updated demonstration procedures established by WP2 for UCs in order to help them during demo events preparation, organization, implementation, and reporting while allowing smooth collaboration between project WPs, where each provided input from their perspective.

Previously used Demonstration Activity Procedure for face-to-face events was fine-tuned to respond to comments and recommendations arising from the General Project Review Consolidated Report (from 26.03.2020), including the impact of demonstrations in terms of the level of interest, positive and negative feedback for the presented solutions, overall interest in the presented solutions, etc. With the outbreak of Covid19 in March 2020, WP2 created a Demo procedure and guidelines for organizing and conducting online demonstration events (demo webinars). Taking into account ongoing Covid-19 spread in Europe and measures in force including a ban on any forms of gatherings (events and demonstrations), switching to online demonstrations, as a substitute to face-to-face meetings is perceived as an adequate and encouraged form of UC product presentation.

The main motto of the procedure remained the same as in the previous year - to make scaling up as easy as possible to UCs, to lower the paperwork as much as possible, and allow safe showcasing of the final results. This deliverable brings together demonstration activity plans and information on conducted demo activities from all UCs. The final project year, each UC needed to indicate at least one demo event in the period December 2019 - March 2021, while the maximum number was not limited.

UCs were encouraged to organize demo events independently, but also to collaborate and join forces with other complementary UCs. In 2020, two large collaborative events were organized, one including wine related UCs from trials 3 and 4 (3.1, 3.2, 3.6, and 4.4), and the other one organized by UC1.6 which involved all UCs from Greece and Cyprus, regardless of the used technology and implementation area. Both events were very successful, the first one gathered a large number of participants from all over Europe but from the USA as well. In addition, UC 1.6 and 4.5 organized collaborative demo event as part of their mutual activity within the project.

Deliverable 2.12 consists of four major parts. Chapter 2 presents the approach and methodology, including demonstration activity procedures, collaborations with other Work Packages and collaborations with other projects and initiatives. Chapter 3 provides analysis arising from the lessons learnt reports and questionnaires submitted by the target groups, including feedback from participants, information on target audiences, demonstration activity plans submitted by UCs. In total 55 events were initially planned to be attended or organized by UCs. The chapter further showcases organized and attended demo events by UCs including supporting material, feedback forms from attendees, lessons learnt reports, and promotional material used. Due to Covid19, some events were cancelled, resulting in a lack of demo events with only one UC. Finally, **57 demonstrations** took place in the reporting period from December 2019 to March 2021, out of which **25 were face to face demonstrations** on farms, fields, wine cellars, and international fairs, **and 32 online events**, due to Covid-19 restrictions. The last aspect of the deliverable provides conclusions and overall lessons learnt.

The most often received feedback is that the topic of the presentations needs to be in line with the attendees’ background. Also, the IoT solutions are generally considered as the future of agriculture, in all branches. International fairs, that weren’t cancelled due to pandemic, had fewer visitors than expected. However, most conferences and fairs took place in an online format which allowed even larger audiences which were indeed beneficial for UCs. Also, a major impact on fair success was the fact that presenters and stakeholders from China weren’t involved since the whole country was in lockdown. Today, China produces around 20% of the world’s cereal grains, about 30% of the world’s

meat, and almost 50% of the world's vegetables, which makes China the world's largest agricultural economy with major impact on the global market. China's lockdown had a strong impact on the global agriculture in 2020. Young people, like students and young farmers, were highly interested and attracted by the user-friendliness of the solutions, bright design, and technical performances presented. When it comes to smaller events, the main recommendation from previously conducted demonstrations was the need to have a prototype presentation in real-life conditions (on the field, in the barn, etc.) and to explain the readings of the instrument in the computer. This was taken in consideration and made a tremendous impact on the successfulness of small-scale events. Farmers and other participants were very happy with the opportunity to see the actual examples, which in some UCs resulted in a market up-take not only in Europe but also in Asia, Canada, and the USA.

LIST OF ABBREVIATIONS

AIOTI	Alliance for Internet of Things Innovation
AR	Augmented Reality
EIP-AGRI	The agricultural European Innovation Partnership
EU	European Union
FMIS	Farm Management Information Systems
GDPR	General Data Protection Regulation
IoF2020	Internet of Food and Farm 2020
IoT	Internet of Things
NGO	Non-Governmental Organization
NPPL	Nationale Proeftuin Precisielandbouw (Precision Agriculture application project in The Netherlands)
PPP	Plant Protection Products i.e. Pesticides
UAT	User Acceptance Test
IPM ESSEN	The international trade fair for plants
TMR	Total Mixed Ration
TRL	Technology Readiness Level
LL	Lessons Learnt
UC	Use Case
VR	Virtual Reality
WP	Work Package

1. INTRODUCTION

The internet of things (IoT) has a revolutionary potential. A smart web of sensors, actuators, cameras, robots, drones and other connected devices allows for an unprecedented level of control and automated decision-making. The project Internet of Food & Farm 2020 (IoF2020) explores the potential of IoT-technologies for the European food and farming industry.

The goal is ambitious: to make precision farming a reality and to take a vital step towards a more sustainable food value chain. With the help of IoT technologies higher yields and better-quality produce are within reach. Pesticide and fertilizer use will drop or phase out and overall efficiency is optimized. IoT technologies also enable better traceability of food, leading to increased food safety.

Nineteen use-cases organized around five trials (arable, dairy, fruits, meat and vegetables) develop, test and demonstrate IoT technologies in an operational environment in Europe, benefiting both conventional and organic agri-food chains. IoF2020 Open Call had on-boarded new teams to join the journey within the Internet of Food and Farm to enlarge the IoF2020 ecosystem and create more impact in the European food and farming sector. Today, the total number of IoF2020 Use Cases is 33.

IoF2020 uses a multi-actor approach focusing on user acceptability, stakeholder engagement and the development of sustainable business models. IoF2020 aims to increase the economic viability and market share of developed technologies, while bringing end-users' and farmers' adoption of these technological solutions to the next stage. Once the use case solutions reach the TRL (Technology Readiness Level) indicated in the Work Plan, scale-up demonstrations activities are being organized with the aim to maximize the impact in terms of acceleration of the market up-take by reaching the widest possible group of stakeholders spanning across the whole agri-food value chain from farmers to citizens. Relevant stakeholders are being invited to pilot sites to attend the demonstration of implemented IoT solutions, or online virtual demonstration events are held. A set of promotional/informational material is designed for each of the Use Cases and distributed during demonstration days, as well as using other communication channels, such as social media, forums, fairs, conferences, magazines, etc.

The objective of this D2.12 deliverable is to present the process of planning, executing and monitoring of Use Case demonstration activities, used tools, visuals, etc. In addition, the deliverable is describing IoF2020 internal and external collaboration, together with established synergies.

The deliverable 2.12 consists of two major parts. Chapter 2, approach and methodology is covering the planning phase, initial setup of demonstration activities and established collaborations. Chapter 3, called results, is giving the overview of Use Case`s demonstration activities plans, monitoring and feedback of conducted demonstration activities and plans for the upcoming period. In Chapter 4, conclusions and some lessons learnt are drawn.

2. APPROACH & METHODOLOGY

2.1. DEMONSTRATION ACTIVITIES PROCEDURE

Aiming to have a uniformed approach in all IoF2020 Trials and Use Cases, WP2 (Work Package) has prepared a **Demonstration Activities Procedure** that is defining all the steps and roles in the context of demonstration activities set-up. The purpose of the procedure is to establish a starting position and guidelines for conduction of demonstration events in the course of the IoF2020 project. In order to have a clear overview of each step and action, Demonstration Activities Procedure has three envisaged phases:

- Planning phase,
- Executing phase, and
- Performance monitoring phase

Demonstration activities are aimed at presenting work done within each of the Use Cases and knowledge/experience exchange on three levels – among IoF2020 partners, with other relevant H2020 projects and with external participants interested in the topic of the demonstration. The common characteristics of demo activities are:

- Knowledge/experience exchange
- Involvement of different stakeholder groups (farmers, IT community, researchers, etc.)
- Broad promotion of the event (both as an announcement, prior to the event as well as after)
- Lessons Learnt (LL) collection, which could be used in a later phase of the project.

Following the review meeting held in March 2020 and the General Project Review Consolidated Report (from 26.03.2020), WP2 took into account comments and observations made with respect to demo events when updating the demonstration procedure. Also, with the outbreak of Covid19 in the first quarter of 2020, a separate procedure and guidelines for organising and conducting online demo events were prepared by WP2 and delivered to the UCs (Use Cases). During 2020, due to Covid19 most European countries were closed for traveling and had numerous bans related to gatherings, very few UCs attended face-to-face fairs, demo-shows, or other physical events.

The aim of the UC demonstration activity was to showcase the solution but also to present its impact to the widest group of stakeholders from the public and private sector, including farmers, large holdings, government officials and other interested parties.

Main elements of the demonstration activity procedure:

- **Demonstration activity procedure** (document) **for online and face to face events** as presented in **Annex 1** (*Demonstration Activity Guidelines and Procedure for organizing online demo events* and *Updated elements of Demonstration Activity Procedure for face-to-face events*), consisting of:

  - guidelines on how to prepare and organise a webinar or online demo event, and processes within IoF2020 to be complied with.

  - online demonstration activity plan template with all the necessary information about the event to be submitted to WP2 and WP5 once the event is scheduled. This table serves the project for announcing the event on social media channels (WP5), provides an overview of the whole demonstration activity setup and answers to the who, when, what, where, and how questions. It also enables timely promotion of the planned activities, as presented on the IoF2020 webpage, link. The table also serves WP2 for monitoring UC event implementation as well as detecting potential collaboration with other H2020 projects (WP2).

  - Questionnaire for attendees was modified to respond to the comments from the previous review meeting and consists of questions about the solution itself and if the additional

benefit for the farm is clear, if the product can be useful for the daily work, if the product provides better decision-making, if the product makes the production more transparent, if the product is easy to use and understand by all persons working with it, if the design of the solution is easy to understand. The second question relates to the usefulness of presented technologies. The third, fourth and fifth questions were looking to identify replicability potentials and if the solution can be adjusted to address the needs of the attendee, detection of attendees' willingness to pay for the solution and open questions for other suggestions. UCs were also encouraged to add any additional questions they find important for each demo event separately if needed.

  - Lessons learnt report with the aim to present highlights and lowlights of the demo event. The report is meant to serve the UCs for analysis purposes of each organised event and led to the improvement of following demonstrations, within the scope are IoT solution features – observation (based on interaction with attendees), solution presentation (how, what additional material was used, structure of demonstration, etc.) and communication with stakeholders. The report also allows analysis of the target groups in terms of numbers and structures. Within the same report, UCs are asked if and how they will implement feedback received from the participants and about the consensus on the willingness of the event attendees to pay for their IoT solution.

  - Invitation guidelines and invitation template to be used by UCs when inviting individuals to the event.

  - Attendee list to be used when organising face to face events to help demonstration activity organisers keep track of the demonstration activity participation and it further should also help IoF2020 to widen the project's ecosystem by asking for GDPR consent (the EU General Data Protection Regulation 2016/679 entered into force on May 25, 2018).

- IoF2020 Booklet **Annex 2:** designed in an eye-catching manner, enabling the reader to get the full understanding of the IoF2020 project, its structure and governance, key facts, and overview of involved Trials and Uses Cases;

- Demo leaflets and Agenda **(Annex 3):** are supposed to give interested persons all the necessary information about the upcoming demonstration activity. It should create awareness and interest while being short and concise. There are five leaflet templates for each Trial. On page 2 of the leaflet, the text fields can be edited with the individual information about demonstration activity, designed in two styles - with cropmarks for printing, the other one without cropmarks for digital advertising. These leaflets are supposed to be used as a marketing tool to advertise demonstration;

- Use Case poster **(Annex 4):** a brief one-pager Use Case description (similar to an EIP-Agri fact sheet) with Use Case objectives and impact, brief architecture, involved partners, deployments sites and elaboration on `how it works`.

The executing phase is supposed to be organized in accordance with the demonstration activity plan. The Use Case coordinator is fully responsible for demonstration organization, acting as a demonstration activity main responsible. Based on the demonstration activity plans, WP5 is attracting relevant EU and H2020 initiatives and projects, and WP2 is monitoring and evaluating the Use Case progress.

In the phase of performance monitoring, upon realisation of demonstration activity, all attendees should fill in the questionnaire for attendees and the UC coordinator is responsible for filling in the Lessons Learnt Report, within one month after the event at the latest.

Tools for collecting feedback from external stakeholders are developed and extensively utilized during the demonstration phase in order to provide valuable information to the ecosystem on possible

obstacles and barriers to the market. The report on conducted activities and feedback from the attendees is created in collaboration with WP4.

2.1. WP2 COLLABORATION WITH OTHER IOF2020 WPs

Work Package 3

The scale-up of the developed solutions would be hard to realize without a solid technical support and constant supervision of WP3. During the establishment of demonstration procedures, WP3 shared their point of view on how IoT solutions should be demonstrated and made closer to the potential users. One of the methods that shortens the distance between solutions and public is the IoT catalogue, which was created in close collaboration with all UCs.

Work Package 4

The work in WP4 on business support has a rather entrepreneurial character compared to classical business plan driven approaches. An underlying concept is the application of elements from the lean-start-up approach that are applicable to start-ups as well as to large organizations and will facilitate to think in terms of a “demand-driven development of products”, instead of a technology-driven provision of features. This enables an early validation of results with end-users in real-world settings. Therefore, WP4 has played an important role in the process of demonstration activities and reaching the full benefit of such an event. Moreover, WP4 has provided input for questionnaire for attendees, especially in the section on *Feedback to Use Case*.
In addition, WP4 has created **User Acceptance Test** (UAT), a survey tool to support Use Cases in increase user acceptance of IoT products and solutions. The survey was performed in 2020, offering a chance to receive feedback from the IoT users themselves and allowing further identification of acceptance problems during the development cycle. The results of the test can be used to adjust the product according to the users’ needs. Surveys were filled in together with all the known test farms/ demo companies within the Use Cases.

Work Package 5

WP5 has provided immense support in the process of demonstration activities preparation. WP5 team has created the **Dissemination package** that contains booklet, posters, invitation mails, leaflets and agendas all tailored to specific needs of each Trial and Use Case. In addition to this, WP5 ensured proper promotion of demonstration activities in the IoF2020 webpage.
Concerning WP5, their activities go beyond reaching individual target audiences, it also exploits the potential of matching different target audiences with each other. This takes advantage of the available contact points in WP2 to properly develop the ecosystem, realizing an optimal communication strategy to serve the needs from an internal and an external perspective. Therefore, WP5 serves as a project gateway for communication ensuring that all IoF2020 social media networks are timely updated with correct and new materials, occasionally related to demonstration activities.

Work Package 7

WP7 is focused on the ethical aspect of IoT implementation in the agri-food sector. Therefore, the main focus of the WP in demo procedure establishment was on classification of results that can be shared openly, and which ones not (for example because this might be detrimental to the company producing them). In addition, the inputs were related to the data sharing regulations and its impact on work achievement demonstration.

2.2. IOF2020 COLLABORATION WITH OTHER PROJECTS, INITIATIVES, NETWORKS

FarmDemo

FarmDemo is a close collaboration of 3 European projects funded under Horizon 2020: PLAID, AgriDemo-F2F and NEFERTITI. They all aim to enhance peer-to-peer learning and focus on farm demonstration as a tool to boost innovation uptake.

AgriDemo-F2F and PLAID focus on understanding the role of European commercial demonstration farms and prepare for more connectivity between actors involved in on-farm demonstrations. These projects develop a geo-referenced online inventory of demonstration farms and build an online FarmDemo-Hub community.

NEFERTITI focuses on the establishment of 10 interactive thematic networks covering the 3 main agricultural sectors: animal production, arable farming and horticultural production. They bring together 45 regional hubs of demo-farmers and innovation actors - advisors, cooperatives, NGOs (non-governmental organizations), industry, education, researchers and policy makers. One of the project aims is to have around 225 demonstration events per year, involving all relevant stakeholders.

By recognizing the huge potential and benefit in collaboration, IoF2020 consulted the NEFERTITI training kit to continuously improve its on-farm demonstrations. Following and applying the well-tailored guidelines from the NEFERTITI training kit, the IoF2020 demonstration procedure involved all significant milestones in demo event organization and made it easier for UCs to follow the guidelines. UCs were allowed to use the kit up to the extend they think will bring most benefit to the promotion of their solution.

AIOTI

The Alliance for Internet of Things Innovation (AIOTI) was initiated by the European Commission in 2015, with the aim to strengthen the dialogue and interaction among Internet of Things (IoT) players in Europe, and to contribute to the creation of a dynamic European IoT ecosystem to speed up the take up of IoT.

Other objectives of the Alliance include fostering experimentation, replication, and deployment of IoT and supporting convergence and interoperability of IoT standards; gathering evidence on market obstacles for IoT deployment; and mapping and bridging global, EU (European Union), and member states' IoT innovation activities.

Several IoF2020 partners are part of the alliance, like representatives from WP2 and WP5, that are actively participating in the AIOTI Working Group 6 on smart farming and food security. Working Group 6 has a monthly meeting where IoF2020 participating partners have the opportunity to share important IoF2020 updates related to scale-up activities, relevant for the AIOTI network.

3. RESULTS

3.1. NUMBER OF CONDUCTED DEMONSTRATIONS

It was expected that the Covid19 pandemic will have a strong impact on demonstration plans in every trial of the project. Strict measures and lockdowns in Europe during 2020 completely changed the approach of demonstrating UC final products/solutions and interaction with the end-users or interested audiences. In some cases, previously announced events were cancelled, in other cases events were conducted with certain constraints (regarding the number of attendees). Due to changed circumstances, IoF2020 strongly encouraged all UCs to proceed with demonstration plans, by switching to virtual demo events.
Within the current reporting period (December 2019 - March 2021), 57 demonstrations were conducted, both as online and face-to-face events. This number includes all events during which the UCs' specific results were presented and specific UC solutions were demonstrated in front of the various target audiences.
Arable trial - 9 UCs within the arable trial conducted **12** demonstrations in total. There were 5 face-to-face demonstrations, and 7 events were conducted online.
Dairy trial – 7 UCs conducted **11** demonstrations in total, including 7 online events (webinars and workshops) and 4 face-to-face meetings.
Fruit trial – 6 UCs organized and participated in **16** demonstration events in total. Physical events were organized in wine cellars and vineyards - 7 events in total, and 9 demonstrations were conducted and participated online.
Vegetable trial – 4 UCs conducted **11** demo events in total and only two of them were virtual events. "EU researchers' night" - the only online event in which UC 4.2 participated, and another organized by UC 4.2 – Online trainings for actors interested in horticulture. The remaining 9 events were all performed as face-to-face demonstrations and sales meetings. UC 4.3 was the only UC that didn't perform a demo activity due to Covid19, thus a previously scheduled event in Munch, co-organized with Nationale Proeftuin Precisielandbouw (NPPL) (Precision Agriculture application project in the Netherlands) was cancelled. However, they compensated lack of demonstration events with additional press releases and online dissemination activities.
Meat trial – 5 UCs organized **7** demo events in total and all of them were conducted as online webinars.
In total, **57 demonstrations** took place in the current reporting period (December 2019 - March 2021) included **25 live demonstrations** on farms, fields, wine cellars, and international fairs, **and 32 online events**, due to Covid19 restrictions.

Besides trial-specific events, UC 1.6 organized one cross-UC demonstration of all IoT solutions developed and deployed in Greece and Cyprus, regardless on the used technology and implementation area. *The Greek Network of Farmers and Things* was an exceptional event that made IoT technologies for agri-food closer to the Greek farmers in a plain and non-scientific manner (entire event in Greek). In addition, projects such as H2020 PLOTUS, CO-FRESH and DEMETER presented their scope and brought themselves closer to the average Greek farmer, which was the majority of the (online) audience.

3.2. TARGET AUDIENCE

In general, target audiences reached during demo events, within all five trials, were scientists, engineers and researchers in the agri-food domain, farmers and farm managers, agricultural suppliers, value chain stakeholders, and policymakers.
Within the **arable trial**, face-to-face demonstrations involved more than 70 people, despite all Covid-19 restrictions. All on-farm or on-field demos were conducted with a high level of respect for the declared protection measures. Participants of the arable trial demonstrations were farmers, crop protection companies' representatives, agribusiness consultants, potato processing industry representatives, agronomists-researchers, IT experts, and farm managers. Online presentations and

demonstrations were followed by over 300 people (both industry-related individuals and the general public interested in agriculture and IT).
Four live demonstrations within the **dairy trial** were participated by more than 105 people - industry representatives, investors, and customers, dairy farmers, members of Latvian Holstein Association, Hungarian Charolais Breeders Association representatives, reseller partners from the EU, sales representatives, and policymakers. Online events gathered more than 200 people interested in precision agriculture, media representatives, and the general public.
The **fruit trial** gathered many industry actors but in most cases winery employees or owners, consultants/wine markers researchers, farmers, farmer associations and agronomists, sales representatives and dealers. Live (physical) demonstrations were attended by more than 185 people, where, besides all mentioned groups, students and potential customers were in focus. UC 3.4 had a live demonstration at an international fair (CES2020) where more than 2000 people were present. Also, television and other media representatives were present to report on the demonstration. Online demonstrations gathered more than 2500 registered participants in total, with different backgrounds and ages. The webinar "IoT technologies for wine quality", organized by UC 3.2, which gathered four wine and grape UCs (3.1, 3.2, 3.6, and 4.4), was attended by over 320 people.
Use cases within the **vegetables trial** have conducted many physical demonstrations, on farms and fields, but also in fairs like Agrotica2020 and the International Trade Fair for Plants (IPM ESSEN). More than 700 people were involved in presentations and demonstrations, mostly the general public, students, and professionals from the horticultural sector or interested in vertical farming, farmers, agri-food stakeholders, researchers, and technology providers.
The **Meat trial's** demonstrations involved more than 280 people, who participated in conducted online events. Participants were farmers, poultry integrators, private and public businesses representatives, system developers operating at different levels in the agri-food field, meat and beef factories (such as El Pozo and Mercamadrid), breed associations, and artificial insemination centres (ACRUGA; AVILENA..), public bodies, researchers, agronomy students, veterinarians, feed industry representatives, farm advisors and slaughterhouses.
Finally, physical and online demonstration events (including fairs, co-organized webinars, and different online trainings) conducted within all 5 trials, **has gathered more than 4000 people** – about 860 actors directly participated in conducted live demonstrations, together with more than 2000 people present at international fairs, who had an opportunity to be introduced with the IoF2020 project and its specific results. Online presentations and webinars were participated by over 1500 people – students, different industry actors, stakeholders, scientists, researchers, and the interested general public.

3.3. EVENT'S ACHIEVEMENTS AND LESSONS LEARNT

The demonstrations proved to be very useful activities, both for the attendees and for the UCs, since both sides were able to learn from each other. During the demonstrations and presentations, many lessons were learnt, and in this chapter, we will summarize the most important ones.

Arable trial demonstrations showed that, in general, precision farming is considered highly useful and readiness to use innovative solutions are yet to be raised. Farmers are interested in real examples (samples and results from test farms) that can prove the possibilities and value of new technology, and in technology, adaptation to analyze other plant varieties. When it comes to soybean producers, during one of the demonstrations, the need for quality valorization by the soybean market was confirmed again - for this reason (soybean is not quoted on market based on its quality but only as a commodity), many farmers are concerned about the economic margins of access to technologies. On the other hand, by viewing graphically displayed results, end-users (farmers) are brought closer to understanding the benefit of analyzing their data and not just collecting it. This means that if an FMIS (Farm Management Information Systems) offers the user to create maps and share them with their agronomist or advisor, together all stakeholders can react faster to new insights in their fields and better minimize risks.

Conducted demonstrations within the **dairy trial** drove some important lessons from interactions with farmers, farm managers, advisors, and other industry-related people. Digital solutions all look impressive, with clear graphics and attractive design, which is a major highlight for sales purposes.

But even with attractive and user-friendly design, for future demonstrations and sales pitches, a step-by-step walk-through is a must. The sales advisers are thinking very short-sighted and fear that the use of Precision Mineral Supplementation means lower sales volumes on TMR (Total Mixed Ration) minerals, and they do not have perspective enough to understand that they, in turn, can sell extra, high-value mineral feed supplements for transition cows and get benefits via more satisfied clients. Also, the sales advisers will not take the risk of a new product – to keep their high trust from their farmer clients, they stick to recommending solutions that are safe and well-proven, and with immediate effect on their own sales volume. However, demonstrations of the results and impacts on different levels (as was organised and shown in a webinar) can help change this view-point. Demonstration conducted by UC 2.7 in Hungary was performed on a farm that was not representative of the professional production of meat. Their solution is focused on +50 head farms, so farmers with fewer cows are not interested in the product, so further demonstrations should be conducted on bigger farms that can showcase the benefits of this type of FMIS.

Fruit trial demonstrations were highly valuable in terms of the lessons learnt by the UCs that organized those events. One of the most important lessons is that the idea that the market needs solid data, linked with the typicity of the wine-producing region and the grape variety was confirmed as being true. Also, it is important to establish a partnership with the customers of the spectrophotometer, so that he can feed the calibration curve, realizing analysis with traditional method and remote wine analysis method. Therefore, a partnership was established with the Californian lab that will feed the system with data measured on their wine region.
Food safety depends on traceability and this system allows that it happens in most modern agriculture. In agribusiness profitability systems have already been developed for a long time while in agriculture they are not. Therefore, presented solutions will meet the needs of the growing demand in all the processes from grape to wine, and more and more will be possible because the instruments are easy and performing. Collected data from vineyards and cellars is necessary for blockchain in supermarkets, but farmers and winery employees must get familiar with the technology first.
When it comes to olive growers, some attention points were noticed - many olive growers were older persons not willing to learn how to engage with new technologies. They also stated that presented technologies are for the younger farmers, and the only way to adopt these types of technologies is by collaborating with younger farmers or agronomists, who know how to operate these systems. This means the software must be very easy to understand and use, so older farmers can utilize the solution.
Remote control of irrigation is the future of irrigation and must be adopted by farmers for being more competitive. It also brings the reduction of the environmental impact, which was the big surprise along with the reduction in the quantity of materials used and consequent reduction of costs. During live demonstrations, it was noted that some farmers are not accepting presented technology at first, as they do not like to change the way they work. However, after having a chance to try out the presented solution (e.g., Smartomizer), they accepted that the H3O is very intuitive and that shifting to new technology wouldn't cost them too much effort. It was concluded that H3O technology helps in organizing the work treatments and visualization without the need to be present in the field and helps in calibrating all sprayers.

New lessons learnt through the demonstration activities conducted within the last reporting period, for use cases **within the vegetables trial** are related to sales pitches and the duration of the presentation itself. Many farmers stated that it would be easier for them to follow the demonstration if they already had some information on the solution before the presentation. Talks for preparing the farmers for the next step in agriculture – precision agriculture – were lengthy and complicated. It will be very beneficial in the future if short PowerPoint presentations are shared with participants a few days before the event, so they can prepare ahead. The interest in the use of technology in agriculture is present and it will be rising in upcoming years. As in all other trials, the attention point is the acceptance of innovations among older farmers, and their readiness to learn about new technologies. This can be supported with more languages available in every IoT solution since older generations are not familiar with English.

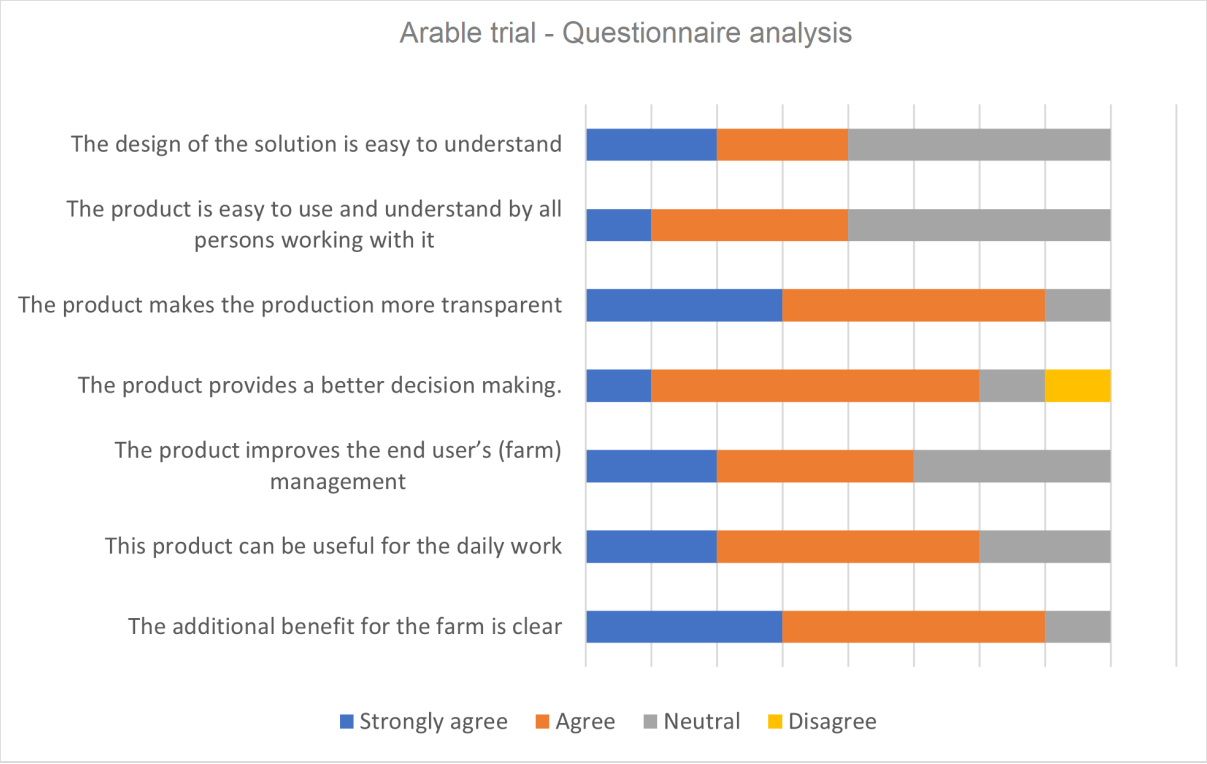
Conducted demo activities had very valuable lessons to teach all UCs **within the meat trial**. Although a great interest in all proposed solutions (the dashboard, the early-warning systems, and the

slaughterhouse data analysis) was shown, participants were asked about the inventory tracking capabilities and dashboard customization. This feedback will be incorporated in further solution development. Also, the limitation of the solution on the English language only emerged as a major issue for Swedish farmers, so this will also be included as a milestone in further developments.
Smart data collection which supports decision making and optimizations, together with useful user-oriented information about key indicators, are considered as main benefits and were frequently highlighted as crucial.
All demonstrations within the meat trial were organized as webinars, which had some downsides. All participants were happy with the fact the demonstration was organized, even if it is online, but not all platforms can support the smooth flow of the event. There were some constraints regarding the number of participants, on presenting possibilities in terms of supported files. Webinars are not optimal to establish an agile interaction with stakeholders, however questions and comments were raised during the event by the participants. In some cases, the number of people expected to be reached was lower than anticipated, as many of them preferred to watch a recorded webinar after the event was conducted. Some participants mentioned technical problems, like problems with sound, video, or small text size of the slides. Some of this was due to the choice of the webinar tool, so this must be considered with more attention for future webinar organization.

3.4. FEEDBACK FROM THE PARTICIPANTS

Participant's feedback is the most valuable data for UCs, collected after demonstrations or workshops. It is collected with two purposes – to create a better understanding of participants' needs, which will result in product improvements, and to have a better picture of the success of the event itself. Feedback is collected through questionnaires and in this chapter we will give an overview of the most valuable feedback for each trial.

Attendees of the arable trial demonstrations provided answers to common questions, as it is presented in the following graphic:

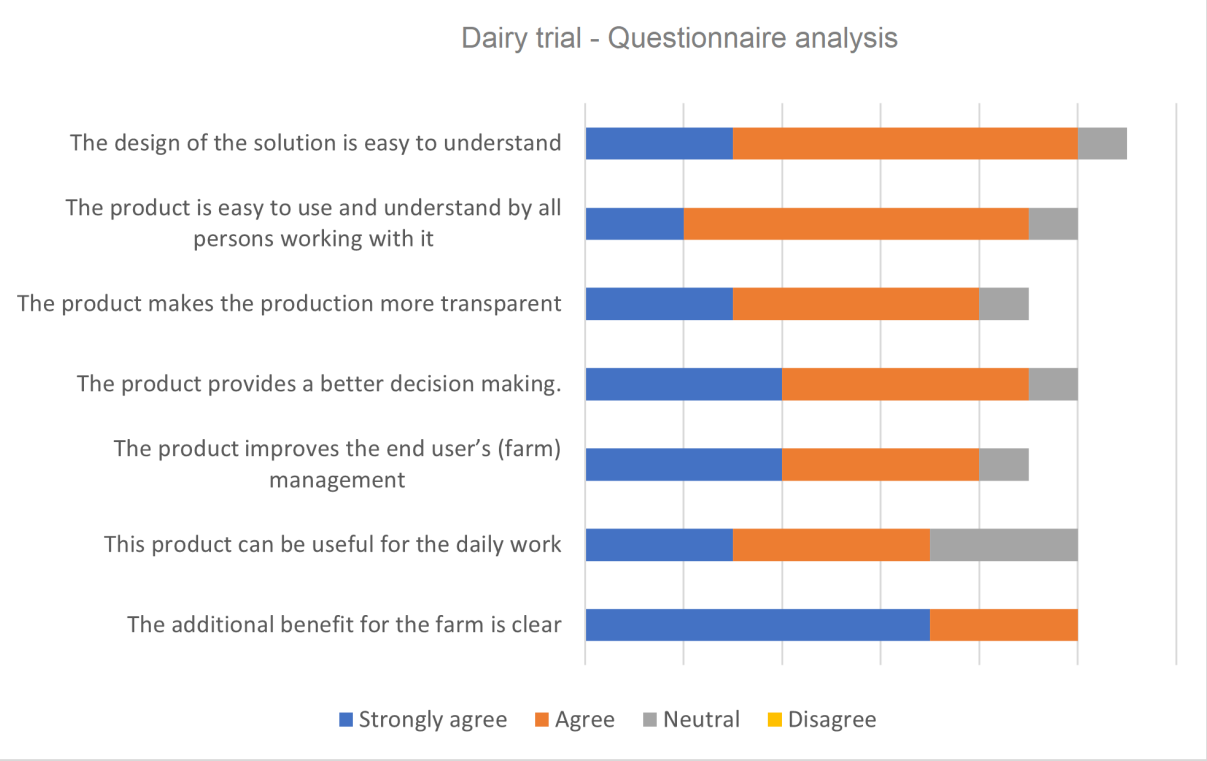


All attendees agreed that demonstrated solutions are easy to understand and use, that the solutions are making the production more transparent and are improving the farm's management. General feedback from all participants is that the Internet of Things in agriculture, at the moment, remains undeveloped because it is still very segmented according to application. Valuing the same technology for different uses and different players (farmers, cooperatives, processors) is important to improve its economic profitability and its diffusion. But, in the future, when the circumstances change and the tension on world market drops or the price of agricultural production increases due to quality approaches, agricultural IoT will become essential to continue producing insufficient quality and quantity. Although the soyabean production sector is not uniformly aligned on high technological standards, mainly cause its costs, the objectives and solutions presented have aroused curiosity and interest. Also, it's a common idea that soybean production decrease with the increase of protein content, and for this reason there's the need for real support from the market which it seems not yet mature enough to date.

Replicability potential of all solutions developed within the arable trial is very high - each FMIS wants to improve its compatibility and interoperability using standards and common frameworks, because each farmer chooses Farm Management Information System (FMIS) to be the main software tool to manage the production resources. But still, solutions often need to be combined with 3rd parties (e.g. seed or fertilizer advisors) to ensure that better decisions will be actually derived. Some participants noticed that there are already many other systems with many years operating data (like Dacom Cropio, etc), and that data inputs required from the farmer on his activities is a very extensive process.

Willingness to pay for the solution is high at all participants, but only if conditions like having potential data base big enough and decision-making process supported with all relevant data, are fulfilled.

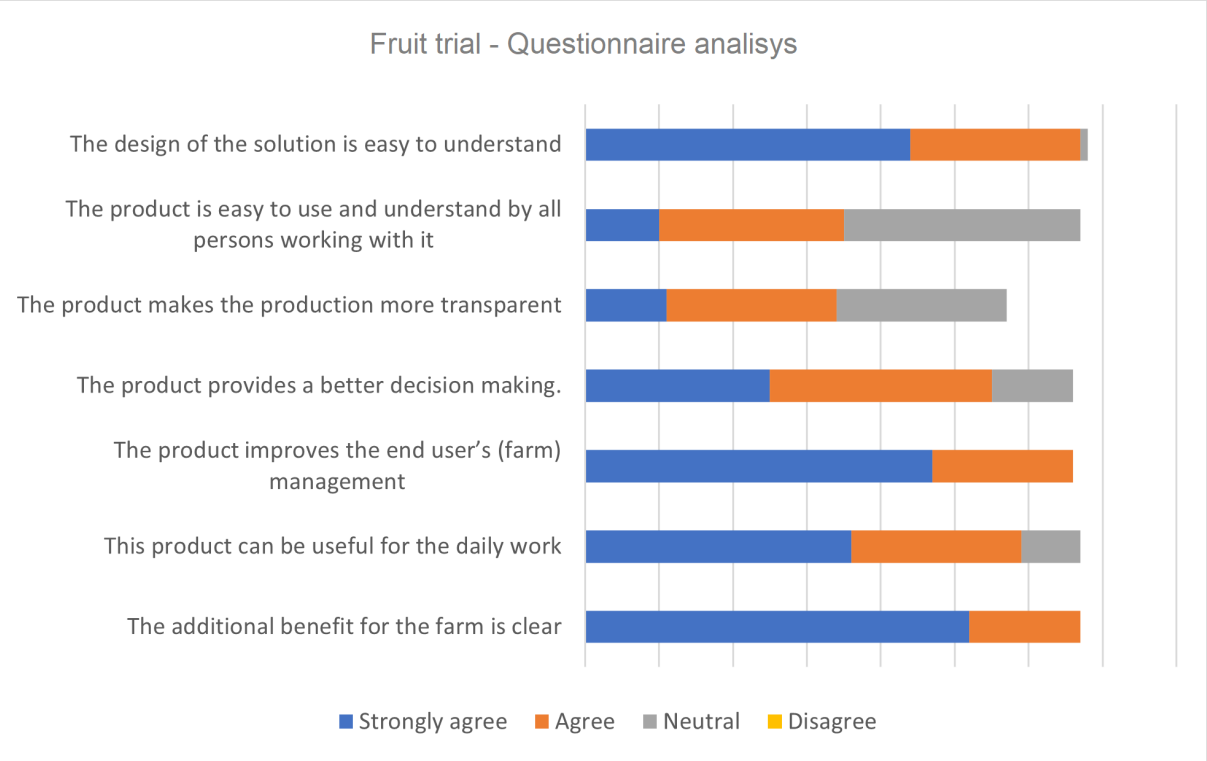
Dairy trial demonstrations and webinars gathered a valuable feedback on common questionnaire questions, as per the following visual:



Participants who participated in the questionnaires after the event strongly agreed that the presented solutions provide a better decision making for end users (farmers), and that the additional benefits are very clear. Also, they all agreed that solutions are easy to understand and use in daily routine, so the farm management processes are improved.

Overall feedback, including feedback from face to face events and web based events, is that usage of on-farm data to support decisions on maintaining the health and wellbeing of dairy animals is very important, therefore the extra value of IoT solutions is very appreciated. All solutions are highly user-friendly, and anybody can understand how they work.
Wiliness to pay is still a challenge within this trial. Potential customers (farmers) stressed that paying for the solution is not a problem if it can help them conduct daily activities easily and help them monitor animal welfare. The biggest challenge here is to implement the system and use it an strict and structured way, and this is the reason farmers are still hesitating to pay for it.

Participants of the fruit trial demonstrations provided answers on common questions, as it is presented in the following graphic:



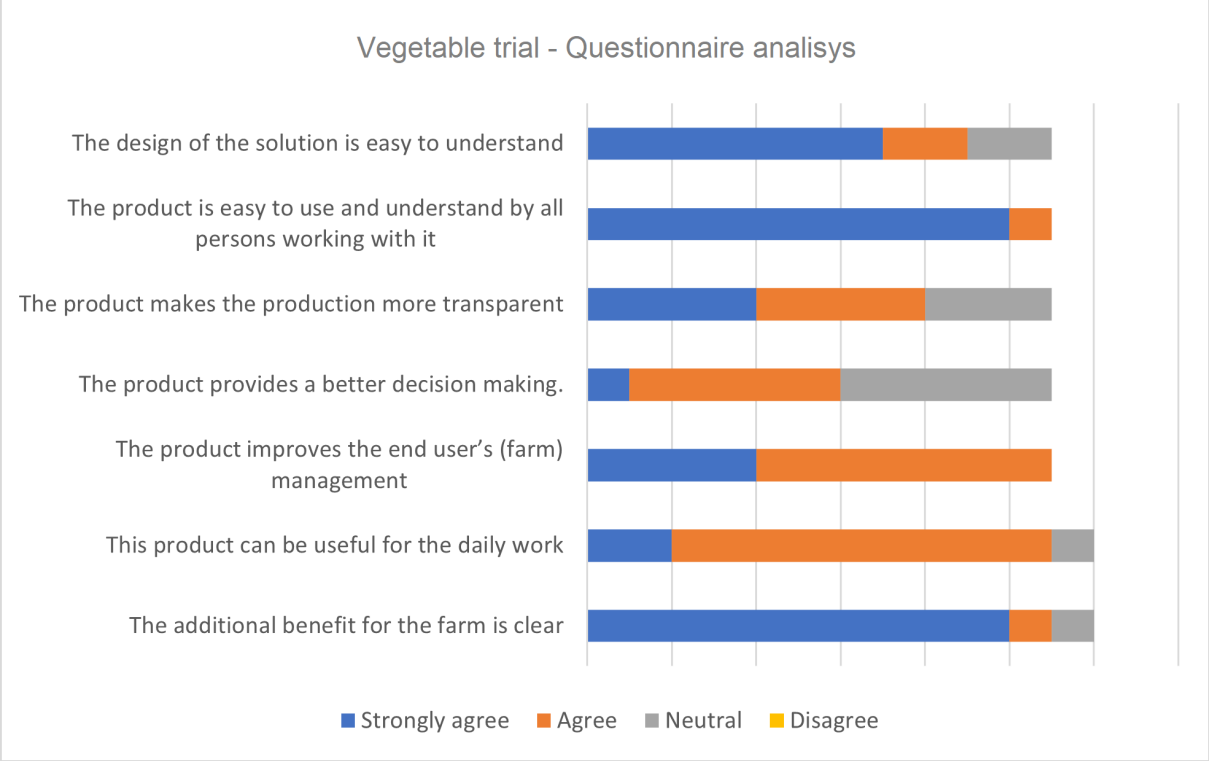
General feedback provided information on how farmers and olive growers accept the new technologies, and they all agree that digitization is a necessary step to optimize resources (PPP, fuel, etc.) and improve agri-food safety. The need to acquire this technology increases as regulatory pressure to reduce the use of PPP grows. It is also necessary in large farms to reduce costs, but the state must support farmers and cooperatives on the adoption of these types of technologies through subsidies. Local resellers or other trained personnel (e.g. agronomists, young farmers, cooperatives) could support farmers on the control of this type of equipment, meaning that more workshops should be conducted for helping farmers to learn and adopt new farming technologies and practices.
When irrigation IoT solution was demonstrated, all demo participants agreed that they saw a difference in the effectiveness of spraying (water sensitive papers) and they saw less spray drift compared to their current technology. Almost everyone said that the visible reduction of drift will improve the effectiveness of the procedure, and this in turn will improve the economy of production. Also, all participants agreed that the right choice of nozzles and wind quantity and quality supported by the Fede system is more feasible for them than without this system. Growers need training, support and control.

Prior to the demonstration, participants were sceptical about the use of new technologies, making it hard to talk to farmers as their knowledge is inherited form the previous generations, even though

technology and economic environment have change over time. For the Fede dealers, it is an interesting added value at a commercial level to have this technology. For agricultural technicians, the willingness to pay is very high, since they obtain traceability of the phytosanitary treatments carried out, in addition to reducing the dose of product applied. However, after conducted demonstration most of the farmers stated they are willing to pay for purchasing the IoT solution. The attendees identified a two-step process for purchasing this type of equipment. The first step includes the installation of the weather system, and after getting familiar with it they can move to the second step and purchase the irrigation control system.

Generally, by the people working in a winery and the winery owners: 67% would be interested or very interested to purchase a service to monitor the wines during their transport. and 74% would be interested or very interested to purchase a technology to remotely analyse their wines. By the consultants/winemakers there are 82% of them who would be interested or very interested to purchase technology to remotely analyse their wines.

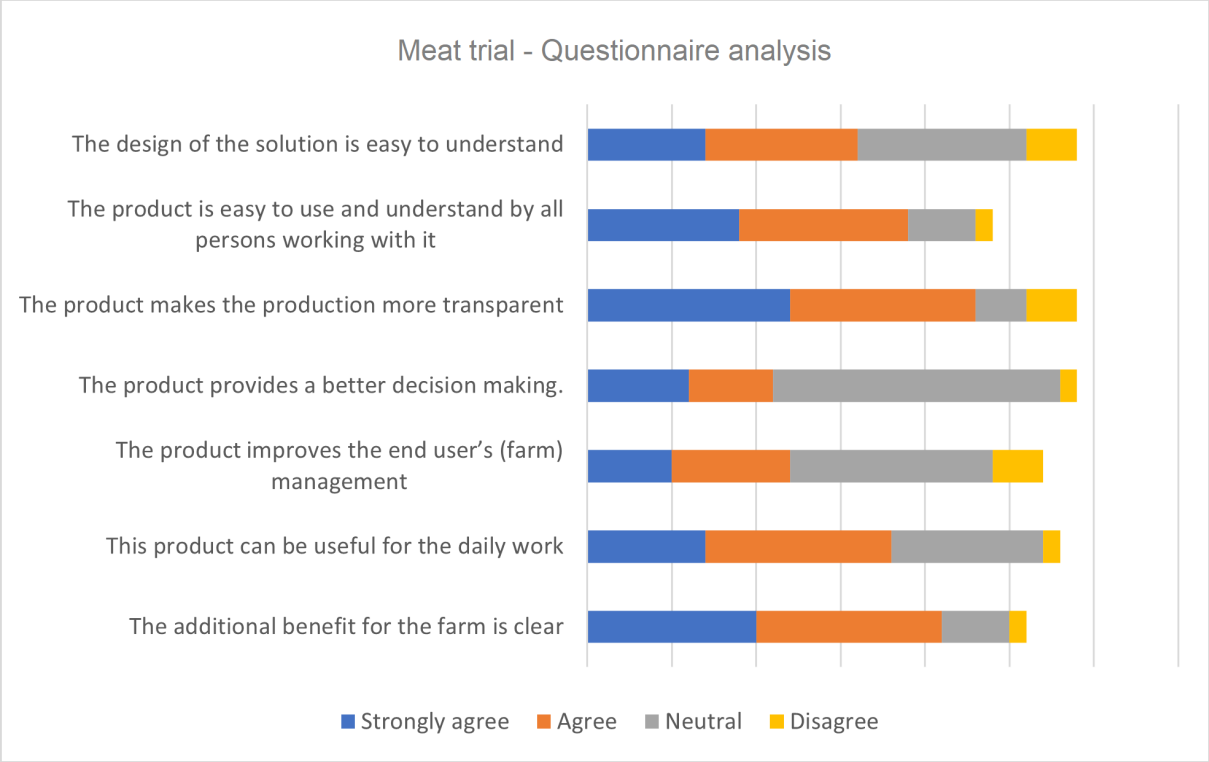
By collecting answers from the participants through a common questionnaire, **vegetable trial's** use cases gathered results as per the below graphic:



The overall feedback is very positive and encouraging – all attendees agree that demonstrated IoT solutions represent the future of agriculture and are very interested to be a part of that future. Many participants were initially very surprised when they heard about the technology that is used in agriculture, but their interest is growing and many of the potential customers were asking for the new features, which will be developed in the next version.
UC 4.4 had two demonstrations of AR and VR solutions to potential customers from different markets, but overall feedback was that the device cost is high compared to the benefit he can get. The economic impact of the innovation is highly questionable. The importer knows the amount of imported wine and the number of bottles he can sell per year. The investment cannot be over 1000-1500 euros per distributed batch. Therefore, VR price is too high, so simpler technologies will have precedence when it comes to new investments. This led to the conclusion that it is possible to develop cheap solutions during the introduction/testing of wine on the Chinese market. When the market is done, it is possible to increase the budget.

Demonstration booths located in different fairs were very visited and more than 200 people stopped by and discussed the solution benefits. The general feedback was very positive since the development of farming technology especially for smaller farmers is considered very important and required.
Besides all mentioned demonstration activities, UC 4.5 conducted several face-to-face meetings with potential customers, in order to present them the solution that can be tailored to their specific needs. This resulted in more than 40 offers already sent and first pre-payments are expected within December, so projects can start in 2021.

Finally, the feedback collected during and after the **meat trial**'s demonstrations, gave answers to the common questions as it is visible on the graphic below:



As it is visible from the graph, some participants disagreed with the statement given in the questionnaire, and they were in most cases related to public authorities and press, which means they may not have a clear picture of farmer's needs that should be addressed with the solution.
General answers were very positive about the functionality of blockchain in the food chain and included:
• To the question "Are you willing to pay more for a food product if you know information from the farm?" 90% of the respondents answered yes,
• To the question "Would you willing to pay more for a product if they assured animal welfare assessment?", all of the respondents answered yes (100%),
• To the question "Would you like to talk directly with the farmer or even know him?", 75% of the respondents answered yes.
Due to the nature of the demonstrations and the tool used to organize webinars, some UCs were only able to have a small questionnaire for the participants at the end of the webinar. 53 of the participants provided their feedback in this way.
42% of the people that filled in the questionnaire were not pig farmers and did not judge the usefulness of the proposed solutions. 68% of the farmers found the presentation of the slaughterhouse data useful. The dashboard was thought to be useful by 37% of the farmers that filled in the questionnaire and 42% felt this way about the presented early-warning systems.
During the discussion, it became clear that some of the farmers that had joined the session were farmers that applied individual-level monitoring of pigs on their farm. Because of this, they already had

quite some experience with data and data monitoring on their farm and we would expect that group-level solutions are not their main interest.
Participants wanted a next webinar to be about:
Individual-level monitoring (42%)
Insights in slaughterhouse data (42%)
Early-warning systems (33%)
Boar taint (15%)

Regarding the **replicability potential of e-commerce tools**, all participants agreed on the possibility of replicating the solution and adapting it to their herds. There is a part of replicability that is very specific, such as brand design, packaging, but it is done only once, and the cost is not very high. The part of e-commerce and digital marketing as well as the IoT devices is highly replicable since it is to perform the same actions for the different herds.

A willingness to pay for the solution is very high, and in relation to the sale mechanism, there were certain discrepancies. When a margin was proposed to farmers in relation to the sales generated by this new channel, the vast majority found it the most appropriate mechanism. They all agreed that the percentage of sales would depend on different factors (contracted services) and that this percentage should be between 10-25% of the sales generated by this channel. SensoWave presented preliminary results showing that this percentage would be covered for the most part by the increase in sales price compared to its traditional channels. One of the proposed strategies that could support the massive adoption of IoT solutions on farms is sharing costs with feed mills or distributors, to extend the savings along the value chain.
The vast majority of interviewed attendees (more than 80%) believed that it was essential to establish a communication channel with the consumer to retain them and increase sales. Everyone saw the combination of information in QR codes, social networks, and digital marketing as the perfect combination to connect with consumers.

3.5. DISSEMINATION OF THE EVENTS

The most common dissemination activities performed by all use cases are related to social media posts, news sharing, and demonstration announcements via relevant web portals. Physical demonstrations were filmed in most cases, so recorded material was used to disseminate the UCs results via YouTube or television channels. Radio interviews and podcast talks were conducted in several cases, in periods Covid19 pandemic restrictions were more relaxed.

Finally, press releases and scientific articles were published in various industry journals.

3.6. USE CASE DEMONSTRATION ACTIVITY PLANS

This section brings all demonstration activities plans, provided by all IoF2020 UCs.

TRIAL 1

Topic: **UC:**	**"Digi-PILOTE"** **UC 1.2 (Precision Crop Management)**
Event overview	• *Initially planned as a field event on Nov. 17th 2020, it has been postponed and replaced by a webinar on Jan. 7th 2021*
Constraints	*none*
Planned stakeholders' groups	*Expected audience: > 100 people: Farmers, Advisory companies, R&D sector, researchers*
What do you want to achieve with this particular demonstration	- *Digi-PILOTE and associated research Webinar of the SmartAgriHubs project* - *The idea is to present the result obtained from Digi-PILOTE and IoF2020 results obtained these last years*
Dissemination channels envisioned	*Direct newsletter, social media, partner's websites*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Benoit de Solan – UC coordinator – b.desolan@arvalis.fr* • *Thibault Deschamps - Local logistics - t.deschanps@arvalis.fr* • *Xavier Gautier – Communication*
Feedback from participants	*Most participants say that technologies that have been developed during the project: remote monitoring of the crops from IoT and satellite systems, real time alerts and advices provision to the farmers and cooperatives, are very relevant*

Topic: **UC:**	**Initiation à l'agriculture numérique : les bases pour comprendre - Training** **UC 1.2 (Precision Crop Management)**
Event overview	• *A Webinar composed of 6 modules in January and February 2021*
Constraints	*Limited number of participants*
Planned stakeholders' groups	*Expected audience: 20 people* *Farmers, Advisory companies, R&D sector, researchers*
What do you want to achieve with this particular demonstration	- *Digital agriculture is a new lever in farms where technological contributions mingle with traditional tools to offer more effective solutions. From improving the tactical management of production with sensors to GPS applications, what are the concepts to know today in order to be able to discuss and understand these new uses. This training is offered in the form of various complementary modules.* - *This training should promote IoT solution for precision agriculture and teach participants to its benefits*

Dissemination channels envisioned	*Social media, partner's websites*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Benoit de Solan – UC coordinator – b.desolan@arvalis.fr* • *Thibault Deschamps - Local logistics - t.deschanps@arvalis.fr* • *Xavier Gautier – Communication*
Feedback from participants	*The course is considered relevant to help people to gain knowledge on how to improve on farming methods by incorporating ICT and this will promote sustainable agriculture and ensure food security in countries*

Topic: **UC:**	**Field Day** **UC 1.3 (Soya Protein Management)**
Event overview	• *Field day organized by Sipcam and Soia Italia* • *22nd July 2020 (Vicenza)*
Constraints	*Limited number of participants duo to Covid19 restrictions*
Planned stakeholders' groups	*Many soybean technicians, Sipcam sales force, and stakeholders of supply chains, e.g. agricultural processors, producers*
What do you want to achieve with this particular demonstration	*Soya protein management has proven to be in line with things considered interesting and useful in precision farming.* *This demonstration aims at introducing UCs results and presenting useful benefits of the UCs solution.* *Although the agricultural sector is not uniformly aligned on high technological standards, mainly cause its costs (combine harvesters that map productions, weather stations for monitoring environmental and soil parameters, soil maps of their fields) the objectives and solutions presented have aroused curiosity and interest.*
Dissemination channels envisioned	*Social media, partner's websites*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Demonstration Activity planning: Filippo Lazzari and Georg Spreitzer•Local* • *logistics: Filippo Lazzari flazzari@sipcam.it* • *Communication responsible –for local stakeholders: Filippo Lazzari flazzari@sipcam.it–for EU/H2020 stakeholders: Georg Spreitzer*
Feedback from participants	*It turned out that, today farmer could have many instruments that permit a good soya protein production, starting from excellent varieties with genetical high protein content (Sipcam), sophisticated electronic instruments and a software to manage the information. It's common idea that soybean production decrease with the increase of protein content, for this reason there's the need of a real support from the market (protein-content based pricing) which it's seems not yet mature enough to date.*
Topic:	**GeoJSON demonstrator**

UC:	UC 1.4 (Farm Machine Interoperability)
Event overview	• *25/11/2020 16.00 CET* • *During "ADAPT Technical Committee Meeting - Every Other Wed. 9 am Central* • *The GeoJSON ADAPT Plugin has been demonstrated with the Open-Source GIS systems "QGIS"; in the demonstrator also the ISOXML format & GeoJSON format is presented*
Constraints	*none*
Planned stakeholders' groups	*Software developers who are interested in working with agricultural data in different file formats; either proprietary or following a standard*
What do you want to achieve with this particular demonstration	*Demystifying the use of ISOXML by graphically displaying its results not only improves interoperability but also brings end-users closer to understanding the benefit of analyzing their data and not just collecting it. This means that if an FMIS offers the user to create maps and share them with their agronomist or advisor, together all stakeholders can react faster to new insights in their fields and better minimize risks.*
Dissemination channels envisioned	*Created a recording of a demonstration of the technology and uploaded this on the IoF2020 YouTube Channel.* *Contacted directly the AgGateway team leader asking them to review the uploaded recorded demonstrator and promote this video in their mailing list of their ADAPT bi-weekly technical meetings.* *Attended a virtual meeting to gather feedback from an ADAPT bi-weekly technical meeting.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Work to be divided by team members*
Feedback from participants	*Very positive feedback, many software developers see the benefits from it.*

Topic: UC:	On-farm demo UC 1.5 (Potato Data Processing Exchange)
Event overview	• *On farm demonstration for 2 farmers in Belgium & The Netherlands*
Constraints	- *No public – Covid19 restrictions*
Planned stakeholders' groups	*Only farmers (no other public)*
What do you want to achieve with this particular demonstration	*We demonstrated the solution with the traceability and the caliber measurement on two farms with real harvesters. We also produced movie made for IOF2020*
Dissemination channels envisioned	*LinkedIn, Twitter, Website AVR & Aurea & Belgian Newspaper Nieuwsblad*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible – FFPdwa*

	Local logistics – FFPdwa *Communication responsible – UC coordinator*
Feedback from participants	*Very enthusiast, with this data they can really do something interesting; But continued support is needed.*
Topic: **UC:**	**Iot4Potato IoT stations installation demonstration** **UC 1.6 (Data-driven Potato Production)**
Event overview	• *demonstration event – Ioannou family Farm pilot site in Cyprus* • *12/02/2020*
Constraints	- *No public – Covid19 restrictions*
Planned stakeholders' groups	*Farmers, Advisors, Technical support personnel. 8 persons*
What do you want to achieve with this particular demonstration	*We demonstrated the installation process of ToT4Potato stations and useful benefits of the solution*
Dissemination channels envisioned	*Demonstration event has been promoted by local partners and social media accounts.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible – FFPdwa* *Local logistics – FFPdwa* *Communication responsible – UC coordinator*
Feedback from participants	*Very enthousiast, with this data they can really do something interesting; But continued support is needed.*

Topic: **UC:**	**Online Open Day** **UC 1.6 (Data-driven Potato Production)**
Event overview	• *NEUROPUBLIC organized an online informational event on the development and operation of gaiasense-based smart farming services for potato production* • *Wednesday November 11, 2020*
Constraints	*none*
Planned stakeholders' groups	*Representatives from food industries from Poland, Ukraine, researchers from Holland, IT experts, farm managers and agronomists.*
What do you want to achieve with this particular demonstration	*The event will take place in the context of IoT4Potato (Data-Driven Potato Production) Use Case of the Horizon 2020 project Internet of Food & Farm 2020.* *In the context of the event, a presentation of the technological infrastructure and the smart farming services of gaiasense will take place, including the gaiasense-based smart farming services and the technological tools developed by NEUROPUBLIC for supporting potato production in Poland and Ukraine, in collaboration with the IoT4Potato partners.*

Dissemination channels envisioned	*Representatives from food industries from Poland, Ukraine, researchers from Holland, IT experts, farm managers and agronomists.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible – FFPdwa* *Local logistics – FFPdwa* *Communication responsible – UC coordinator*
Feedback from participants	*In general, we followed the directions provided by IoF2020 on organising such events. The demonstration event was targeting specific audience so invitations to selected individuals were send. The individuals were selected by use case 1.6 participants in Poland and Ukraine.*

Topic: **UC:**	***Διαδίκτυο των Πραγμάτων και Αγροδιατροφή στην Ελλάδα- IoF2020 (IoF2020 impact on Greek Agrifood)*** **1.6-4.5**
Event overview	*Please, indicate:* • *The Greek Internet of Food and Farms* • *Monday 7th of December, 2020* • *Go To Meeting* • *Greek participants of IoF2020 share their experience, results and lessons learnt*
Constraints	*Less than 150 people*
Planned stakeholders' groups	*Greek Research community in Agrifood, farmers, value chain stakeholders, general public*
What do you want to achieve with this particular demonstration	*Inform the community about the achievements and impact of IoF2020 project*
Dissemination channels envisioned	*LinkedIn* *Press note* *Targeted emails*
Potential collaboration with other H2020 projects	*Please indicate main components of your demonstration that can act at as a link to other H2020 projects and initiatives (e.g. Place: vineyard in Italy; Specific audience: young farmers…). We will use this information to select appropriate H2020 project/initiative and to invite representatives to attend.* *Presentations CO-FRESH project* *PLOUTOS project* *DEMETER project*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Online Demonstration Activity Main responsible – UC coordinator – Harris Moysiadis (FINT)/ Nikos Kalatzis (NP)* • *Facilitator- Ioanna Frentzou (FINT)* • *Presenter/s- Nikos Kalatzis, Harris Moysiadis, Milica Trajkovic (BioSense), Evangellos Anastasiou, Kostas Pramataris, Ioanna Roussaki, Nikos Marianos, Vassilis Psiroukis* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders – Harris Moysiadis/ Nikos Kalatzis*

	Please, have in mind that one person can be in charge for more than one topic
Feedback from participants	*Please, indicate topics you would like to be covered by feedback questionnaire. E.g.:* – *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address your needs*

Topic: **UC:**	**FEFAC ONLINE EVENT** **UC 1.7 (IoTrailer - Traceability for feed and food logistics)**
Event overview	• *24-25/09/2020* • *EU Green Deal & FEFAC Sustainability Charter 2030*
Constraints	*Due to the Covid19 measures the live event (where we initially rented a stand) was cancelled and replaced by an online event.*
Planned stakeholders' groups	*FEFAC / BFA / Feed producers / farmers / national and international animal husbandry and crops organizations / policy makers*
What do you want to achieve with this particular demonstration	*Key ambitions of the event is to showcase how the European Feed Industry can contribute to the development of more sustainable livestock and aquaculture value chains. FEFAC President Asbjørn Børsting and BFA Managing Director Katrien D'hooghe highlighted how the Charter's actions and commitments are matching the specific EU Green Deal Objectives affecting the livestock and aquaculture sectors.*
Dissemination channels envisioned	*Partners networks*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Organizational team: Liesbet Van der Perre –KU Leuven Dramco* *Local logistics: Lab for logistics technology KU Leuven* *Communication responsible Liesbet Van der Perre – for local stakeholders and EU/H2020 stakeholders*
Feedback from participants	*All participants were happy this event took place and very pleased it was managed to organise this digital event with very high quality speakers*

Topic: **UC:**	**Demo Day India** **UC 1.8 (Solar-Powered Field Sensors)**
Event overview	• *March 2020* • *Akola, India*
Constraints	*none*
Planned stakeholders' groups	*Farmers, agronomists, dignitaries, policy makers.*
What do you want to achieve with this particular demonstration	*Our Indian team had held presentations with working demo and importance of our product*

Dissemination channels envisioned	*Partners networks*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Technology demonstration by Solarvibes, demonstration event organized by USAMVT*
Feedback from participants	*Language requests, difficulties to operate smartphone, sms based notifications wanted*
Topic: **UC:**	**Demonstration workshop** **UC 1.9 (Within-Field Management Zoning Baltics)**
Event overview	• *24th August 2020* • *Šakiai, Lithuania*
Constraints	*Due to Covid19 related safety measures the audience was limited*
Planned stakeholders' groups	*The target audience for the demonstration was gathered according to the goals raised and consisted mainly of farmers.*
What do you want to achieve with this particular demonstration	*Three major goals were raised for current demonstration workshop:* *• Introduce to the project being finished* *• Demonstrate developed technology and achieved results;* *• Showcase how the final solution works and what benefits does it bring.*
Dissemination channels envisioned	*The participants were invited personally*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible –Kristina Sermuksnyte-Alesiuniene, kristina@art21.lt* *Local logistics - Tomas Žeimys, tomas@tomaszeimys.lt* *Communication responsible – Kristina Sermuksnyte-Alesiuniene, kristina@art21.lt* *Event administrator -Mindaugas Kelpša, mindaugas@art21.lt* *Event program, presentations – Laurynas Jukna, laurynas@art21.lt; Augustas Alesiunas,*
Feedback from participants	*The workshop was well received by participants as they* learnt *a lot of useful information about what can be told about crop plants in the field through hyperspectral data.* *• We received very positive feedback about application of the developed technology and how user-friendly the system is.*

TRIAL 2

Topic: **UC:**	**"Information market Agri- and Horticulture – organized by the province of East-Flanders"** **UC2.1 (Gazing Cow Monitor)**
Event overview	• *At first, there was a presentation about the successes of the short-chain and also a short presentation about the Outdoor Location Tracking-service in which the video was showed.* • *Afterwards, there was a stand at the market where the attendees could come over for more information.* • *After the event took place, there was also an article written about it.* • *The event took place on the 28th of January 2020 in Geraardsbergen*
Constraints	*none*
Planned stakeholders' groups	*There were about 100 attendees from different sectors: industry, farmers, media,…*
What do you want to achieve with this particular demonstration	*Raise awareness amongst the rural sector (in particular dairy but also the wider body in terms of the entire IoF project) to ensure that the benefits and impact of the developed technologies can be understood and adopted by stakeholders within this sector*
Dissemination channels envisioned	*Direct newsletter*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: Niels Molenaar nielsm@connecterra.io* • *Facilitator: Niels Rutten nrutten@connecterra.io* • *Presenters: Yasir Kokhar ysk@connecterra.io and Jan Jaap Kuijpers janjaapk@connecterra.io* • *Communication responsible: Jan Jaap Kuijpers*
Feedback from participants	• *Most questions came from customers, exploring extra application area's to improve traceability or to make the food products more visible.*
Topic: **UC:**	**Inspiration session Connecterra & Ida training session** **UC2.2 (Happy Cow)**
Event overview	• *Inspirationsession Connecterra & Ida training session* • *20th October 10 a.m* • *27th October* • *Microsoft Teams* • *Ida for farms (app and dashboard)* • *Ida for enterprise*
Constraints	*Closed session as a joined effort from Connecterra and Semex (a genetics company)*
Planned stakeholders' groups	*Sales representatives of Semex in the Netherlands and Denmark.*
What do you want to achieve with this particular	*Semex is an official dealer of Connecterra's Ida. Therefore, we would to make the sales representatives familiar with Ida for farmers and*

demonstration	*Ida for enterprise. And off course as enthusiastic as we are to sale Ida to farmers.* *It will be two events, due to the Corona pandemic both online. The first will be an inspirational session with our CEO and co-founder. He will present the vision of Connecterra, why we developed Ida and where we want to go in the next 5 years.* *The second will be a training session. Here our account manager for Western Europe will present Ida for farmers and explain how the system works. First of all we want to make the attendees familiar with how Ida for farmers works and what the differences are with competitors. What is detects, what information it presents and how to navigate the app. Next he will discuss Ida for enterprise and show how this can be used to share data between a farmer and his partners, like a genetics company e.g. Semex. Here we would like to how Ida for enterprise could give Semex more insight in how the farms of their clients are run. Ideally we will learn what the sales representatives of Semex could use in their talks to clients and how Ida for enterprise could help them.*
Dissemination channels envisioned	*Direct mail through the headquarters of Semex in the Netherlands.*
Potential collaboration with other H2020 projects	*We do not really see an opportunity to collaborate with other H2020 projects.*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: Niels Molenaar nielsm@connecterra.io* • *Facilitator: Niels Rutten nrutten@connecterra.io* • *Presenters: Yasir Kokhar ysk@connecterra.io and Jan Jaap Kuijpers janjaapk@connecterra.io* • *Communication responsible: Jan Jaap Kuijper*
Feedback from participants	• *What information do you need to sale Ida to your clients?* • *What do you like the most from Ida for farmers?* • *What is your main concern with Ida for farmers?* • *What information could help you when you discuss genetics with you farmers?* • *Do you feel that Ida for enterprise could help you in your work and in what way?* • *What would you like to see added in Ida for enterprise and why do you think this would help you in your work?*
Topic: **UC:**	**Webinar: Horizon 2020 - Internet of Food and Farm (IoF2020)** **UC2.3 (Herdsman +)**
Event overview	• *Showcase current solutions and underpinning technologies, the potential for the technology to benefit the Scottish dairy sector* • *25th November 11 a.m*
Constraints	*none*
Planned stakeholders' groups	*Scientific, Industry, Civil Society, General public, Policy makers*
What do you want to achieve with this particular demonstration	*Webinar was opened with a brief overview of the IoF2020 project with a focus on the objectives and technologies, and a summary of the Dairy Trial of IoF2020.*

	Details of the University of Strathclyde-led Dairy Trial Use Case – Herdsman+ were presented, with focus on sensor technology aggregation and the benefits derived from data-driven solutions.
Dissemination channels envisioned	*Events communication chanels, Social media*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Presenters:* *Ivan Andonovic (Strathclyde University)* *Christos Tachtatzis (Strathclyde University)* *Brian Weatherup (Parkend Farm)* *Robert Sanders (GlasData)* *Craig Michie (Strathclyde University)*
Feedback from participants	*Positive communication of the importance of using on-farm data to support decisions on maintaining the health and wellbeing of dairy animals and in turn production efficiency.*
Topic: **UC:**	**FTIR Webinar: "Product optimization: what is feasible and can be realized?"** **UC2.4 (Remote Dairy Quality)**
Event overview	• *Conducted on September 29th, 2020* • *1pm – 3pm* • *Operation and use of infrared equipment for process optimization* • *Possibilities and limitations of infrared* • *Understanding of measurement results* • *Possible sources that lead to incorrect results* • *Conditions for realizing product optimization* • *Practical examples*
Constraints	*It was not possible to conduct physical workshops, so it was shifted to virtual event*
Planned stakeholders' groups	*The webinar is intended for persons with the function of QA & QC manager, process operator or laboratory technician.*
What do you want to achieve with this particular demonstration	*Demonstrate RDQ-tool's features:* *Structured approach (plan, execute, analyze results, action, is helpful to organize work.* *Better insights in trend per matrix and parameter.* *Following test results and benchmarking on level of testing person*
Dissemination channels envisioned	*.Email campaign*
Potential collaboration with other H2020 projects	-
Roles and responsibilities	*Mr Niek van Waarde – webinar host*
Feedback from participants	*Customers see the extra value of the solution. Paying for the solution is not a problem. Biggest challenge is to implement the system and use it an strict and structured way.*

Topic: **UC:**	**Hands on experience of early lameness detection through machine learning** **UC2.5 (Early Lameness Detection Through Machine Learning)**
Event overview	- *Early Lameness Detection through Machine Learning* - *10th December 2020, 12:00 CET* - *Zoom Webinar* - *Register: https://zoom.us/webinar/register/WN_fcs9yUQXTISYaw63s5dj9A* - *Machine learning techniques, Practical trial deployment.* -
Constraints	*none*
Planned stakeholders' groups	*Farmers, representatives, Technology providers, media, general public*
What do you want to achieve with this particular demonstration	*Disseminate a practical experience of deploying machine learning techniques in agricultural environment.*
Dissemination channels envisioned	*Through WIT social media targeting AgriTech practitioners across EU via national and international projects (e.g. SmartAgriHibs, DEMETER, VistaMilk)*
Potential collaboration with other H2020 projects	-
Roles and responsibilities	• *Online Demonstration Activity Main responsible – Paul Malone WIT* • *Presenters: Mohit Taneja (WIT), Paul Malone (WIT), Eyal Misha (ENGS)* • *Communication responsible – Paul Malone (WIT)*
Feedback from participants	*- The functionalities are easy to understand* *− Usefulness of presented technologies* *− The functionalities are easy to understand*
Topic: **UC:**	**Stakeholder's meeting** **UC2.6 (Precision Mineral Supplementation)**
Event overview	*The physical meeting was conducted in Denmark, at Heden Jersey in May 30th, 2020* *Pitstop+ system was demonstrated to sales advisors*
Constraints	*The meeting was for invited persons only*
Planned stakeholders' groups	*9 participants – industry and customers*
What do you want to achieve with this particular demonstration	*The meeting was for demonstrating the Pitstop+ system to sales advisers, i.e. people that sell mineral feed supplements to farmers, connected to Vilofarm and Vilomix.*
Dissemination channels envisioned	*Personal invitations*
Potential collaboration with other H2020 projects	-
Roles and responsibilities	*Henning Foged, general coordination* *Inga Berzina and Raimonds Jakovickis, LV coordination and meeting planning and follow up* *Rimatas Stakauskas, LT coordination and meeting planning and follow up* *Ole Lamp, DE coordination and meeting planning and follow up*
Feedback from participants	*The meeting was very positive, but the result was a*

	disappointment, and it turned out that none of the persons participating in the meeting was committed to recommend the Pitstop+ concept to their dairy farmer clients. We have later on, via an external marketing consultant, contacted some of the participants, which had all kind of excuses, like "I am in lack of a one-pager product card with the main information I can give to the farmers", or "I have discussed it with 3 farmers, and 2 of them showed interest and said they would discuss it with their farm nutrition adviser". *Considering this and other information we have, our own conclusions are that* • *we need to look for other sales channels, which we found;* • *the sales advisers are thinking very short-sighted and fear (with good reason) that use of Precision Mineral Supplementation means lower sales volumes on TMR minerals, and they do not have perspective enough to understand that they in turn can sell extra, high value mineral feed supplements for transition cows and get benefits via more satisfied clients; and* • *The sales advisers will not take the risk of a new product – to keep their high trust from their farmers clients, they stick to recommend them solutions that are safe and well-proven, and with immediate effect on their own sales volume.* *Therefore, despite the result was negative, the lessons* learnt *by this event was very high.*
Topic: **UC:**	***Stakeholder's meeting*** **UC2.6 (Precision Mineral Supplementation)**
Event overview	*The second physical meeting was conducted in Denmark, at Heden Jersey in September 17th, 2020* *Pitstop+ system was demonstrated to sales advisors*
Constraints	*The meeting was for invited persons only*
Planned stakeholders' groups	*7 participants – scientific background, industry representatives, investors and customers*
What do you want to achieve with this particular demonstration	*The meeting was for demonstrating the Pitstop+ system to sales advisers and potential customers*
Dissemination channels envisioned	*Personal invitations*
Potential collaboration with other H2020 projects	-
Roles and responsibilities	*Henning Foged, general coordination* *Inga Berzina and Raimonds Jakovickis, LV coordination and meeting planning and follow up* *Rimatas Stakauskas, LT coordination and meeting planning and follow up* *Ole Lamp, DE coordination and meeting planning and follow up*
Feedback from participants	

	The meeting at the testbed followed a conventional meeting with Viking Denmark. *The demo event was followed by a third meeting, where it was decided that Viking Denmark as a potential dealer would proceed in the way that they wish to organise further testing in cooperation with SEGES. This is well underway, and the cooperation has wide perspectives because Viking Denmark is owned and trusted by all Danish dairy farmers, with activities that comprise insemination services to all dairy farms in Denmark (as well as Sweden and Finland).*
Topic: **UC:**	**Demonstration for Latvian Holstein Association** **UC2.6 (Precision Mineral Supplementation)**
Event overview	*The concept of Precision Mineral Supplementation was demonstrated for members of Latvian Holstein Association on July 30th, in Latvia*
Constraints	*Only members of LHA were allowed*
Planned stakeholders' groups	*Participants were 20 dairy farmer members of Latvian Holstein Association.*
What do you want to achieve with this particular demonstration	*Demonstrate Pitstop+ solution to potential customers (sales)*
Dissemination channels envisioned	*The event was promoted in a newsletter to members of the Latvian Holstein Association.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Henning Foged, general coordination* *Inga Berzina and Raimonds Jakovickis, LV coordination and meeting planning and follow up* *Rimatas Stakauskas, LT coordination and meeting planning and follow up* *Ole Lamp, DE coordination and meeting planning and follow up*
Feedback from participants	*The participants raised some questions that showed their interest.*
Topic: **UC:**	**Precision supplementation and advanced feed components for successful transitions cow management** **UC2.6 (Precision Mineral Supplementation**
Event overview	- *26th February 2021* - *International webinar*
Constraints	*none*
Planned stakeholders' groups	*231 people from 36 countries, representing dairy farmers, premix companies, research, consultants (including dairy farm advisers, veterinarians, management consultants, sales advisers,...), feed additive companies, technology providers, education, authorities, media*
What do you want to achieve with this particular	*Webinar was opened with a brief overview of the IoF2020 project*

demonstration	*with a focus on the objectives and technologies, and a summary of the Dairy Trial of IoF2020.* *Details of the UC 2.6 – Precision mineral supplementations, were presented, with focus on sensor technology aggregation and the benefits derived from data-driven solutions.*
Dissemination channels envisioned	*Social media – FB, LinkedIn, Iof2020 UC promotional site, follow-up emails, phone contact*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Henning Foged, general coordination* *Inga Berzina and Raimonds Jakovickis, LV coordination and meeting planning and follow up* *Rimatas Stakauskas, LT coordination and meeting planning and follow up* *Ole Lamp, DE coordination and meeting planning and follow up*
Feedback from participants	*We did not produce any exact statistics about the type of participants. Estimated from the registrations to the webinar, the largest group was representing premix and feed additive companies, meaning potential dealers of Pitstop+.*

Topic: **UC:**	**Moonsyst Demonstration Webinar 2020 – online** **UC2.7 (Smart Cattle Monitoring System)**
Event overview	- *Budapest, 07/01/2020* - *Agenda:* *Peter Gesler, Moonsyst CEO - The present and future of Moonsyst* *Attila Gajdics - Co-founder and managing director of lumio labs - AI and algorithms through the eyes of the user* *Piotr Kozlicki - Support partner, POL - Presents the Mooncloud* *Christian De Vries - Van Hall Larenstein, University of Applied Sciences, NL - The result of his thesis: Effect of (un) mixed ration on rumen pH and activity of dairy cattle on dairy farm* *József Taskó - Farm Manager at Your Charolais, HUN - What are the challenges that farmers face? And the solution.* *Rob Cartwright - Managing Director at Ver Facil Ltd, UK - UK market potential - LoraWan and Smart Rumen Monitoring System*
Constraints	*none*
Planned stakeholders' groups	*44 participants in total: 5 attendees with scientific background, 20 industry representatives, 2 policy makers, 2 investors and 15 potential customers*
What do you want to achieve with this particular demonstration	*Demonstrate Mooncloud to broad audience and raise awareness about the Machine learning possibilities, related do dairy production processes*
Dissemination channels envisioned	*Social media – FB, LinkedIn, Iof2020 UC promotional site, follow-up emails, phone contact*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Peter Gesler, Moonsyst CEO – webinar's host*
Feedback from participants	

	There was nothing wrong with the content, the presentations were professional, but we had some technical issues during the webinar, which caused a little discomfort for the audiences.

Topic: **UC:**	***Multi-sensor cow monitoring system - Demo*** **UC2.7 (Smart Cattle Monitoring System)**
Event overview	- *Moonsyst Smart Monitoring system for dairy and beef cattle* - *11/12/2019, 10:30 – 16:00* - *Tiszakeszi, Hungary* - *Smart Rumen Bolus Monitoring System*
Constraints	*none*
Planned stakeholders' groups	*Hungarian Charolais Breeders Association, Reseller partners from the EU., Farmers,*
What do you want to achieve with this particular demonstration	*We want to show our product to the audience on one hand with scientific and business presentations and on the other hand a local farm visit, where we can present the bolus intake process.*
Dissemination channels envisioned	*Targeted mailing to associations, social media like Facebook and LinkedIn and personal invitation by phone and email*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible – UC coordinator Marton Rajnai* *• Local logistics – Jozsef Taskó,* *• Communication responsible – for local stakeholders – Peter Gesler* *Please, have in mind that one person can be in charge for more than one topic*
Feedback from participants	- *Usefulness of presented technologies* - *The functionalities are easy to understand.* - *Suggest solution adjustments to address your needs*

TRIAL 3

Topic: **UC:**	***Webinar - Which practical solutions can Internet Of Things new technologies bring to Grape & Wine producers*** **UC 3.1 (Fresh Table Grapes Chain)** **with UC 3.2, 3.6, 4.4**
Event overview	*please see a detailed description of the demo event as presented with the UC 3.2 activity below*

Topic: **UC:**	***Webinar - Which practical solutions can Internet Of Things new technologies bring to Grape & Wine producers*** **UC 3.2 (Big Wine Optimization)** **with UC 3.1, 3.6, 4.4**
Event overview	- *A Grape & Wine webinar putting together several use cases of the fruit and vegetables trail **(3.1, 3.2, 3.6, 4.4)** has been organized and took place the **9th of December**.* - *It was held in English with simultaneous translations in French, Italian and Spanish and was the occasion for each use case to benefits from the other use cases network*
Constraints	*none*
Planned stakeholders' groups	*318 people participated to the event*
What do you want to achieve with this particular demonstration	- *Three presentations on Big Wine Optimization UC3.2 were conducted during the webinar, summarizing the overall results of this Use case* - *Participating UCs (3.1, 3.6 and 4.4) presented their results to a broad audience*
Dissemination channels envisioned	- *Event was promoted in 4 languages on Infowine on line journal specialized in viticulture and enology* - *Promotion was also made on Facebook by IOF2020, Vinidea (with newsletter in Italian, French, Spanish and English and social medial campaign sponsored add in Facebook French and Spanish + newsletter to their Spanish, French and Portuguese partners who cascade the info), LinkedIn by Wenda, Twitter by Highclere consulting, IMS Bordeaux through their specialized blog, Valoritalia through their networks and on social medial, CIHEAM through a news letter to their network, Ertus through a newsletter to their network as well as an add in a specialized viticulture journal*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Jean-Jacques Dubourdieu, Christian Germain, "New tools for monitoring vine conditions" – presenters;* *Olivier Sommier, "How to simplify your daily work using*

	Process2Wine a smart viticulture solution" – presenter; *Mario Diaz Nava, « IoT System Infrastructure» - presenter*
Feedback from participants	*Wine shipping monitorring* *85% replied the solutions are usefull for their businesses – 51% of which asked to have more information* *Remote quality control:* *72% replied the solutions are usefull for their businesses – 40% of which asked to have more information*

Topic: **UC:**	**"New IoT solutions for wine quality" - Dedicated multilingual webinar** **UC 3.2 (Big Wine Optimization)**
Event overview	• *Dedicated multilingual webinar "IoT technologies for wine quality"* • *12/06/2020* • *Platform: Gotowebinar* • *Main technologies that will be presented: remote quality control and wine shipping monitoring technologies* • *Simultaneous translation in IT; SP and FR*
Constraints	*Platform was taken for 500 people*
Planned stakeholders' groups	*Winery employee or owners, consultants/wine markers researchers*
What do you want to achieve with this particular demonstration	• *raise the awareness about the necessity of the wine makers to use our product to lower the risk of the wine to be damaged during transportation channel* • *explain how user friendly our product is to pass the barrier of a sector that is not always familiar with IoT* • *widen the audience on those precedent points.*
Dissemination channels envisioned	*Prior to webinar, promotions activities were conducted as follow :* *• Publication on Infowine.com, the viticulture and enology journal in 4 languages* *• Sponsored publication on social medial on 4 languages (see annex 5 in basecamp) organized by Vinidea* *• News letter in 5 languages sent to Vinidea – Vinideas listing* *• Promotion made by use cases partners and through IOF2020 social media* *• Promotion made in France and Spain through Vinidea partners : IFV (France), PTV (Spain)* *After the webinar, promotions activities were conducted as follow:* *• Registration made available on Infowine you tube channel in 4 languages* *• Registration announcement on Infowine.com, the viticulture and enology journal in 4 languages* *• Registration announcement on news letter in 4 languages sent to Vinidea listing* *• Registrations availability announcement on IOF2020 social media*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Online Demonstration Activity Main responsible – UC coordinator Gianni.trioli@vinidea.it* *Facilitator – giuliano.boni@vinidea.it* *Presenter/s – Dr Panagiotis Arapitsas- Gianni.trioli@vinidea.it*

	Communication responsible – for local stakeholders and EU/H2020 stakeholders - celine.caffot@vinidea.it
Feedback from participants	• *Willingness to purchase the technology.*
Topic: **UC:**	**Participation "Infowine forum web-wine-way" congress – May 12th (Italian use case)** **UC 3.2 (Big Wine Optimization)**
Event overview	• *flash talk named "PROJECT IOF2020: NEW IOT SOLUTIONS FOR WINERIES: REMOTE WINE ANALYSIS AND WINE SHIPMENT TRACKING" was given by Gianni Trioli* • *12/05/2020* • *Platform: Gotowebinar* • *Main technologies that will be presented: remote quality control and wine shipping monitoring technologies*
Constraints	*Platform was taken for 500 people*
Planned stakeholders' groups	*768 registered - Winery employee or owners, consultants/wine markers researchers*
What do you want to achieve with this particular demonstration	• *raise the awareness about the necessity of the wine makers to use our product to lower the risk of the wine to be damaged during transportation channel* • *explain how user friendly our product is to pass the barrier of a sector that is not always familiar with IoT* • *widen the audience on those precedent points.*
Dissemination channels envisioned	*Visibility on Vinideas and IOF2020 social media channels was given prior to the event*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible – UC coordinator - gianni.trioli@vinidea.it* • *Facilitator –leonorsantos@vinideas.pt* • *Presenter/s – gianni.trioli@vinidea.it* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders - leonorsantos@vinideas.pt*
Feedback from participants	- *Willingness to purchase the technology.*
Topic: **UC:**	**Participation to the congress "Enoforum web"** **UC 3.2 (Big Wine Optimization)**
Event overview	• *A dedicated speech named "PROJECT IOF2020: NEW IOT SOLUTIONS FOR WINERIES: REMOTE WINE ANALYSIS AND WINE SHIPMENT TRACKING" was given by Gianni Trioli to explain the project during the first congress day. A dedicated space for interaction with the public was left at the end of the speech.* • *05/05/2020* • *Platform: Gotowebinar* • *Main technologies that will be presented: remote quality control and wine shipping monitoring technologies*
Constraints	*Platform was taken for 1000 people*
Planned stakeholders' groups	*Winery employee or owners, consultants/wine markers researchers*
What do you want to achieve with this particular	• *raise the awareness about the necessity of the wine makers to use our product to lower the risk of the wine to*

demonstration	*be damaged during transportation channel* • *explain how user friendly our product is to pass the barrier of a sector that is not always familiar with IoT* • *widen the audience on those precedent points.*
Dissemination channels envisioned	*Visibility on Infowine Journal (plus newsletter) and social media was given to the congress*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible – UC coordinator - gianni.trioli@vinidea.it* • *Facilitator –giuliano.boni@vinidea.it – paloma.caldentey@vinidea.it* • *Presenter/s – gianni.trioli@vinidea.it* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders - giuliano.boni@vinidea.it*
Feedback from participants	• *Interaction through questions*

Topic: **UC:**	**Data Analysis Presentation** **3.2 (Big Wine Optimization)**
Event overview	*Please, indicate:* • *Presentation of results achieved within Data Analysis Big Wine Optimisation* • *11.03.2021, 14.00-15.30 CET* • *Microsoft teams* • *Main technologies that will be presented*
Constraints	*Event is a closed online demonstration to showcase results to DDD and WP2*
Planned stakeholders' groups	*Winegrower Denis Dubourdieu Domaines*
What do you want to achieve with this particular demonstration	*Sowcase results achieved within the additionaly funded action of UC 3.2 to a potential customer and WP2 representative monitoring the project implementation*
Dissemination channels envisioned	*/*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Online Demonstration Activity Main responsible – UC coordinator and Ertus representative* • *Facilitator – Olivier Sommier* • *Olivier Sommier*
Feedback from participants	*Please, indicate topics you would like to be covered by feedback questionnaire:* – *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address needs of the end users*

Topic: **UC:**	**Smart Irrigation in Small Olive Orchards** **3.3 (Automated Olive Chain)**
Event overview	- *22-23/8/2020, Chora Messinias Greece*

	- *The main technologies that were presented were related with the IoT systems that were used*
Constraints	*none*
Planned stakeholders' groups	*The participants in the event were farmers, farmers associations and agronomists*
What do you want to achieve with this particular demonstration	*AUA: inform the public, arouse the interest of private capital bodies, come in the local press* *Synelixis: Inform the general public, come in the local press, represent my organization, arouse the interest of private capital bodies, attract customers for my products* *Nileas: Inform the general public, come in the local press, represent my organization, arouse the interest of private capital bodies, attract customers for my products*
Dissemination channels envisioned	*The promotion of the demonstration event was conducted through telephone and personal invitations. The reason for choosing this approach, was to limit the number of attendants due to Covid19 restrictions. However, there was a large number of attendants and the event was conducted in two days.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	- *Demonstration Activity Main responsible –UC coordinatorAUA: Spyros Fountas, Vangelis Anastasiou* - *Local logisticsNileas: Giorgos Kokkinos* - *Communication responsible – for local stakeholders and EU/H2020 stakeholdersGiorgos Kokkinos (Nileas), Vangelis Anastasiou (AUA)*
Feedback from participants	*The demonstration event participants stated that the software must be easy to use and that the old farmers must be able to adopt modern technologies as well.* *New designs of the Graphic User Interface and of the equipment will be developed for making the IoT solution more user friendly.*

Topic: **UC:**	**Consumer Electronic Show (CES 2020)** **3.4 (Intelligent Fruit Logistic)**
Event overview	- *Consumer Electronic Show or CES2020 at Las Vegas Convention center USA* - *January 7th to 10th 2020* - *Live demo* - *IoT smart asset tracker (part of NXP Innovations in 2020)*
Constraints	*No constraint. Open to public. Happened just before Covid19 pandemic*
Planned stakeholders' groups	*CES attendees were people with scientific background (i.e engineers, researchers), industry representatives, general public, medis representatives, investors, customers and others.*
What do you want to achieve with this particular demonstration	*Showcase the latest innovations from NXP. The low cost asset tracker was one of the shortlisted demo to be showed at NXP booth in CES2020*
Dissemination channels envisioned	*Since it was a public event, all media partners were invited to it Social networks, YT -* https://www.youtube.com/watch?v=t5VhXKfrZOY
Potential collaboration with other H2020 projects	*Unfortunately, not in this event. It was targeted for global market. May be EU partners from other H2020 projects participated in this event to showcase their products & innovations*
Roles and responsibilities	*Kiran Shekhar (kiran.shekhar@nxp.com) was presenter at the event showcasing low cost asset tracker developed in the course*

	of IOF2020 project (UC3.4: Intelligent Fruit Logistics)
Feedback from participants	– *Usefulness of presented technologies* – *The functionalities are easy to understand*

Topic: **UC:**	**The DOGK or "Deutsche Obst & Gemüse Kongress" (German Fruit & Vegetable Congress)** **3.4 (Intelligent Fruit Logistic)**
Event overview	• *Dt. Obst und Gemüsekongress* • *22nd September 2020* • *Physical (Düsseldorf, Germany) and virtual* • *Innovation in Agriculture and Food Chain*
Constraints	*Only presenting people are allowed to join the physical meeting. All others can join via Webstream*
Planned stakeholders' groups	*All kind of Groups who are part of the value chain.* *Scientific, Industry and Experts*
What do you want to achieve with this particular demonstration	*Present the results of our Use Case.* *Present IoF 2020 as an European funded project.* *Have some discussions on that topic und collect Feedback*
Dissemination channels envisioned	*Website Deutscher Obst und Gemüsekonkress* *Facebook, Twitter, Xing, Instagram* *LiveStream*
Potential collaboration with other H2020 projects	*Proceed work on with other Use Cases after IoF2020.*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Deutsche Obst und Gemüsekonkressr* • *Dt. Obst ud Gemüsekonkress* • *Dr. Robert Reiche* • *Christian Schmidt* •
Feedback from participants	– *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address your needs*

Topic: **UC:**	**Coloquio sobre tecnologia para a agricultura biologica (Samuel Salgado)** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Coloquio sobre tecnologia para a agricultura biologica* • *14/01/2020* • *Herdade das Atafonas, Evora, Portugal* • *Smartomizer Fede Alpha and beta versions beverage Integrity Tracking System*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Farmers, Farmers associations, Agricultural technicians from key fields in the area*
What do you want to achieve with this particular demonstration	*Show Smartomizer technology to the audience: market education / stimulating demand.*
Dissemination channels envisioned	*web, social networks.* *Communication channels of the event.*

Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Demonstration Activity Main responsible – Samuel Salgado, Lda*
Feedback from participants	– *IoT solution features: Everyone involved was surprised with the features of the SMARTOMIZER.* – *Solution presentation: The reduction of the environmental impact was the big surprise along with the reduction on the quantity of materials used and consequent reduction of costs.*
Topic: **UC:**	**Demonstration of SMARTOMIZER technology in field** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *special Demonstration, presentation, performance,* • *date 30.04.2020. during the day,* • *location Balatnboglár,* • *Lakkos, machine Smartomizer.*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Farmers, interested parties, magazine representatives.*
What do you want to achieve with this particular demonstration	*Description and promotion of Smartomizer's novelties.*
Dissemination channels envisioned	*Lacquer distributes with personalized invitations, emails, facebook, PR articles.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Attila Bolvari- Centr Hungary,* • *Géza Kerekes – sales manager* • *Zoltan Farkas local logistics,* • *liaison responsible Szilvia*
Feedback from participants	*IoT solution features:* – *Testing, functionality and usefulness are examined.* – *In agriculture, APP and IoT can be understood, interpreted, and differentiated by the farmer with separate prior learning, which is difficult for him at first.* *Solution presentation:* – *The SMARTOMIZER tablet and cloud can only be presented effectively to a small number of students with a special focus on students.* *Open field for suggestions:* – *Collaboration, new ideas contribute to the development of the SMARTOMIZER system.*
Topic: **UC:**	**Master degree "Plant Health" (Webinar, Fede).** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Master degree Plant Health webinar* • *02/06/2020; 16:00 – 17:00* • *Microsoft Teams* • *Smartomizer Fede*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Agronomy students*
What do you want to achieve	*Agricultural students are very important to our communication,*

with this particular demonstration	*since in the future they will become advisors to our technology. Therefore, our objective is that they know the Smartomizer technology and the results that we will obtain this Project.*
Dissemination channels envisioned	*Master degree database*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: Iván López (ilopez@fedepulverizadores.com)* • *Facilitator: Iván López (ilopez@fedepulverizadores.com)* • *Presenter/s: Enrique Blat (eblat@fedepulverizadores.com)* • *Communication responsible: Iván López (ilopez@fedepulverizadores.com)*
Feedback from participants	*IoT solution features: Very advanced technology for the current state of special crops.* *Solution presentation: The demonstration was done online, with Microsoft Teams. This allows reaching many people, and answering their questions, with a low investment in resources.* *Open field for suggestions:* *Communication with stakeholders: Different levels of knowledge of spray technology in specialty crops.*
Topic: **UC:**	**Demo field of Smartomizer – H3O technology and spray control** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Fede – be SMART* • *04.06.2020 and 05.06.2020* • *Poland, Grójec (04.06 - Zbrosza Duża, 05.06 – Gołosze)* • *Smartomizer Fede*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Farmers, Producer groups*
What do you want to achieve with this particular demonstration	*Be closer to the farmers with Smartomizer technology, present this unique and modern solutions, teach operators about setup of sprayers and choice of nozzles*
Dissemination channels envisioned	*Promodis, Agrobard, Kobieta w sadzie – web, social media, privat invitations, phone invitations*
Potential collaboration with other H2020 projects	*Orchards and berries in Poland*
Roles and responsibilities	*Krzysztof Kinstler – commercial branch director Promodis Poland:* • *Preparation* • *Demonstration activities plan 7 / 8* • *Presentation* • *Feedback* *Agrobard – Piotr Głogowski – sales representative:* • *Tractor operations*

Feedback from participants	*- Modern technology* *- Setup is easier than they think* *- We are more aware about drift* *- We have no time to put data in the system (app)* *- Difficoult operations on tablet* *IoT solution features:* *• Everyone agreed that they saw a difference in the effectiveness of spraying (water sensitive papers).* *• Everyone agreed that they saw less spray drift compared to their current technology* *• Almost everyone said that the visible reduction of drift will improve the effectiveness of the procedure, and this in turn will improve the economy of production.* *• Everyone agreed that the right choice of nozzles and wind quantity and quality supported by the Fede system is more feasible for them than without this system. Growers need training, support and control.* *• Each participant was very sceptical about functionality and simplicity of use.* *• The majority of participants claimed that this technology is not for them.* *• It is very difficult to talk to the hard beliefs of farmers, their knowledge is passed on from generation to generation despite the fact that the technology and economic environment change*
Topic: **UC:**	**Webinar "Connectivity in high value crops: Smartomizer"** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Connectivity in high value crops: Smartomizer* • *11/06/2020; 17:00 – 18:00* • *Microsoft Teams* • *Smartomizer Fede & SCG*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Fede dealer network and agronomists.*
What do you want to achieve with this particular demonstration	*Train the distributors of our network and the technicians in the Smartomizer technology so that they know the advantages and results of this project.*
Dissemination channels envisioned	*Newsletter*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: Iván López (ilopez@fedepulverizadores.com)* • *Facilitator: Iván López (ilopez@fedepulverizadores.com)* • *Presenter/s: Fede Pérez (fperezt@fedepulverizadores.com)* • *Communication responsible: Iván López (ilopez@fedepulverizadores.com)*
Feedback from participants	*For the Fede dealers it is an interesting added value at a commercial level to have this technology.* *For agricultural technicians the willingness to pay is very high, since they obtain traceability of the phytosanitary treatments carried out, in addition to reducing the dose of product applied.*

Topic: **UC:**	**Webinar "Efficient application and treatment."** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Efficient application and treatment.* • *17/09/2020; 10:00.* • *Microsoft Teams* • *Smartomizer Fede and calibration.*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Fede's customers in Peru: Technicians and farm managers. Farmers who do not use Fede's sprayer also attend.*
What do you want to achieve with this particular demonstration	*Peru is an important country in specialty crops, therefore it is an important market for Fede Pulverizadores. Our objective is to publicize the Smartomizer H3O technology, as well as the importance of calibration to achieve an effective and efficient treatment, respectful with the environment and that improves the agri-food safety of crops.*
Dissemination channels envisioned	*Newsletter and social media from Litec company.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: Iván López (ilopez@fedepulverizadores.com)* • *Presenter/s: Roberto Grau (rgrau@fedepulverizadores.com)*
Feedback from participants	*Digitization is a necessary step to optimize resources (PPP, fuel, etc…) and improve agri-food safety* *The need to acquire this technology increases as regulatory pressure to reduce the use of PPP grows. It is also necessary in large farms to reduce costs.* *Possibility of implementing the data generated by the SMARTOMIZER H3O and the Specialty Crops Platform in ERPs or different farm management software.*
Topic: **UC:**	**Demonstration of SMARTOMIZER technology in field** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Demonstration in the citrus field* • *30/10/2020* • *Herdade do Outeiro em Odivelas, Ferreira do Alentejo, Portugal* • *Smartomizer Fede*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Farmers*
What do you want to achieve with this particular demonstration	*Show the advantages of digitalization through H3O and SCG technologies.* *Show proper application techniques to reduce drift.*
Dissemination channels envisioned	*Directly to Samuel Salgado company network.*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Demonstration Activity Main responsible – Samuel Salgado, Lda (samuelcaldeirasalgado@gmail.com)*
Feedback from participants	

	The first impression, some costumers doubt the system and the advantages of SMARTOMIZER. After they are interacting with the system H3O and seeing the benefits, they have been more receptive to this technology. Some customers comment on the difficult change from a mechanical to digital system. However, seeing the system so intuitive, they believe that it will be a little time to get used to the technology. *In agribusiness profitability systems have already been developed for a long time while in agriculture they are not. Therefore, this system will meet the needs of the growing demand.* *It is ambitious system, it makes perfect sense, saves water, reduces costs, and helps to environmental.*
Topic: **UC:**	**Demo field of Smartomizer – H3O technology and spray control** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Fede – be SMART* • *18.11.2020* • *Poland, close to Grójec – Tworki 5/6, 05-604 Jasieniec, Poland* • *Smartomizer Fede + set up configuration*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Farmers only*
What do you want to achieve with this particular demonstration	*Explain Smartomizer technology, present this unique and modern solutions, teach operators about setup of sprayers and choice of nozzles* *Explain how to use sprayer with tree nursery – to not overspray.*
Dissemination channels envisioned	*Promodis, Agrobard – web, social media, privat invitations, phone invitations*
Potential collaboration with other H2020 projects	*Orchards and tree nursery in Poland, also berries producers*
Roles and responsibilities	*Krzysztof Kinstler – commercial branch director Promodis Poland:* • *Preparation* • *Feedback* • *Tractor operations* *Agrobard – Łukasz Stążecki – sales representative:* • *Tractor operations*
Feedback from participants	*- We need less water and chemicals.* *- It is very modern technology with setup which is easier than they think.* *- We are more aware about drift.* *- We have no time to put data in the system (app).* *- Difficult operations on tablet.* *- Sprayer is very light to pull / less power than they actual sprayers.*
Topic: **UC:**	**Demonstration activity – Fede and Alfersan** **3.5 Smartomizer - Smart Orchard Spray Application**
Event overview	• *Presentation of Smartomizer technology – Fede and Alfersan* • *18.11.2020*

	• *Beronia cellars in: Camino de la Peña, s/n, 47490 Rueda, Valladolid* • *Smartomizer Fede + set up configuration*
Constraints	*No particulars constraints*
Planned stakeholders' groups	*Beronia cellars: technician, farmers* *Alfersan dealer* *"Agro en acción" television*
What do you want to achieve with this particular demonstration	*Demonstration of H3O technology of "Tecnovid Qi" mistblower – Smartomizer in Beronia field* *Presentation of calibration "My Fede" app*
Dissemination channels envisioned	*Due to the situation of Covid19, direct invitation from Alfersan.*
Potential collaboration with other H2020 projects	*Orchards and tree nursery in Poland, also berries producers*
Roles and responsibilities	*Presentation H3O Technology and smartomizer from Pulverizadores Fede* *Technical Support demonstration of mistblower in the vineyard field from Alfersan's Dealer* *Farmer from Beronia cellars, explication about your experiencie with Smartomizer and calibration of application* *Support on recorder for TV program, Castilla and Leontelevision channel*
Feedback from participants	*Smartomizer helps from office to the field. The farmers can be certified the ecological wine* *with data of traceability.* *The calibration app will need for IOS version to have greater scope.*
Topic: **UC:**	**Webinar - Which practical solutions can Internet Of Things new technologies bring to Grape & Wine producers** **UC 3.6 (B.I.T. – Beverage Intergity Tracking) with UC 3.1, 3.2, 4.4**
Event overview	*please see a detailed description of the demo event as presented with the UC 3.2 activity mentioned before*

Topic: **UC:**	**Participation "Infowine forum web-wine-way" congress – (Italian use case)** **3.6 B.I.T. – Beverage Intergity Tracking**
Event overview	• *flash talk named "PROJECT IOF2020: NEW IOT SOLUTIONS FOR WINERIES: REMOTE WINE ANALYSIS AND WINE SHIPMENT TRACKING" was given by Gianni Trioli* • *12/05/2020* • *Platform: Gotowebinar* • *Main technologies that will be presented: beverage integrity tracking technologies*
Constraints	*Platform was taken for 500 people*
Planned stakeholders' groups	*winery employee or owners, consultants/wine markers researchers*
What do you want to achieve	• *raise the awareness about the necessity of the wine*

with this particular demonstration	*makers to use our product to lower the risk of the wine to be damaged during transportation channel* • *explain how user friendly our product is to pass the barrier of a sector that is not always familiar with IoT* • *widen the audience on those precedent points.*
Dissemination channels envisioned	*Visibility on Vinideas and IOF2020 social media channels was given prior to the event*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Online Demonstration Activity Main responsible – UC coordinator - gianni.trioli@vinidea.it* • *Facilitator –leonorsantos@vinideas.pt* • *Presenter/s – gianni.trioli@vinidea.it* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders - leonorsantos@vinideas.pt*
Feedback from participants	• *Willingness to purchase the technology*

TRIAL 4

Topic: **UC:**	**IPM Fair** **UC 4.1 (City Farming Leafy Vegetables)**
Event overview	• *IPM* • *22 – 25 January 2020* • *Essen* • *GrowWise Control System*
Constraints	*Fair. Ticket needed. Signify invited relations. Open demonstration to the general public*
Planned stakeholders' groups	*Professionals from the horticultural sector or interested in vertical farming*
What do you want to achieve with this particular demonstration	*Show the functionality of the GrowWise Control System and get feedback on the functionality and wishes.*
Dissemination channels envisioned	*Stakeholders are informed by newsletters of the organization; social media (Twitter, Horti Daily, etcetera)* *https://www.hortidaily.com/article/9069904/control-system-makes-it-easier-for-growers-to-create-customized-light-recipes/* https://www.ipm-essen.de/world-trade-fair/
Potential collaboration with other H2020 projects	*GrowWise Control System*
Roles and responsibilities	*Signify Marcom is responsible and coordinating the event. Daniela Damoiseaux, Global Marcom Manager Horticulture at Signify* *daniela.damoiseaux@signify.com*
Feedback from participants	*Positive, potential customers asked already for the features we will develop in the next version.*
Topic: **UC:**	**Fruit Logistica Fair** **UC 4.1 (City Farming Leafy Vegetables)**
Event overview	• *Fruit Logistica, Berlin* • *6 – 8 February 2020* • *Berlin* • *GrowWise Control System*
Constraints	*Fair. Ticket needed. Signify invited relations. Open demonstration to the general public*
Planned stakeholders' groups	*Professionals from the horticultural sector or interested in vertical farming*
What do you want to achieve with this particular demonstration	*Show the functionality of the GrowWise Control System and get feedback on the functionality and wishes.*

Dissemination channels envisioned	*Stakeholders are informed by newsletters of the organization; social media (Twitter, Horti Daily, etcetera)* *https://www.hortidaily.com/article/9069904/control-system-makes-it-easier-for-growers-to-create-customized-light-recipes/* https://www.lighting.philips.com/main/products/horticulture/press-releases/signify-expands-growwise-control-system https://www.fruitlogistica.com/
Potential collaboration with other H2020 projects	*GrowWise Control System*
Roles and responsibilities	*Signify Marcom is responsible and coordinating the event.* *Daniela Damoiseaux, Global Marcom Manager Horticulture at Signify* *daniela.damoiseaux@signify.com*
Feedback from participants	*Positive, they see added value in dynamic lighting, asked for multiple set points a day, user experience tips, other features we will release in the next version.*
Topic: **UC:**	**HortiContact Fair** **UC 4.1 (City Farming Leafy Vegetables)**
Event overview	• *HortiContact* • *19 – 21 February 2020* • *Gorinchem* • *GrowWise Control System*
Constraints	*Fair. Ticket needed. Signify invited relations. Open demonstration to the general public*
Planned stakeholders' groups	*Professionals from the horticultural sector or interested in vertical farming*
What do you want to achieve with this particular demonstration	*Show the functionality of the GrowWise Control System and get feedback on the functionality and wishes.*
Dissemination channels envisioned	*Stakeholders are informed by newsletters of the organization; social media (Twitter, Horti Daily, etcetera)* *https://www.hortidaily.com/article/9069904/control-system-makes-it-easier-for-growers-to-create-customized-light-recipes/* https://www.lighting.philips.com/main/products/horticulture/press-releases/signify-expands-growwise-control-system https://www.horticontact.nl/
Potential collaboration with other H2020 projects	*GrowWise Control System*
Roles and responsibilities	*Signify Marcom is responsible and coordinating the event.* *Marjon van Kralingen, Global Marcom Manager Horticulture at Signify* *marjon.van.kralingen@signify.com*
Feedback from participants	*Positive, potential customers asked already for the features we will develop in the next version.*

Topic: **UC:**	**European Researchers' night** **UC 4.2 (Chain-integrated Greenhouse Production)**

Event overview	• *European Researchers' night 2020* • *27 September 2019* • *Google Meet* • *Agricultural digitalization introduction and UC 4.2. IoT platform*
Constraints	*This event doesn't have limitation, this year had a change due to Covid19 and it was celebrated online with different schools and high schools.*
Planned stakeholders' groups	*Different schools and high schools.*
What do you want to achieve with this particular demonstration	*Show the use of digital tools in greenhouses*
Dissemination channels envisioned	*Newspapers, radio and social media: Twitter (@ualmeria) and Facebook (@universidaddealmeria)*
Potential collaboration with other H2020 projects	*Nefertiti and SmartAgriHubs*
Roles and responsibilities	*UC 4.2 presented different specches about digitalization and robotics*
Feedback from participants	*Surprise about the technology used in agriculture.*
Topic: **UC:**	**Digital transformation processes for horticultural farms of Almeria** **UC 4.2 (Chain-integrated Greenhouse Production)**
Event overview	• *Bases for the digital transformation in the horticultural farm of Almería - basic and advanced training* • *17-19 November and q-3 December 2020* • *Online event* • *Main technologies that will be presented – senrors in greenhouses*
Constraints	*/*
Planned stakeholders' groups	*Growers and Agricultural engineers*
What do you want to achieve with this particular demonstration	*Inform attended on the latest technologies applied on horticulture farms - sensors, machine vision, drones and satellite*
Dissemination channels envisioned	*Cajamar, caja rural*
Potential collaboration with other H2020 projects	*Nefertiti*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Online Demonstration Activity Main responsible – UC coordinator Jorge Sanchez*
Feedback from participants	– *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address end user needs*

Topic: UC:	Presentation of VR UC 4.4 (Enhanced certification system)
Event overview	- *Presentation of VR to Villa Oppi,* - *5th of February 2020, Alseno ITALY*
Constraints	*Reserved to the winery owner*
Planned stakeholders' groups	*Potential costumer*
What do you want to achieve with this particular demonstration	*Attract customers for our products*
Dissemination channels envisioned	*N/A*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	• *Demonstration Activity Main responsible – UC coordinator* • *Local logistics Matteo Balderacchi* • *Communication responsible – Matteo Balderacchi*
Feedback from participants	*The device cost is high compared to the benefit he can get. He is not sure about the economic impact of the innovation*

Topic: UC:	VR and AR solution demonstration UC 4.4 (Enhanced certification system)
Event overview	*VR and AR solution demonstration to a wine importer from the China market* *Demo at the UQIDO quarter*
Constraints	*Reserved to the wine distributor*
Planned stakeholders' groups	*Potential costumer*
What do you want to achieve with this particular demonstration	*Attract customers for our products*
Dissemination channels envisioned	N/A
Potential collaboration with other H2020 projects	N/A
Roles and responsibilities	*Demonstration Activity Main responsible – UC coordinator* *Local logistics Matteo Balderacchi* *Communication responsible – Matteo Balderacchi*
Feedback from participants	*The budget allocated to develop the solution is function of the wine portfolio.* *It is possible to develop cheap solution during the introduction / testing of wine on the Chinese market. When the market is done, it is possible to increase the budget.* *the advantage of the approach is that the uncertainty of the benefit is low. However the trader invests only for promoting the sold wine and not for the wine-estate production.* *We used different approach compared to the wine producer case. The importer knows the amount of imported wine. He*

	knows the amount of bottles he can sell per year. He can invest 1000-1500 euro per distributed bottle. Therefore VR price is to high. He prefers to invest on simples technologies.
Topic: **UC:**	**Webinar - Which practical solutions can Internet Of Things new technologies bring to Grape & Wine producers** **UC 4.4 (Enhanced certification system)** **with UC 3.1, 3.2, 3.6**
Event overview	*please see a detailed description of the demo event as presented with the UC 3.2 activity mentioned before.*
Topic: **UC:**	**Agrotica2020** **4.5 Digital Ecosystem Utilisation (CYSLOP)**
Event overview	• *30/01/2020-02/02/2020* • *Thessaloniki, Greece* • *28th International Fair for Agricultural Machineries, Equipment and Supplies*
Constraints	*Forbidden use of posters*
Planned stakeholders' groups	*Farmers, Farming Industry, Agrifood stakeholders, Research community*
What do you want to achieve with this particular demonstration	*Let the South East European market know about the latest developments of FINT's work meet with commercial and go-to-market partners and discuss new collaborations with additional entities.*
Dissemination channels envisioned	*LinkedIn posts (FINT), FINT's Agrifood newsletter recipients, invitation email and fair's invitations sent by post*
Potential collaboration with other H2020 projects	*Demonstration will take place in FINT's booth in Pavilion 2, 1st Floor, Stand 54*
Roles and responsibilities	*Please, indicate the organizational team (Harris Moysiadis tmoysiadis@f-in.gr , George Bogdos, gbogdos@f-in.gr), Nikolaos Zotos, nzotos@f-in.gr) – contact points for following topics:* • *Demonstration Activity Main responsible – Harris Moysiadis, tmoysiadis@f-in.gr* • *Technical Issues, Nikos Anastasiadis – nanastasiadis@f-in.eu* • *Communication responsible – for local stakeholders Melianeta Kafyra, mkafyra@f-in.eu* *Communication responsible for EU/H2020 stakeholders- Ioanna Frenztzou, ifrentzou@f-in.eu*
Feedback from participants	*Booth visitors were given a short pitch about IoF2020 4.5 trial and later they had a hands-on tour on the IoT platform currently in place and the sensors deployed in Slovenia and Cyprus. Next steps were also discussed and contacts made to continue updating the ones that were interested. Overall, there was massive participation at the booth more than 200 people stopped by and discussed while more than 50% left contact details. Also, survey responses were very encouraging although this response rate was a less than 10% but it is excusable in such a busy Fair.*
Topic: **UC:**	**Technology demonstration** **4.5 Digital Ecosystem Utilisation (CYSLOP)**

Event overview	*Eleven (11) field visits organized by Pilot Orchestrators to deploy, demonstrate and discuss UC4.5 technologies* *Demo farms in Cyprus and Slovenia + new IoT deployed in Cyprus* *Main technologies presented, deployed and discussed IoT sensors and actuators deployment, QUHOMA platform to manage data, irrigation schedules and other services*
Constraints	*none*
Planned stakeholders' groups	*Farmers*
What do you want to achieve with this particular demonstration	*Engage farmers in IoF ecosystem and turn them to paying customers after the project's end*
Dissemination channels envisioned	*Private contacts*
Potential collaboration with other H2020 projects	N/A
Roles and responsibilities	*Harris Moysiadis tmoysiadis@f-in.gr ,* *Kostas Anastasopoulos, Christina Zotou, chzotou@f-in.eu – contact points for following topics:* • *Demonstration Activity Main responsible – Tomaz Bokan, tomaz.bokan@itc-cluster.com , George Adamides, gadamides@ari.gov.cy* • *Technical Issues, Kostas Anastasopoulos, kanastasopoulos@f-in.eu* *Communication responsible – Harris Moysiadis tmoysiadis@f-in.gr*
Feedback from participants	*Useful sensor data, maps also of great help, farm calendar extends the monitoring to management of the farm, interoperability with existing systems, excellent mobile UX*

Topic: **UC:**	**FINT sales** **4.5 Digital Ecosystem Utilisation (CYSLOP)**
Event overview	*Face-to-face meetings with interested customers arranged by the sales team - September-December 2020*
Constraints	*DGPR*
Planned stakeholders' groups	*Farmers, Farmin industries*
What do you want to achieve with this particular demonstration	*After validation of potential customers' interest for FINT's hardware then presentations on the software followed in order to close the deal.*
Dissemination channels envisioned	*Private contacts* *Field visits, telephone contacts*
Potential collaboration with other H2020 projects	*N/A*
Roles and responsibilities	*Harris Moysiadis tmoysiadis@f-in.gr , George Bogdos, gbogdos@f-in.gr), Nikolaos Zotos, nzotos@f-in.gr – contact points for following topics:*

	• *Demonstration Activity Main responsible – Panagiotis Katses, pkatses@f-in.eu* • *Technical Issues, Harris Moysiadis, tmoysiadis@f-in.eu Communication responsible – Panagiotis Katses, pkatses@f-in.eu*
Feedback from participants	*Feedback is very encouraging, 40 offers already sent and first pre-paymenrs are expected within December so projects start early next year.*
Topic: **UC:**	**OPEN STUDY TOUR Slovenia** **4.5 Digital Ecosystem Utilisation (CYSLOP)**
Event overview	*- Demonstration on "OPEN STUDY TOUR Slovenia"* *- 11.09.2020* *- Murska Sobota, Slovenia* *- Study tour of Institutions, Universities and Companies*
Constraints	*None*
Planned stakeholders' groups	*Researchers and SME representatives, technology providers, other interested parties*
What do you want to achieve with this particular demonstration	*Inform target groups about IoF 2020 project, specifically about 4.5 trial, usecase Cyslop, raise awareness on ITC and Digital Innovation* *Hub AGRIFOOD's activities, present the demo cases in Slovenia and* *Iot Devices on Slovene farms, current users' status and the next steps in deployment of IoT technology and software use.*
Dissemination channels envisioned	*/*
Potential collaboration with other H2020 projects	*We received a proposal by Technology park Ljubljana to present the topics of the CYSLOP IoF2020 project on one of their Study tours in Slovenia.* *The TPLJ as also other participants of the tour are partners in many EU projects dealing with various technology topics.*
Roles and responsibilities	*Demonstration Activity Main responsible –* *Tomaž Zadravec,* *tomaz.zadravec@itc-cluster.com* *Technical activities,* *Tomaž Bokan* *tomaz.bokan@itccluster.com*
Feedback from participants	*Participants have received a general presentation of the project activities and detailed summary of activities performed in Slovenia. Furthermore, a presentation of used equipment was carried out including demonstration of user interface that is used by the farmers in project.* *The general feedback was very positive since the development of farming technology especially for smaller farmers is considered as very important and required.*

TRIAL 5

Topic: **UC:**	**Webinar: Towards a better pig farm management with data** **UC5.1 Pig farm management**
Event overview	- *14 January 2021, 19:00 – 20:30 CET* - *ZLTO webinar platform* - *Results of the use case 5.1 (pig farm dashboard, early warning systems, slaughterhouse data reporting and link with barn data)*
Constraints	*Open registration* *The event is in Dutch*
Planned stakeholders' groups	*Farmers from Belgium and the Netherlands and other interested stakeholders*
What do you want to achieve with this particular demonstration	*Spread the results and create awareness*
Dissemination channels envisioned	*ZLTO newsletter, Evonik and ILVO channels, IOF2020 channels*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	• *Online Demonstration Activity Main responsible: UC coordinator – Jarissa Maselyne jarissa.maselyne@ilvo.vlaanderen.be & Chari Vandenbussche Chari.Vandenbussche@ilvo.vlaanderen.be* • *Facilitator - Aarts-van de Loo, Daniëlle danielle.aarts@zlto.nl* • *Presenter/s – Jarissa, Chari, Toon Leroy toon.leroy@porphyrio.com and Saartje Linssen saartje.linssen@porphyrio.com* *Communication responsible – for local stakeholders and EU/H2020 stakeholders : Aarts-van de Loo, Daniëlle danielle.aarts@zlto.nl*
Feedback from participants	*Usefulness of presented technologies* • *The functionalities are easy to understand.* • *Suggested future developments*
Topic: **UC:**	**IoT Based Poultry Chain Management** **UC5.2 Poultry Chain Management**
Event overview	*Date and time: December 2020* *• Place: Webinar* *• Main technologies that will be presented: o Environmental wireless devices for farms and transport o Dynamic scales for farms o Smart Farm Assistant* *o Farms environmental conditions assistant o Value chain data visual representation*
Constraints	*The event was expected to be held in the first semester of 2020, but*

	it has to be postponed due to Covid19 pandemic for December 2020.
Planned stakeholders' groups	*Farmers and Poultry Integrators*
What do you want to achieve with this particular demonstration	*This one-hour webinar will present the different advances developed in recent years thanks to the digitization that is being carried out. producing in the sector, allowing a greater knowledge of each exploitation and an improvement in the results.*
Dissemination channels envisioned	*Email invitations*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	*Demonstration Activity Main responsible –UC coordinatorJarissa Maselyne – jarissa.maselyne@ilvo.vlaanderen.be•* *Local logistics – ILVO communication unit* *Communication responsible – for local stakeholders and EU/H2020 stakeholders –ILVO communication unit*
Feedback from participants	
Topic: **UC:**	**FIWARE AgriFood DAY - Towards Sustainable AgriFood Value Chains Through Digital Transformation** **UC5.3 Meat Transparency And Traceability**
Event overview	- *Thu, November 12, 2020* - *2:00 PM – 4:30 PM CET* - *Online event*
Constraints	*none*
Planned stakeholders' groups	*Private and public businesses, and system developers operating at different levels in the agrifood field*
What do you want to achieve with this particular demonstration	*The demonstration was to showcase the ways in which the collaboration of UC5.3 and WP3 and its Oliot Mediation Gateway is fostering the integration of the two major data sharing standards, the FIWARE NGSI standard and the GS1 EPCIS standard in developing intelligent applications and transparency systems the agrifood value chain*
Dissemination channels envisioned	*Events communication canals (Social media)* *https://www.eventbrite.com/e/fiware-agrifood-day-tickets-126066411029#*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	*Presenter : Yalew Kidane, Ph.D.* *Candidate, KAIST*
Feedback from participants	*Usefulness of presented technologies* *The functionalities are easy to understand.* *Suggested future developments*
Topic: **UC:**	**Datagri 2020 online** **UC5.4 Decision-Making Optimisation in Beef Supply Chain**
Event overview	*Datagri 2020 online* *16th to 20th November 2020*
Constraints	*none*
Planned stakeholders' groups	*More than 1000 people reached, more than 100 connected during SensoWave presentation*
What do you want to achieve with this particular demonstration	*The event included an interactive demonstration where the audience, acting as a consumer, thanks to the survey the respondents gave the information coming from the scanning of the*

	QR code of a meat product. The aim was to obtain consumer feedback on the type and format of the information provided to the consumer.
Dissemination channels envisioned	*The entire event is recorded and shared in YouTube https://www.youtube.com/watch?v=3y-QU5LYM-k&feature=youtu.be&ab_channel=DATAGRI2*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	*Demonstration Activity Main responsible – Ignacio Gomez (SensoWave, UC Coordinator)* *Local logistics – Frederic Le Bris (Applifarm)* *Communication responsible – Frederic Le Bris(Applifarm)*
Feedback from participants	*The results we could obtain from the survey are described below:* *• 30 people answered the survey from who, 4 were related to public authorities, 4 to technological companies, 1 to agri-food industries, 3 to press, 8 to research and universities and the rest not specified.* *• The answers were very positive about the functionality of blockchain in the food chain and included:* *• To the question "Are you willing to pay more for a food product if you know information from the farm?" 28 respondents answered yes, 2 respondents answered no.* *• To the question "Would you willing to pay more for a product if they assured animal welfare assessment?". All (30) respondents answered yes* *• To the question "Would you like to talk directly with the farmer or even know him?". 20 respondents answered yes, 10 no.* *• Free comments and suggestions included to add nutritional information and not only the animal information, to identify which data is collected under blockchain and IoT and which is not and finally one respondent ask to use a less technical language.*

Topic: **UC:**	**UC webinar for Famers cooperatives, Agrifood companies, researchers and IoF2020 community** **UC5.4 Decision-Making Optimisation in Beef Supply Chain**
Event overview	- *Event title: Beef producers. How much information we want to share?* *Possibilities of traceability blockchain platform for beef products* - *Date and time: December 2020* - *Platform: Zoom*
Constraints	*No restrictions in the number of people that can/might be invited Online event.*
Planned stakeholders' groups	*Farmers associations, meat and beef factories (El Pozo, Mercamadrid...) Breed associations (ACRUGA, AVILEÑA,...), public bodies, researchers and IoF2020 community*
What do you want to achieve with this particular demonstration	*Demonstrate the technical, administrative and business possibilities based on the tools developed during the project In particular, the project aims to raise interest in and benefits from the benefits of data exchange between the different agents in the meat production chain.*
Dissemination channels	*Social media – from partners: UCO, Agricolus, Natrus and IoF*

envisioned	*channels*
Potential collaboration with other H2020 projects	*Other H2020 projects are welcome.*
Roles and responsibilities	*Online Demonstration Activity Main responsible – UC coordinator (Sensowave)* *• Facilitator: Sensowave* *• Presenter/s: UCO + Agricolus + SensoWave* *• Communication responsible – for local stakeholders and EU/H2020* *stakeholders – Sensowave*
Feedback from participants	*A feedback questionnaire will be provided to assistants trying to understand the* *impact of data sharing for assistants with this kind of questions* *- Would you like to have a regulation about data property at EU level?* *− What kind of data is interesting for your business?* *− Do you want to share your data?* *− Why do not you share your data?* *− What is your preferred data sharing model?* *− Suggest solution adjustments to address your needs*

Topic: **UC:**	**IOFEED: Smart Feed Supply Chain** **UC5.5: Feed Supply Chain Management**
Event overview	- *INSYLO: Digital Animal Feed Supply Chain* - *4th March, 2021* - *Google Hangouts* - *Vendor Managed Inventory by using INSYLO*
Constraints	*There will be no restrictions on the number of people.*
Planned stakeholders' groups	*It will be specific directed for the Lantmännen's farmers. It will be a closed online demonstration, where we will do the actors on-board, and we will take profit from this opportunity to gather some additional sales insights.*
What do you want to achieve	*Inform the Lantmännen's farmers about the project, the solution and set the basis for a presales approach to the Swedish market.*
Dissemination channels envisioned	*.We will invite directly the farmers through the channels Lantmännen could offer us. We will consider if we open the event to the farmers participating into the pilot or we look for a wider audience from Lantmännen's clients.*
Potential collaboration with other H2020 projects	*We do not see clear collaboration with other projects.*
Roles and responsibilities	*Online Demonstration Activity Main responsible – UC coordinator – Jaume Gelada jaume.gelada@insylo.com* *Facilitator, Presenter, Communication responsible - Daniel Mount Daniel.mount@insylo.com*
Feedback from participants	*We will get feedback from the activity by doing a questionnaire. We are interested in:* *Usefulness of presented technologies* *The functionalities are easy to understand.* *Suggest solution adjustments to address your needs*

	Identify processes where the technology could add value *Assess price sensitivity of the solution*

Topic: **UC:**	**"FITPigs" Demo** **UC 5.6 (Farm Internet Tracking of Pigs)**
Event overview	- Date: 26 February at 15:30h - Webinar: https://meet.google.com/zve-fcni-jdb?authuser=0&hl=es - Technology that will present: ears tags, gateway and application for the final users.
Constraints	*The first pilot we made is on a farm in Sweden. Access to the Vindfälle farm is restricted, a limited number of people can attend.* *Due to the exceptional conditions of the Covid19, the planning of the demonstration has been modified.* *The plan for this demo will be a presentation to show the current solution (SmartSpot Gateway 2.0 + ear tag v3.0 + app), to show the online data viewer of the environment and atmospheric conditions inside the delivery room and a video to show how the set works, how the farmer uses it and how the data can be visualized in real-time.*
Planned stakeholders' groups	*The main thing is to identify end-users of the product, IoT technology provider, Interest organizations and the scientific community.* *For this reason, the idea is to invite stakeholders from the meat industry, for example, Important Meat Company of Murcia: El Pozo https://www.elpozo.com/, or Incarlopsa to give them a virtual demonstration and have a meeting with them.*
What do you want to achieve with this particular demonstration	*We want to show with the demonstration that the main objective of the use case is fulfilled (livestock health monitoring). The idea for the demo is to show and inform the public about how the technology works and the advantages of using the product on farms.* *The main objective in the DEMO is to present to the public the advantages of monitoring the health, farrowing and behavior of pigs and this data can be used to create an alarm based on the context and also to assist in decision support.* *The idea is to prepare an agenda with potential stakeholders, users, veterinarians to gather them in a webinar to all interested parties and present the product, show how we collect the data, the application and a dashboard. And show them a virtual demonstration of the solution made during these months* *To perform the demonstration, several physical components will be used, in this case, we use ears tags to obtain the activity of the pigs, we use Bluetooth technology to collect information from the ears tags through a gateway (this gateway sends data to the cloud through WIFI connection and has the functionality of monitoring environmental conditions and air quality) and we have a livestock management platform (application for farmers and veterinarians).*

	Physical components: *Ear tag* *Gateway (WiFi and GPRS connectivity, LoRa, NB-IoT)* *Place: Pig farm in Sweden.* *Audience: first-time users of the products* *.*
Dissemination channels envisioned	*The interaction with the stakeholders will be carried out through a live chat with email, social media, etc. For this aim, the communication materials utilized will be:* • *Photos of the previous visits and events.* • *Links to other publications and resources related to FITPig (third parties and other IoF2020 projects).* • *Links to news reports and content about FITPig progress published on blogs and IoF2020 website.* • *Audiovisual contents (animations, interviews and other promotional videos).* • *Posts.* • *Brochures, data sheets and posters.*
Potential collaboration with other H2020 projects	*/*
Roles and responsibilities	*Demo Participants:* *HOPU. -* ***Antonio Jara****, email: jara@hopu.eu. Provider of technology (gateways) and use case coordinators.* *CSEM. -* ***Stephan Dasen****, email: stephan.dasen@csem.ch. Provider of technology for the demonstration (ear tag).* *Digitanimal. -* ***Ignacio Gomez****, email: imaqueda@digitanimal.com. Design of the application to be presented in the demonstration.* *SLU. -* ***Anders Herlin****, email: anders.herlin@slu.se. In charge of executing animal studies* *Contact points for the following topics:* • *Demonstration Activity Main responsible – The company HOPU and as coordinator of the use case Antonio Jara Valera will be in charge of organizing the demonstration activity.* • *Local logistics. - SLU is the company that will perform the studies on the pigs. As a local contact person: Anders Herlin* • *Communication responsible – The company responsible for communication is DigitAnimal. contact person: Ignacio Gómez*
Feedback from participants	*The topics that we would like to be covered by the questionnaire would be:* • *The functionalities are easy to understand.* • *Suggest solution adjustments to address your needs.* • *Replicability potential.* • *The usefulness of presented technologies.* • *Objective achieved.* • *Product Design.* • *Organization of the event.*

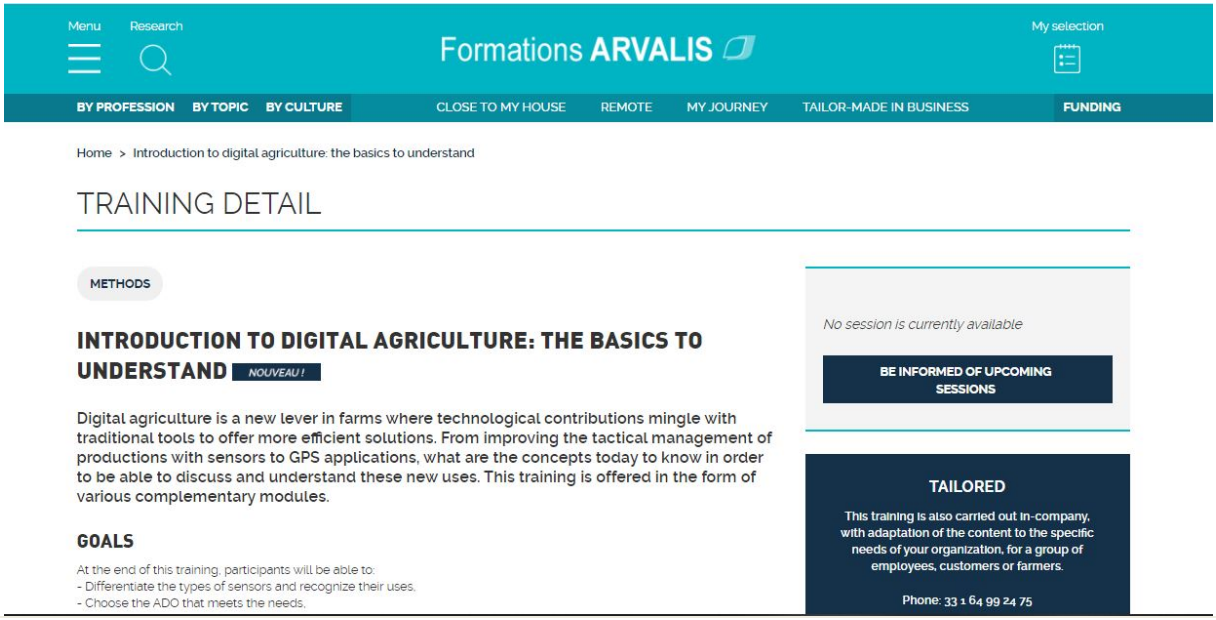
3.7. CONDUCTED DEMONSTRATION ACTIVITIES – DETAILS, LESSONS LEARNT, FEEDBACK FROM THE QUESTIONNAIRES

UC1.1 – Within-Field Management Zoning	
Event overview	*All live demonstrations in 2020 were cancelled, together with international conferences and fairs that were planned for this reporting period.* *UC 1.1 used different websites (such as https://www.proeftuinprecisielandbouw.nl/) to heavily disseminate it's results and promote IoF2020 project, through webinars and interactive videos.*
Planned stakeholders' groups	*All activities were intended for broad audience, but most dissemination channels are mainly followed by industry actors - farmers, researchers, engineers, investors, potential customers, policy makers, and media representatives*
What do you want to achieve with this particular demonstration	*All dissemination activities, such as social media post, publications of article magazines and podcasts had were intended to promote UC's specific achievements, introduce civil society with solitons provided within arable trials, and share relevant news.*
Dissemination channels envisioned	*Social media (Twitter, Facebook)* *Websites*
Feedback from participants	*Farmers and machine companies are very much interested in applying precision farming technologies with decision support*

UC 1.2 - Initiation à l'agriculture numérique : les bases pour comprendre – Training	
Event overview	*The distance training "Initiation to digital agriculture: the basics for understanding" includes;* *1. Data* *What is agricultural data and where can you find it on the farm?* *What valuation of data?* *To whom do they belong and is there an agricultural data right?* *What solutions are there to promote / secure exchanges?* *And why are we talking about blockchain in agriculture?* *2. The weather*

	The weather is a given in its own right. *What are the different weather measurement tools, how effective are they?* *How do we make forecasts and how are meteorological data inserted into digital tools?* *According to situations and needs, analysis of the most profitable tool.* *3. Sensors at the service of agriculture* *What are the different types of sensors, their output data and possible uses?* *How to distinguish sensors from vectors?* *What are the advantages / disadvantages per combination?* *In connection with concrete applications in the agricultural world.* *4. GPS in field crops* *What is GPS and how does it work?* *What are its main applications (autoguiding, section cut-off, etc.)?* *And the gain you can expect from it?* *5. Precision agriculture* *What are the operational applications (modulation of fertilizers, seed densities, weeding, etc.)?* *And what do we gain?* *6. Decision support tools* *Definition, link between models & OAD.* *Difference between tactical and strategic OAD, through 2 examples (diseases and CHN).* *Operation of an OAD and coupling with the sensors.* *What questions to ask yourself before adopting a tool?* *Distance training in 6 sequences (duration of each sequence: 2 hours). As in face-to-face, a trainer is present to lead the training with presentation, interactions with the trainers and instant quiz.*
Planned stakeholders' groups	*Technicians and advisers for development, economic organizations and agricultural supplies. Teachers.* *Training aimed at anyone in the agricultural sector. Knowledge base on agricultural systems. Following registration, each participant receives the computer prerequisites in order to check the compatibility of their equipment and to test the connection to the remote training room. To connect to each sequence, you will need a computer connected to the Internet and a headset on a USB port. We recommend using Google Chrome web browser 31 or later.*
What do you want to achieve with this particular demonstration	***Training goals:*** *At the end of this training, participants will be able to:* *- Differentiate the types of sensors and recognize their uses,* *- Choose the ADO that meets the needs,* *- Evaluate the data that is undervalued on the farm,* *- Compare the advantages / disadvantages of weather tools,* *- Describe the operation and uses of GPS* *- Evaluate the interest of modulation in precision agriculture*
Dissemination channels envisioned	*Educational networks* *Agricultural portals*

https://www.formations-arvalis.fr/initiation-a-l-agriculture-numerique-les-bases-pour-comprendre-@/view-500-arvformations.html



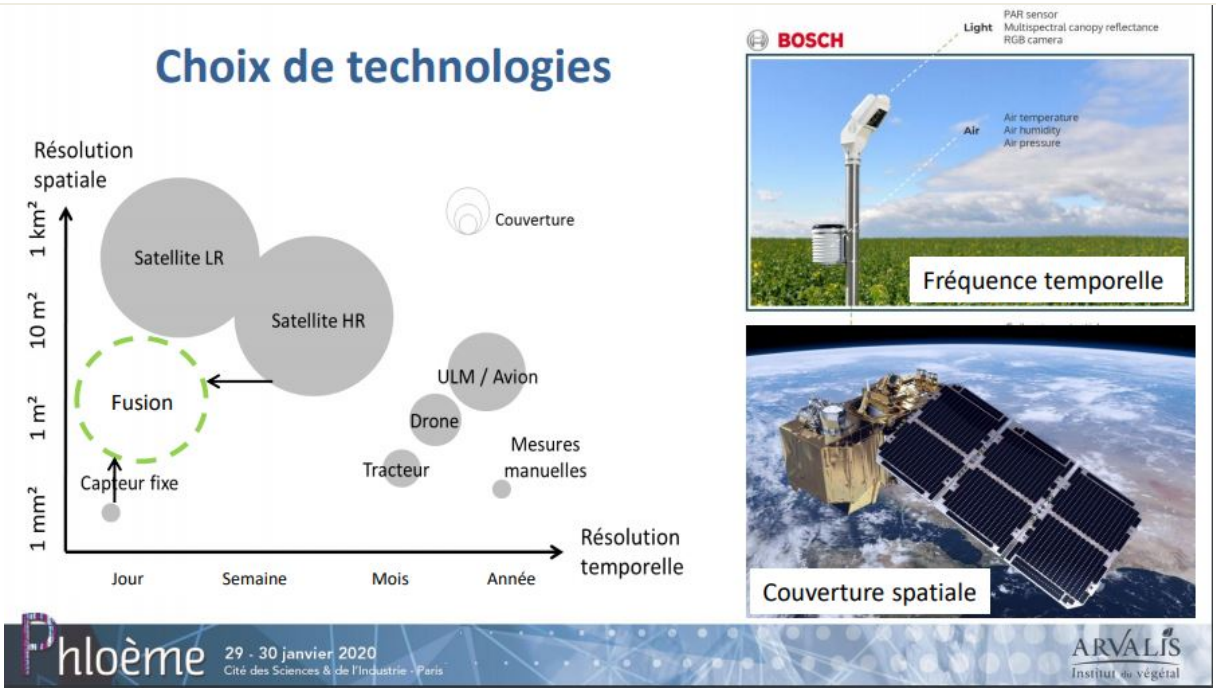
General feedback:
The course is considered relevant to help people to gain knowledge on how to improve on farming methods by incorporating ICT and this will promote sustainable agriculture and ensure food security in countries

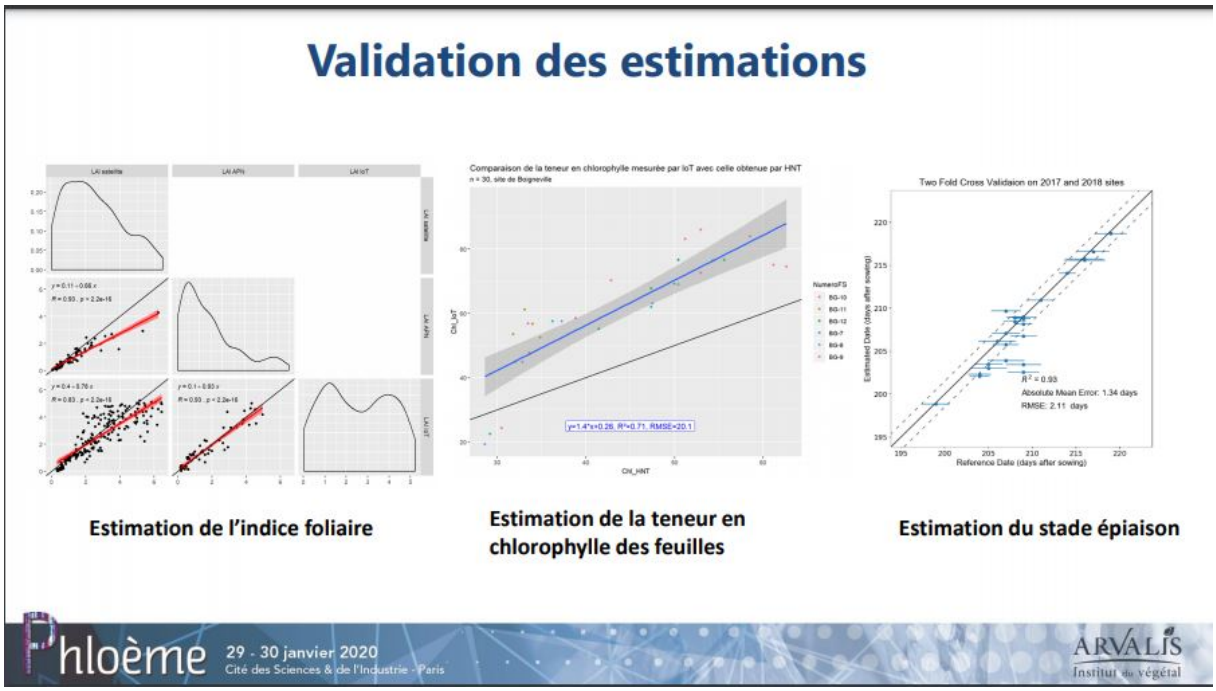
UC1.2 – Phloeme conference – oral presentation

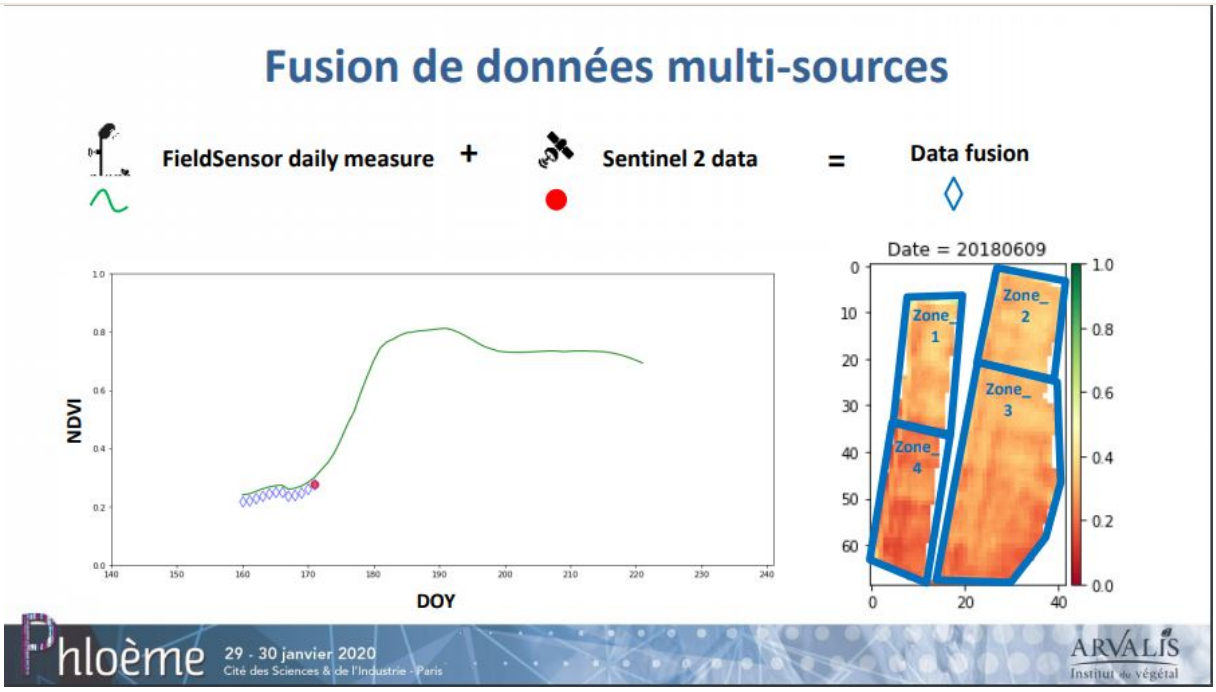
Event overview	***Phloeme*** *is a conference organized every 2 years. Its objective is to share the most recent knowledge, new technical references and the latest technological innovations to improve the multi-performance of cereal systems* *The conference was held on January 29-30, at Cite des Sciences & de l'idrustrie - Paris* *At the conference, some major questions that are shaking the industry were answered by the presenters:* *Modèle de culture et mesures par capteurs : quelles complémentarités pour l'aide à la décision ?* *B. de Solan, S. Thomas, G. Deshayes, J. Labrosse, W. Li, B. Piquemal, S. Porrez, D. Bouttet, O. Deudon, S. Jézéquel, P. Braun, F. Aubertin, A. Vanhoye, C. Vivens, K. Velumani, F. Baret, A. Comar, F. Leprince, M. Siné, Phloeme conference, Paris Jan. 30th 2020*

Stakeholders' groups	*Around 300 people attended the conference: Sientific and industry representatives and potential customers*
Dissemination channels envisioned	*Social media (Twitter, Facebook)* *Websites*
General conclusion from the conference	*In general, the Internet of Things in agriculture remains undeveloped because it is still very segmented according to application (from Solan et al., 2017). Valuing the same technology for different uses and different players (farmers, cooperatives, processors) is important to improve its economic profitability and its diffusion. The economic equation is now difficult to solve given the low cost of inputs. But if the terms of this equation evolve (banning or removing molecules, greater incentives to green practices...), or if the price of agricultural production increases due to quality approaches (production charters incorporating increased precision of practices) or tension on world markets, agricultural IoT will become essential to continue producing in sufficient quality and quantity.*

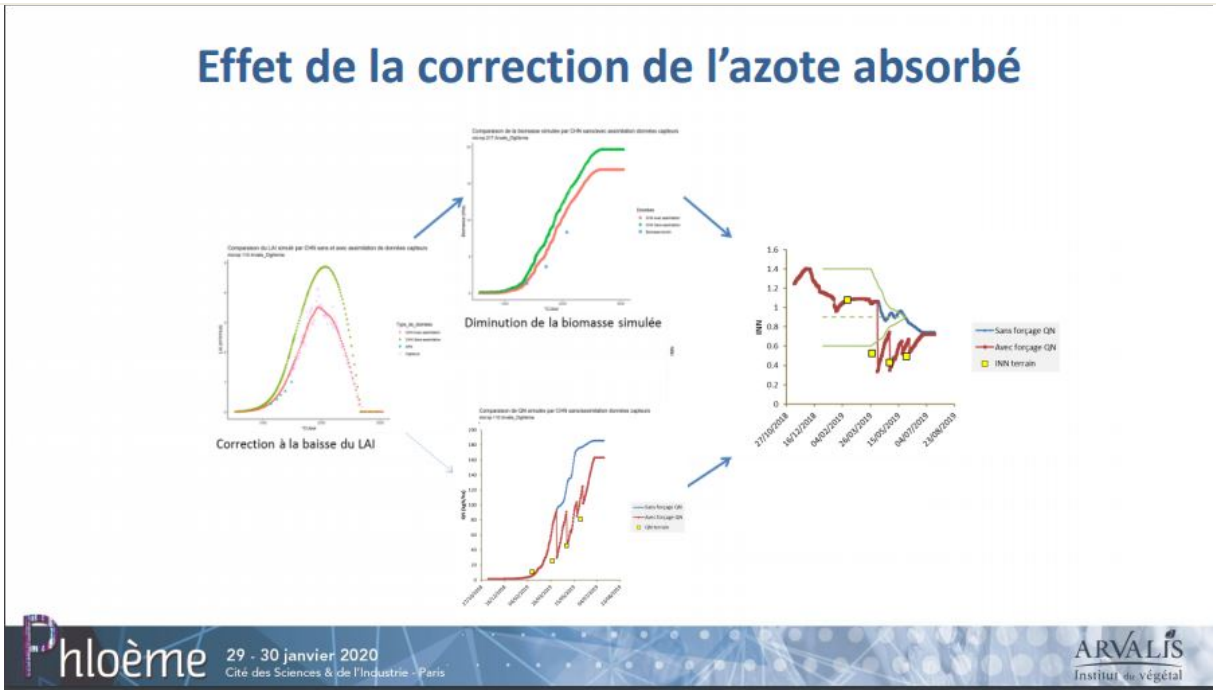
Supporting material


Choix de technologies
Résolution spatiale
1 km²
10 m²
1 m²
1 mm²
Satellite LR
Satellite HR
Fusion
Capteur fixe
Couverture
ULM / Avion
Drone
Tracteur
Mesures manuelles
Jour
Semaine
Mois
Année
Résolution temporelle
BOSCH
Light
PAR sensor
Multispectral canopy reflectance
RGB camera
Air
Air temperature
Air humidity
Air pressure
Fréquence temporelle
Couverture spatiale
Phloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal

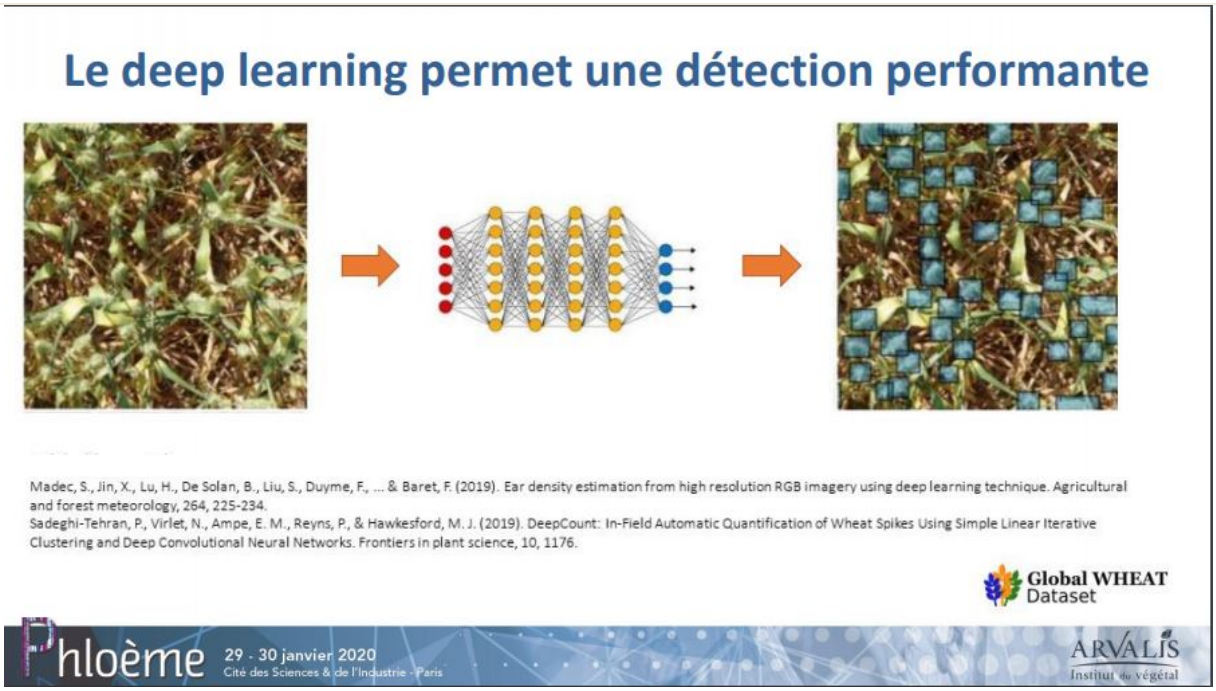

Validation des estimations
Comparaison de la teneur en chlorophylle mesurée par IoT avec celle obtenue par HNT
Two Fold Cross Validation on 2017 and 2018 sites
Absolute Mean Error: 1.34 days
RMSE: 2.11 days
Reference Date (days after sowing)
Estimation de l'indice foliaire
Estimation de la teneur en chlorophylle des feuilles
Estimation du stade épiaison
Phloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal


Fusion de données multi-sources
FieldSensor daily measure
+
Sentinel 2 data
=
Data fusion
NDVI
DOY
Date = 20180609
Zone_ 1
Zone_ 2
Zone_ 3
Zone_ 4
hloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal


Sites d'essai
Boigneville
Objective : methodological activities
• 12 IoTs
• 2 fields
• 1 trial
South East
Objective : large scale pilot
• 25 IoTs
• 20 fields
hloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal


Effet de la correction de l'azote absorbé
Diminution de la biomasse simulée
Correction à la baisse du LAI
Sans forçage QN
Avec forçage QN
INN terrain
Phloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal


Remerciements
Valopot
ePILOTE
ARVALIS
Institut du végétal
hi-phen
INRA
SCIENCE & IMPACT
BOSCH
Région
Provence
Alpes
Côte d'Azur
DIGIFERMES
Phloème
29 - 30 janvier 2020
Cité des Sciences & de l'Industrie - Paris
ARVALIS
Institut du végétal



UC1.3 – Field Day
Sipcam and Soia Italia at Villaga (Vicenza)

Lessons Learnt report

DA field	Highlights	Lowlights
IoT solution features – observation (based on interaction with attendees)	**The participants showed interest.**	**As last year, the need for quality valorisation by the soybean market was confirmed again. Mean farm requisitions of a high technological level**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**In field the experience of this year, a 360° approach to precision farming (field trial near Mantova), was illustrated. All the phases of the project and the objective of it were explained and disseminated.**	
Communication with stakeholders	**General appreciation of the results obtained; precision farming is considered very useful**	**For the same reason mentioned above, (soybean is not quoted on market based on its quality but only as a commodity), someone hesitates that in the**

		cultivation of soybean, taking care of the production of proteins, there are economic margins of access to technologies.
Open field for suggestions		

Feedback from participants

Summary on feedback from the participants at the demonstration event at the soya field day:

- Soya protein management has proven to be in line with things considered interesting and useful in precision farming.
- Although the agricultural sector is not uniformly aligned on high technological standards, mainly cause its costs (combine harvesters that map productions, weather stations for monitoring environmental and soil parameters, soil maps of their fields) the objectives and solutions presented have aroused curiosity and interest.
- It turned out that, today farmer could have many instruments that permit a good soya protein production, starting from excellent varieties with genetical high protein content (Sipcam), sophisticated electronic instruments and a software to manage the information. It's common idea that soybean production decrease with the increase of protein content, for this reason there's the need of a real support from the market which it's seems not yet mature enough to date.

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?
   - √ Personal invitation
   - □ Farming press
   - □ Website
   - □ Social media
   - □ Other (indicate which): ……

2. Overall, how would you rate the event?
   - □ Excellent
   - √ Very Good
   - □ Good
   - □ Fair
   - □ Poor
3. What did you like about the event?
4. What did you dislike about the event?

5. Prior the event, how much information that you need did you get?
   - □ All of the information
   - □ Most of the information
   - √ Some of the information
   - □ A little of the information
   - □ None of the information

6. How do you think this event could have been improved?
7. How likely are you to attend one of our future events?
   - □ Not likely at all
   - □ Not Likely
   - □ Neutral

√ Likely
□ Very likely

8. What are the two most useful things you got out of the event?
9. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.		X			
The product **improves** my **farm management**.			X		
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.	X				
The product is **easy to use** and **understand** by all persons working with in.			X		
The **design** of the solution is easy to understand.			X		

General questions:

10. How did you learn about this demonstration event (tick box)?
    √ Personal invitation
    □ Farming press
    □ Website
    □ Social media
    □ Other (indicate which): ……

11. Overall, how would you rate the event?
    □ Excellent
    □ Very Good
    √ Good
    □ Fair
    □ Poor

12. What did you like about the event?

13. What did you dislike about the event?

14. Prior the event, how much information that you need did you get?
    □ All of the information

- □ Most of the information
- □ Some of the information
- □ A little of the information
- √ None of the information

15. How do you think this event could have been improved?
16. How likely are you to attend one of our future events?
    - □ Not likely at all
    - □ Not Likely
    - □ Neutral
    - √ Likely
    - □ Very likely
17. What are the two most useful things you got out of the event?
18. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.			X		
The product **improves** my **farm management**.			X		
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.		X			
The product is **easy to use** and **understand** by all persons working with in.			X		
The **design** of the solution is easy to understand.			X		

UC1.4 – GeoJSON demonstrator

Lessons Learnt report

DA field	Highlights	Attention points

IoT solution features – observation (based on interaction with attendees)	**Demystifying the use of ISOXML by graphically displaying its results not only improves interoperability but also brings end-users closer to understanding the benefit of analysing their data and not just collecting it. This means that if an FMIS offers the user to create maps and share them with their agronomist or advisor, together all stakeholders can react faster to new insights in their fields and better minimize risks.**	**none**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**The GeoJSON ADAPT Plugin has been demonstrated with the Open-Source GIS systems "QGIS"; in the demonstrator also the ISOXML format & GeoJSON format is presented**	**none**
Communication with stakeholders		

Target audience and feedback

Total number of participants (from all target groups):	7

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
2	*5*							

How will you implement feedback you have received form the participants?	**Product improvement**

Feedback from participants – 365Farmnet

1. **Feedback to Use Case related to demonstrator video (tick boxes)**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farmer is clear			x		
This product can be useful for the daily work	x				
The product **improves** the **end user's (farm) management**		x			
The product provides a better **decision making**.			x		
The product is **easy to use** and **understand** by all persons working with it		x			
The **design** of the solution is easy to understand			x		

2. **Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrator video (tick boxes)**

	Very useful	Useful	Neutral	Not useful
Introduction Use Case	x			
Framework explanation	x			
Demo		x		

3. **Replicability potential – can the suggested solution be adjusted to address your needs?**

From the FMIS's point of view it is of course an applicable and feasible solution. Each FMIS wants to improve its compatibility and interoperability using standards and common frameworks, because each Farmer choose a FMIS to be the main software tool to manage the production resources. This software shall handle several formats as well as other agronomical services. The demo proposes an important approach to understand machine formats through a map representation, which is useful for visualizing and sharing information between ag-services.

4. **Will you use the product? If so, can you give a short use case?**

Demystifying the use of ISOXML by graphically displaying its results not only improves interoperability but also brings end-users closer to understanding the benefit of analysing their data and not just collecting it. By this I mean that if an FMIS offers the user to create maps and share them with their agronomist or advisor together can react faster and better minimizing risks.

Here a use case: "As a Farmer/Grower, I recover the data from my combine, process it in my FMIS to see the yield variations on my fields and send a map to may agronomist or my seed-advisor to plan better the next season and improve the soil properties"

The grower does not have to share all data from the machines or using different systems to process the data. FMIS's users have only to upload the data, select a map view and trigger the interpretation putting the results in a common format.

5. **Open suggestions**

Benefit for the farmer: UC1.4 and the demonstrator are focused on the interoperability between the tech-providers to facilitate the data exchange between them. The Farmers/Growers Profit does not derive directly of this implementation. However, if I am a grower, and I have a machine, I must be able to choose what I do with the data and what kind of services shall extract information from it. (in this case: Create a map and share it)

Better Decision Making: It depends on the service(s), which implements the solution. If a FMISs implements/develops an ADAPT-Plugin, it does not mean, that better decisions will be actually derived from the solution. Only if we combine this solution with 3rd Party services (e.g. seed or fertilizer advisors) could be an improvement.

Design: The solution is very focused on provide a tool for tech-people. They have to be related with the development and the analysis of machinery data, as well as with GIS-Systems and Formats. This situation makes it difficult to see the usefulness of the solution and to understand its design.

Feedback from participants – AgConnections

1. Feedback to Use Case related to demonstrator video (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farmer is clear		x			
This product can be useful for the daily work			x		
The product **improves** the **end user's (farm) management**	x				
The product provides a better **decision making**.	x				
The product is **easy to use** and **understand** by all persons working with it			x		
The **design** of the solution is easy to understand			x		

Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrator video (tick boxes)

	Very useful	Useful	Neutral	Not useful
Introduction Use Case	x			
Framework explanation	x			
Demo	x			

Replicability potential – can the suggested solution be adjusted to address your needs?
Yes. The primary adjustment will be extending the logged data handling to support the finer granularity of section control.

Will you use the product? If so, can you give a short use case?

Yes. The ability to export data in GeoJSON for initial evaluation and visualization is very valuable. For example, given a set of logged task data files one could determine if the entire field had been serviced by using this to visualize the data.

Feedback from participants – Dev4Agri

1. Feedback to Use Case related to demonstrator video (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farmer is clear	X				
This product can be useful for the daily work	X				
The product **improves** the **end user's (farm) management**		X			
The product provides a better **decision making**.	X				
The product is **easy to use** and **understand** by all persons working with it	X				
The **design** of the solution is easy to understand	X				

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrator video (tick boxes)

	Very useful	Useful	Neutral	Not useful
Introduction Use Case	X			
Framework explanation	X			
Demo	X			

Replicability potential – can the suggested solution be adjusted to address your needs?

Yes, it can be useful for developers testing of Terminals or FMIS as it provides a view on the data that can be adjusted in various ways; way better than in any FMIS.

Will you use the product? If so, can you give a short use case?

I can use it to check data on possible errors from a developers' view.

Open suggestions

None so far, they might come up in further test progress

UC1.5 – On-farm demo

Event overview

We demonstrated the solution with the traceability and the caliber measurement on two farms with real harvesters. Also, a promo video was made for IOF2020

Impressions of the Octinion Caliber measurement hardware setup

UC1.6 – Online Open Day

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	Attendees, particularly farmers, showed interest on the operation of the -IoT stations and their. Sensing capabilities that are tailored to the needs of agriculture domain e.g. leaf-wetness sensors.	The practical functionality of the technology (i.e. how the system works in practice regarding the actual advice) was not satisfactorily presented. This was not possible as the demo took place through a web-presentation.
Smart Farming solutions and results obtained from the use after two years of testing and evaluation.	Particular interest was shown on irrigation related services provided by the IoT4Potato application.	More work is necessary on optimizing processes such as data input from the farmer about activities, visualization/notifications to the farmer.
Communication with stakeholders	In general, communication with stakeholders was excellent and included exchange of ideas, know-how and open discussions.	There are significant concerns on how is it feasible to evaluate with hard evidences the performance of a smart-farming system. As it was noted it is not only a matter of reducing inputs but also maintaining quality and yield.

Overview
In the context of the event, a presentation of the technological infrastructure and the smart farming services of gaiasense took place, including the gaiasense-based smart farming services and the technological tools developed by NEUROPUBLIC for supporting potato production in Poland and Ukraine, in collaboration with the IoT4Potato partners. In addition, the participants had the opportunity to watch a live demonstration of the smart farming application that was developed in the context of the Use Case, which allows the depiction of real-time data from the field and the combination with other data before they are used by scientific models for the irrigation and crop protection of potato crops. in the last part of the event, the participants, including representatives of companies from Poland, Ukraine and the Netherlands had the opportunity to discuss about the results so far from the application of these services in potato fields in Poland and Ukraine, and to explore the possibility of extending their collaboration after the end of the project.

General feedback:
On previous events and during the pilot utilization of the smart-farming solutions, we received various comments on improving the visualisation of certain parameters monitored at the fields (e.g. soil moisture). These recommendations where incorporated with certain
improvements to the front-end of the IoT4Potato service.
Another interesting outcome is that there were significant concerns on how it is feasible to evaluate with hard evidences the performance
of a smart-farming system. As it was noted it is not only a matter of reducing inputs but also maintaining quality and yield while it is
necessary the evaluation phase to last more than cultivation cycles.

Feedback from participants
In the event 21 persons participated from various organizations, namely crop protection companies, agribusiness consultants, potato processing industry, agronomists-researchers, IT experts, and farm managers.

Use Case 1.6 "Data-driven potato production" aims at building on top of the gaiasense Smart Farming solution, an innovative market-ready IoT-Are you familiar with similar technologies? YES……

1. **Feedback to Use Case related to demonstrated product**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	X				
This product can be **useful** for the daily work		X			
The product **improves** the **end user's (farm) management**		X			
The product provides a better **decision making**.		X			
The product makes the **production** more **transparent**		X			
The product is **easy to use** and **understand** by all persons working with it			X		
The **design** of the solution is easy to understand			X		

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrated application (tick boxes)

	Very useful	Useful	Neutral	Not useful
Weather forecast services.	X			
Real time monitoring of atmospheric, plant, and soil parameters/		X		
Irrigation related information.	X			
Pest management related information.		X		
Alerts based on user defined thresholds		X		

3. **Replicability potential – can the suggested solution be adjusted to address your needs?**

YES…….

4. **What is your wiliness to pay for such a solution?**

The system still has to be perfected, once this is done, I'm willing to pay a fair price for it per ha.
…….

5. **Open suggestions for improvements:**

At this moment, the system has a signal function, advising still has to be developed to give it more value.....

Feedback from participants

Are you familiar with similar technologies?
Yes

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	x				
This product can be **useful** for the daily work		x			
The product **improves** the **end user's (farm) management**		x			
The product provides a better **decision making**.		x			
The product makes the **production** more **transparent**			x		
The product is **easy to use** and **understand** by all persons working with it		x			
The **design** of the solution is easy to understand	x				

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrated application (tick boxes)

	Very useful	Useful	Neutral	Not useful
Weather forecast services.	x			
Real time monitoring of atmospheric, plant, and soil parameters/	x			
Irrigation related information.	x			
Pest management related information.		x		

Alerts based on user defined thresholds		x		

3. **Replicability potential – can the suggested solution be adjusted to address your needs?**

Yes – the solution can be used in any developing farm

4. **What is your wiliness to pay for such a solution?**

It will be depend on the type and volume of production.

Feedback from participants

Are you familiar with similar technologies?
……YES……..

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear		yes			
This product can be **useful** for the daily work		yes			
The product **improves** the **end user's (farm) management**			yes		
The product provides a better **decision making**.				yes	
The product makes the **production** more **transparent**		yes			
The product is **easy to use** and **understand** by all persons working with it			yes		
The **design** of the solution is easy to understand		yes			

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demonstrated application (tick boxes)

	Very useful	**Useful**	**Neutral**	**Not useful**
Weather forecast services.	yes			
Real time monitoring of atmospheric,		Yes, but only when combined		

plant, and soil parameters/		with other monitoring		
Irrigation related information.		Yes, but not in isolation		
Pest management related information.			Only as good as the science behind the models	
Alerts based on user defined thresholds		Yes,		

3. Replicability potential – can the suggested solution be adjusted to address your needs?

……Yes, but there already many other systems with many years of operational data in existence…….

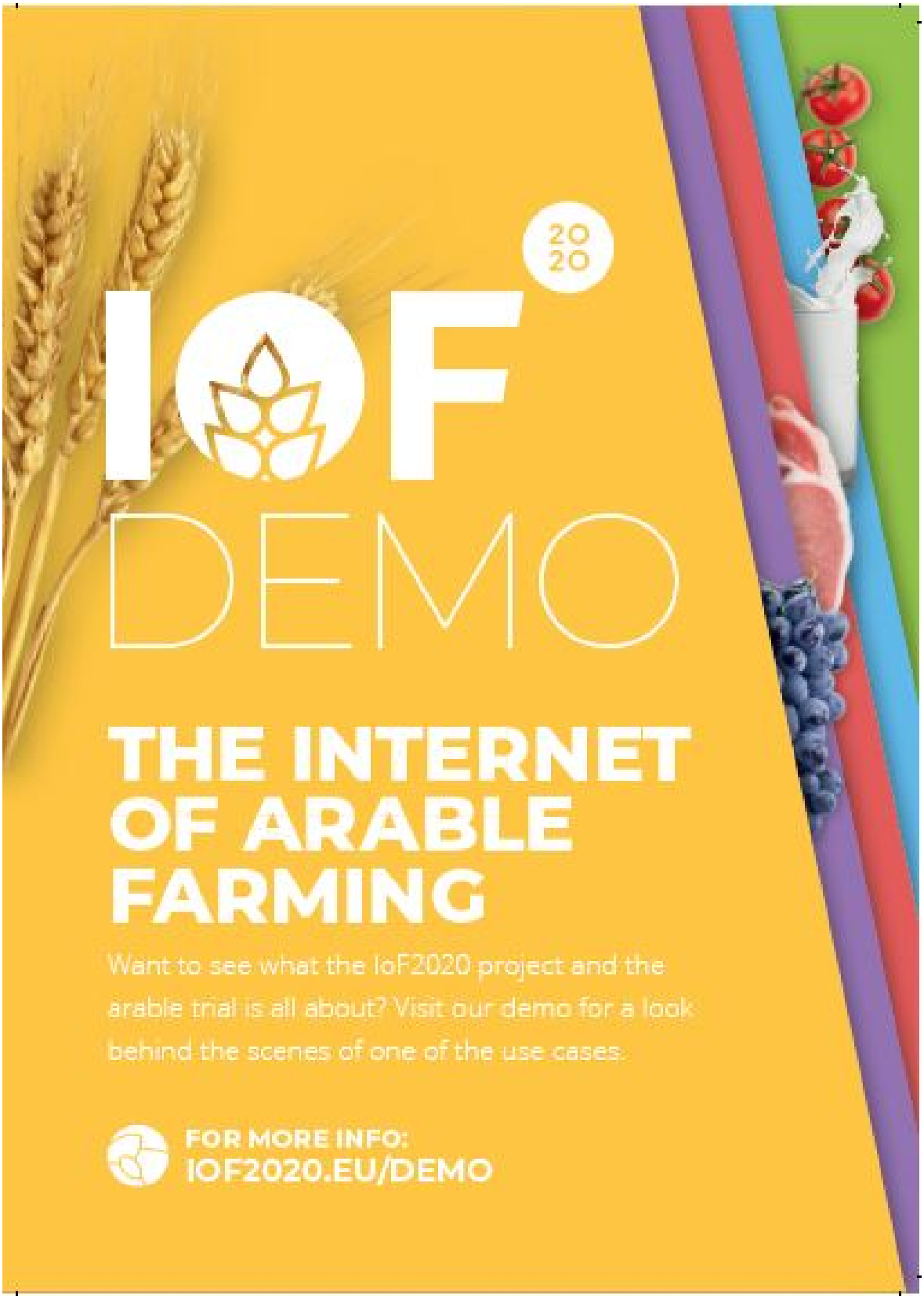
4. What is your wiliness to pay for such a solution?

……Yes, if the science is good and the potential data base is big enough to have value…….

5. Open suggestions for improvements:

……Why are you re-inventing what is already done and used – for example Dacom, Cropio etc……

Dissemination tools




Get To Know Our Data-Driven Potato Production Approach!
Interested in applying Internet Of Things in your farm? Join us on 11/11/2020!
We are hosting an online demonstration event about the Use Case 1.6 of IoF2020 titled "Data-Driven Potato Production" - or simply IoT4Potato!
Join us to learn more about the IoF2020 Project, the IoT4Potato use case and the galasense smart farming system - the basis of our data-driven potato production approach!
Send an email to "n_kalatzis(at)neuropublic.gr" in order to receive your invitation.
LOCATION
WEB-BASED EVENT:
PARTICIPATION VIA
MS TEAMS
ORGANIZER:
NEUROPUBLIC S.A.
DATE & TIME
11 NOVEMBER 2020
14:00 - 15:00 CET
AGENDA
This is an on-line demonstration event of IoF2020 Use Case 1.6 (https://www.iof2020.eu/trials/arable/data-driven-potato-farming) for stakeholders from Poland and Ukraine.
14:00 Welcome – Introduction of the dissemination event
14:10 Presentation of IoF2020 project
14:20 Presentation of the Use Case 1.6 "Data driven Potato production"
14:30 Presentation of the galasense smart-farming solution
14:50 Questions and Answers
IOF2020.EU
IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

UC1.6 & 4.5 - Διαδίκτυο των Πραγμάτων και Αγροδιατροφή στην Ελλάδα- IoF2020
(IoF2020 impact on Greek Agrifood)

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Very satisfying, real time notifications, traceability and IoT is very strong	Focus on big data, respect farmers' privacy, models' assumption should be shared with farmers prior to their implementation at each farm
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Structure clear, ppt was nice	Too much information, the use of English in the ppt and in certain oral terms
Communication with stakeholders	Very good	

Target audience and feedback	
Total number of participants (from all target groups):	Greek Research community in Agrifood, farmers, value chain stakeholders, general public - 43

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Agronomists	General Public	Policy makers	Media	Farmers	Tech providers	Others
15	*3*	*6*	*2*		*2*	*3*	*6*	*6*

How will you implement feedback you have received form the participants?	
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	

1. Feedback to Use Case related to demonstrated product (tick boxes)

*the average score from the various different responses

	Strongly agree 1	Agree 2	Neutral 3	Disagree 4	Strongly disagree 5
The **additional benefit** for the farm is clear			2*		
This product can be **useful** for the daily work			2,3*		
The product **improves** the **end user's (farm) management**			2,1*		
The product provides a better **decision making**.			1,9*		
The product makes the **production** more **transparent**			1,9*		
The product is **easy to use** and **understand** by all persons working with it			2,6*		
The **design** of the solution is easy to understand			2*		

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful 1	Useful 2	Neutral 3	Not useful 4
Online presentations			1,4*	

*the average score from the various different responses

3. **Replicability potential – can the suggested solution be adjusted to address your needs?**

Yes, part of them, yes in the future: overall the comments were positive

4. **Open suggestions**

More farmers or demand side users should attend this kind of events so that their actual experience is transferred

Dissemination tools

The event was promoted through various channels including press releases, social media posts, and emails.

Support document - Agenda in Greece

Το ελληνικό Δίκτυο των Αγροτών και των Πραγμάτων

Εκδήλωση για τις εμπειρίες και τα αποτελέσματα των ελληνικών οργανισμών που συμμετείχαν στο μεγαλύτερο έργο Αγροδιατροφής και Internet of Things στην Ευρώπη

Online εκδήλωση, δυνατότητα παρακολούθησης μόνο μέσω Διαδικτύου

Δευτέρα 7 Δεκεμβρίου, 2020, 14:30

ΠΡΟΓΡΑΜΜΑ
14.30 – 14.40
• **Χαιρετισμοί Έναρξης και Καλωσόρισμα** Neuropublic **&** Future Intelligence
14.40 – 15.00
• **Συνοπτική Παρουσίαση έργων** IoF2020 **και** Smart AgriHubs **Milica Trajkovic, BioSense Institute**
15.05 – 15.15
• Μελέτη Περίπτωσης 1.6 (πατάτα) **Νίκος Καλατζής, Neuropublic**
15.20 – 15.30
• Μελέτη Περίπτωσης 4.5 (φρούτα και λαχανικά) **Χάρης Μωυσιάδης, Future Intelligence**
15.35 – 15.45
• Μελέτη Περίπτωσης 3.1 (επιτραπέζιο σταφύλι) **Βαγγέλης Αναστασίου, Γεωπονικό Πανεπιστήμιο Αθηνών**
15.50 – 16.00
• Μελέτη Περίπτωσης 3.3 (ελιά) **Κώστας Πραματάρης, Synelixis**

Ερωτήσεις - Συζήτηση

ΔΙΑΛΕΙΜΜΑ
16.15 – 16.25
• DEMETER project **Ιωάννα Ρουσσάκη, ΕΠΙΣΣΕΥ/ ΕΜΠ**
16.30 – 16.40
• CO-FRESH project **Χάρης Μωυσιάδης, Future Intelligence**
16.45 – 16.55
• PLOUTOS project **Νίκος Μαριάνος, GAIA Epicheirein**
17.00 – 17.10
• SmartAgriHubs- Field Innovation Experiment No26 **Βασίλης Ψυρούκης, Γεωπονικό Πανεπιστήμιο Αθηνών**
Ανοικτή Συζήτηση

Η εκδήλωση είναι δωρεάν αλλά απαιτείται εγγραφή στον ακόλουθο σύνδεσμο,

https://docs.google.com/forms/d/e/1FAIpQLSevqU_TD3KlTqGscoNfqUZF-GbAoEQAE3MeyLKNgqNFhthQVQ/viewform?usp=sf_link

UC1.9 - Demonstration workshop

Lessons Learnt report

- Farmers are more interested in showcases of actual technology, interface and results rather than high-level technical information (this time we focused on more practical aspects based on the experience of previous demonstrations where technical information was provided).
- Farmers are interested in technology adaptation to analyse other plant varieties.
- Farmers started to pay more attention to innovations that increase the knowledge about the field conditions. We have observed that during our demo days, communicating with farmers as well as AgriFood Forum'20 which was organized by us and held online this year.
- Farmers are interested in real examples (in our case, samples and results from test farms) that can prove the possibilities and value of new technology.
- **Three major goals were raised for current demonstration workshop:**
- Introduce to the project being finished
- Demonstrate developed technology and achieved results;
- Showcase how the final solution works and what benefits does it bring.
- The target audience for the demonstration was gathered according to the goals raised and consisted mainly of farmers.

Course of the event

The demonstration was held in Šakiai (24th September, 2020) – a town in a south-western part of Lithuania, located in one of the regions where agriculture takes a big role in a local industry. Amount of visitors was reduced in order to comply with measures needed to prevent the spread of Covid-19 and a total of 12 persons were invited to participate.

During the event the presentation about the ART21 company and the IoF2020 project with its main goals and areas of result application was made. Our consultant Linas Didžiulevičius presented the methodology of hyperspectral image spectrometry, explained the principles on which the developed technology is based on and made a presentation on the results achieved with the current technology (with real case scenarios based on the data and results collected during this project).

Linas showcased the equipment used for crop field scanning (heavy lifting drone, hyperspectral camera and an on-board computer) and demonstrated the user interface and system capabilities for data processing and result analysis. Linas demonstrated how to upload gathered images, how to initialize the data processing, how to understand the results, how to evaluate costs and how to generate farm task list based on those the results (plan for fertilization, variable application maps for machinery).

Target audience and feedback

Total number of participants (from all target groups):	12

The workshop was well received by participants as they learnt a lot of useful information about what can be told about crop plants in the field through hyperspectral data.

We received very positive feedback about application of the developed technology and how user-friendly the system is.

Participants were asked to fill in the Feedback forms and they are attached as an annex to this document.

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
	12							

UC 2.2 - Inspiration session Connecterra & Ida training session

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Real time and off site insight in cow behaviour on farms.	Better insight in reproductive efficiency in the form of clear unambiguous KPI's
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	It looks impressive, clear pictures and an attractive design	A step by step walk through is a must, but hard to keep it exiting.
Communication with stakeholders		
Target audience and feedback		
Total number of participants (from all target groups):	21	

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
	21						*21*	

How will you implement feedback you have received form the participants?	**We will explore the possibilities of adjusting and refining the information that we present in Ida for enterprise in such a way that it aligns better with the talks that Semex representatives have with farmers (their clients).**
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**The ROI-model which is developed is very clear and makes sense to sales reps from Semex and their customer. This model is often used for sales pitches on farm**

Feedback to Use Case related to demonstrated product (tick boxes)					
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	x				
This product can be **useful** for the daily work	x				
The product **improves** the **end user's (farm) management**		x			
The product provides a better **decision making**.		x			
The product makes the **production** more **transparent**		x			
The product is **easy to use** and **understand** by all persons working with it	x				
The **design** of the solution is		x			

easy to understand					

Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)				
	Very useful	Useful	Neutral	Not useful
Lecture				
Field walk				
Technologies				
Online training	x			
Several farm visits	x			

Replicability potential – can the suggested solution be adjusted to address your needs?	Farmers are facing low margins these days. This product gives insights on technical and financial KPI's on farm.
What is your wiliness to pay for the solution?	The ROI-model helps in interpret costs vs. benefits. The subscription model is also very suitable in times of low milkprices and shortage of liquidity. Famers can spread this investment over the years doesn't hit liquidity that hard.

UC 2.4 - FTIR Webinar: "Product optimization: what is feasible and can be realized?"

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Structured approach (plan, execute, analyze results, action, is helpful to organize work. Better insights in trend per matrix and parameter. Following testresults and benchmarking on level of testing person.	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Demo was done based by logging in RDQ-tool account of Qlip.	No practical data for dairy-processors available within account of Qlip.
Communication with stakeholders		
Target audience and feedback		
Total number of participants (from all target groups):	15	
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)		

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
							15	

How will you implement feedback you have received form the participants?	We register their feedback and will consider this as an improvement for a next version of the RDQ-tool.

What is the general consensus on the willingness of the event attendees to pay for your IoT solution	Customers see the extra value of the solution. Paying for the solution is not a problem. Biggest challenge is to implement the system and use it an strict and structured way.
Webinar's newsletter:	

Is deze e-mail niet goed leesbaar? Klik hier voor de webversie.

FTIR Webinar: "Productoptimalisatie: wat is haalbaar en hoe is dit te realiseren?"

Geachte {{aanhef}} {{achternaam}},

Binnen de zuivelverwerking is grote behoefte aan de optimalisatie van processturing. Efficiënte productie valt of staat met goed afgestelde apparatuur. Naast het leveren van kalibratie- en referentiemonsters willen wij u, met onze ervaring en kennis, helpen uw productieproces te optimaliseren. Aangezien het in de huidige tijd niet mogelijk is om fysieke workshops te organiseren, bieden wij u een alternatief in de vorm van een webinar. De webinar zal gegeven worden op **29 september van 13.00u tot 15.00u.**

Deze webinar wordt gegeven door de heer Niek van Waarde. De heer van Waarde heeft jarenlange ervaring en adviseert klanten wereldwijd op het gebied van de sturing van hun zuivelproductie. Tijdens de webinar komen o.a. de volgende zaken aan de orde:

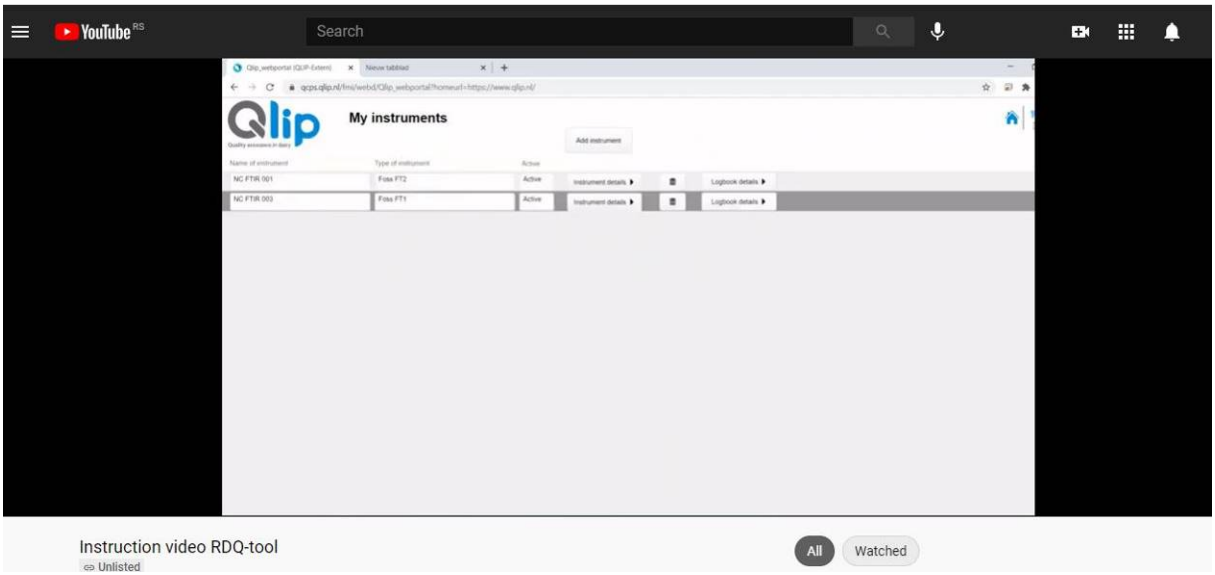
- Werking en gebruik van infrarood apparatuur tbv procesoptimalisatie
- Mogelijkheden en beperkingen van infrarood
- Begrip van meetresultaten
- Mogelijke bronnen welke leiden tot foutieve resultaten
- Voorwaarden om productoptimalisatie te realiseren
- Praktijkvoorbeelden

De webinar is bedoeld voor personen met de functie van QA & QC-manager, procesoperator of laborant. U en uw collega's zijn van harte welkom en kunnen kosteloos deelnemen. U kunt zich hiernaast aanmelden voor de webinar. U ontvangt enkele dagen voor de webinar een link die u toegang geeft tot de webinar.

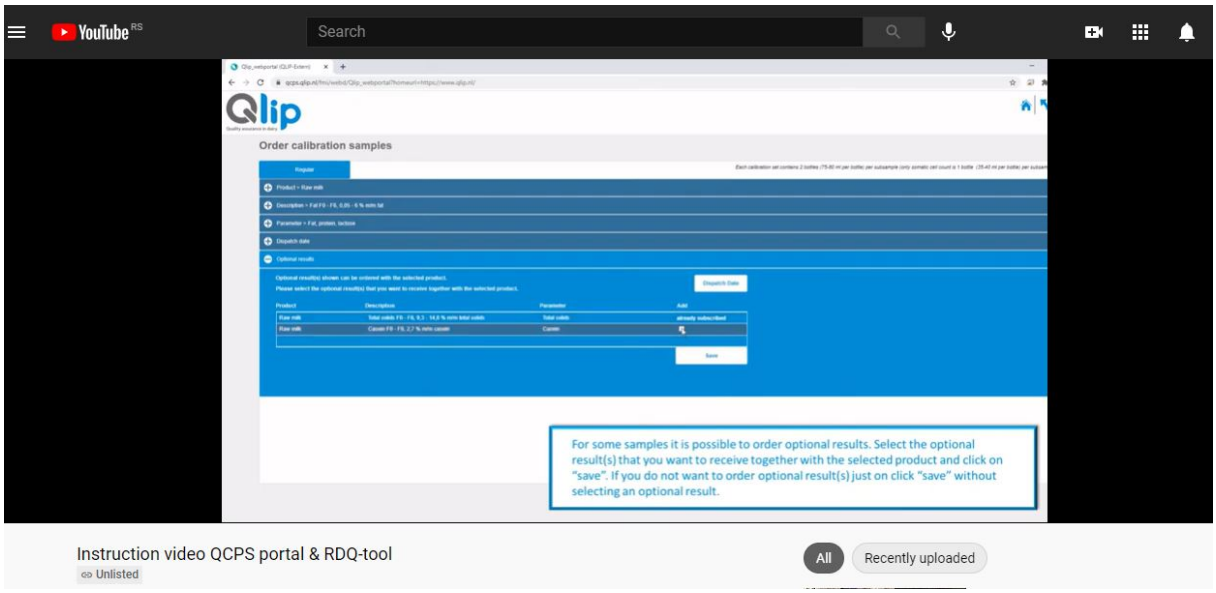
Aanmelden

Indien u vragen heeft kunt u contact opnemen met Sales (088-7547199 | sales@qlip.nl).

Pre-webinar dissemination and additional tools:



introduction video RDQ-tool (YT)



Introduction video Customer-portal (YT)

UC 2.7 - DEMONSTRATION DAY Event Hungary

Lessons Learnt report		
uc	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**The DA of IOF2020 was absolutely good.** **The attendees strongly agreed that the Smart Rumen Bolus provides a better decision making to farmers.** **UC 2.7 presented the IOF2020 project and an introduction 'When science meets technology'** **The product is easy to use according the guests who gave us feedback.**	**Smart Rumen Bolus solution focused on +50 heads farms. Farmers who have less cows are not interested in our product.**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**Firstly - presentations about the project, secondly live demonstration on farm.**	**For some people the demonstration place was too far.**
Communication with stakeholders	**People were interested in this specific product.**	**The visited farm was not representative for a professional production of meat.**
Open field for suggestions	**DA in a foreign country**	

Questionnaire for attendees

General questions:

19. How did you learn about this demonstration event (tick box)?
    - X Personal invitation
    - ☐ Farming press
    - ☐ Website
    - ☐ Social media
    - ☐ Other (indicate which): ……

20. Overall, how would you rate the event?
    - ☐ Excellent
    - X Very Good
    - ☐ Good
    - ☐ Fair
    - ☐ Poor

21. What did you like about the event?
- Professional presentations
- On-farm demonstartion

22. What did you dislike about the event?
- Long distance to travel

23. Prior the event, how much information that you need did you get?
    - X All of the information
    - ☐ Most of the information
    - ☐ Some of the information
    - ☐ A little of the information
    - ☐ None of the information

24. How do you think this event could have been improved?

25. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - ☐ Likely
    - X Very likely

26. What are the two most useful things you got out of the event?
- Sales arguments for boluses
- Economic return of the costs for boluses

27. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.			X		

The product **improves** my **farm management**.		X			
The product provides a better **decision making**.	X				
The product makes my **production** more **transparent**.		X			
The product is **easy to use** and **understand** by all persons working with in.		X			
The **design** of the solution is easy to understand.		X			

Questionnaire for attendees

General questions:

28. How did you learn about this demonstration event (tick box)?
    - X Personal invitation
    - ☐ Farming press
    - ☐ Website
    - ☐ Social media
    - ☐ Other (indicate which): ……

29. Overall, how would you rate the event?
    - ☐ Excellent
    - X Very Good
    - ☐ Good
    - ☐ Fair
    - ☐ Poor

30. What did you like about the event?
- Speaking with the user of boluses
- Real farm visit

31. What did you dislike about the event?

32. Prior the event, how much information that you need did you get?
    - All of the information
    - X Most of the information
    - ☐ Some of the information
    - ☐ A little of the information
    - ☐ None of the information

33. How do you think this event could have been improved?

34. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - X Likely
    - Very likely

35. What are the two most useful things you got out of the event?

- How does the bolus work
- Where the farmer sees the advantage

36. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.			X		
The product **improves** my **farm management**.			X		
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.		X			
The product is **easy to use** and **understand** by all persons working with in.		X			
The **design** of the solution is easy to understand.		X			

Questionnaire for attendees

General questions:

37. How did you learn about this demonstration event (tick box)?
    - X Personal invitation
    - ☐ Farming press
    - ☐ Website
    - ☐ Social media
    - ☐ Other (indicate which): ……

38. Overall, how would you rate the event?
    - ☐ Excellent
    - X Very Good
    - ☐ Good
    - ☐ Fair
    - ☐ Poor

39. What did you like about the event?

- University backround
- Visit of a farm

40. What did you dislike about the event?
- Too far

41. Prior the event, how much information that you need did you get?
    - X All of the information
    - ☐ Most of the information
    - ☐ Some of the information
    - ☐ A little of the information
    - ☐ None of the information

42. How do you think this event could have been improved?

43. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - ☐ Likely
    - X Very likely

44. What are the two most useful things you got out of the event?
- Technical features of boluses
- Future development

45. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.	X				
This product can be **useful** for my daily work.		X			
The product **improves** my **farm management**.	X				
The product provides a better **decision making**.	X				
The product makes my **production** more **transparent**.		X			
The product is **easy to use** and **understand** by all persons working with in.			X		
The **design** of the solution is easy to understand.		X			

Questionnaire for attendees

General questions:

46. How did you learn about this demonstration event (tick box)?
    - X Personal invitation
    - ☐ Farming press
    - ☐ Website

- ☐ Social media
- ☐ Other (indicate which): ……

47. Overall, how would you rate the event?
    - ☐ Excellent
    - X Very Good
    - ☐ Good
    - ☐ Fair
    - ☐ Poor
48. What did you like about the event?
- Presentation of the proffesor from the university
- Farm visit

49. What did you dislike about the event?

50. Prior the event, how much information that you need did you get?
    - All of the information
    - X Most of the information
    - ☐ Some of the information
    - ☐ A little of the information
    - ☐ None of the information

51. How do you think this event could have been improved?

52. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - X Likely
    - Very likely

53. What are the two most useful things you got out of the event?
- What are the advantages of the system
- Why is it better the the competition

54. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.	X				
This product can be **useful** for my daily work.		X			
The product **improves** my **farm management**.		X			
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.		X			
The product is **easy to**		X			

use and **understand** by all persons working with in.					
The **design** of the solution is easy to understand.		X			

Questionnaire for attendees

General questions:

55. How did you learn about this demonstration event (tick box)?
    - ☐ **Personal invitation**
    - ☐ Farming press
    - ☐ Website
    - ☐ Social media
    - ☐ Other (indicate which): ……
    - ☐

56. Overall, how would you rate the event?
    - ☐ Excellent
    - ☐ Very Good
    - ☐ **Good**
    - ☐ Fair
    - ☐ Poor

57. What did you like about the event?
Hospitality and food.

58. What did you dislike about the event?

59. Prior the event, how much information that you need did you get?
    - ☐ All of the information
    - ☐ Most of the information
    - ☐ **Some of the information**
    - ☐ A little of the information
    - ☐ None of the information

60. How do you think this event could have been improved?

By more practical data provided and explanation of how to use the data.

61. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - ☐ **Likely**
    - ☐ Very likely

62. What are the two most useful things you got out of the event

63. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly

					disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.		X			
The product **improves** my **farm management**.		X			
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.			X		
The product is **easy to use** and **understand** by all persons working with in.		X			
The **design** of the solution is easy to understand.	X				

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?
   - ☐ Personal invitation X
   - ☐ Farming press
   - ☐ Website
   - ☐ Social media
   - ☐ Other (indicate which): ……

♦

2. Overall, how would you rate the event?
   - ☐ Excellent X
   - ☐ Very Good
   - ☐ Good
   - ☐ Fair
   - ☐ Poor
3. What did you like about the event?
   Well organized, good product overview
4. What did you dislike about the event?
5. Prior the event, how much information that you need did you get?
   - ☐ All of the information
   - ☐ Most of the information
   - ☐ Some of the information X
   - ☐ A little of the information
   - ☐ None of the information
6. How do you think this event could have been improved?
   - to present economical benefits based on long term use
7. How likely are you to attend one of our future events?

- Not likely at all
- Not Likely
- Neutral
- Likely X
- Very likely

8. What are the two most useful things you got out of the event?
   - more detailed info on product
   - practical demo

9. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.					
This product can be **useful** for my daily work.					
The product **improves** my **farm management**.					
The product provides a better **decision making**.					
The product makes my **production** more **transparent**.					
The product is **easy to use** and **understand** by all persons working with in.					
The **design** of the solution is easy to understand.					

Questionnaire for attendees

General questions:

64. How did you learn about this demonstration event (tick box)?

- x Personal invitation
- Farming press
- Website
- Social media
- Other (indicate which): ……

65. Overall, how would you rate the event?
- x Excellent
- Very Good
- Good
- Fair
- Poor

66. What did you like about the event?

The topic will be very important for the department in the future. Practical demonstration.

67. What did you dislike about the event?

68. Prior the event, how much information that you need did you get?
    - ☐ All of the information
    - x Most of the information
    - ☐ Some of the information
    - ☐ A little of the information
    - ☐ None of the information

69. How do you think this event could have been improved?

The economical background in the beef cattle department would be important to be more highlighted. Also the technology of using the system on pasture.

70. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - x Likely
    - ☐ Very likely

71. What are the two most useful things you got out of the event?

The project is ready to use in the practice. It may have future not only in abroad but also in Hungary.

72. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.	x				
This product can be **useful** for my daily work.	I am not a farmer, but yes				
The product **improves** my **farm management**.	x				
The product provides a better **decision making**.	x				
The product makes my **production** more **transparent**.	x				
The product is **easy to use** and **understand** by all persons working with in.			x		
The **design** of the solution is easy to understand.			x		

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?
   - ☐ Personal invitation yes
   - ☐ Farming press
   - ☐ Website
   - ☐ Social media
   - ☐ Other (indicate which): ……

2. Overall, how would you rate the event?
   - ☐ Excellent
   - ☐ Very Good yes
   - ☐ Good
   - ☐ Fair
   - ☐ Poor

3. What did you like about the event?
   enthusiastic host
   People from 4 foreigner countries
   Technical background of the system
   Scientific background und future possibilities of using the sensor
   Personnal contact with people
   Farm visit and asking questions from the workers

4. What did you dislike about the event?

5. Prior the event, how much information that you need did you get?
   - ☐ All of the information
   - ☐ Most of the information yes
   - ☐ Some of the information
   - ☐ A little of the information
   - ☐ None of the information

6. How do you think this event could have been improved?

7. To help audience to be as much interactive as possible

8. How likely are you to attend one of our future events?
   - ☐ Not likely at all
   - ☐ Not Likely
   - ☐ Neutral
   - ☐ Likely
   - ☐ Very likely yes

9. What are the two most useful things you got out of the event?
   Contact with farm workers and dealers

10. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.	yes				
This product can be **useful** for my daily work.		yes			
The product **improves** my **farm management**.	yes				
The product provides a better **decision making**.		yes			
The product makes my **production** more **transparent**.			yes		
The product is **easy to use** and **understand** by all persons working with in.	yes				
The **design** of the solution is easy to understand.	yes				

Questionnaire for attendees

General questions:

73. How did you learn about this demonstration event (tick box)?

- ☐ Personal invitation x
- ☐ Farming press
- ☐ Website
- ☐ Social media
- ☐ Other (indicate which): ……

74. Overall, how would you rate the event?

- ☐ Excellent
- ☐ Very Good x
- ☐ Good
- ☐ Fair
- ☐ Poor

75. What did you like about the event?

The visit at the farm with the showcase about the implementation of the bolus and the following measurements. Also the technology presentation was of interest

76. What did you dislike about the event?

The visited farm was not representative for a professional production of meat.

77. Prior the event, how much information that you need did you get?

- ☐ All of the information
- ☐ Most of the information
- ☐ Some of the information X
- ☐ A little of the information
- ☐ None of the information

78. How do you think this event could have been improved?

A more high professional farm would have been better showcase

79. How likely are you to attend one of our future events?
    - ☐ Not likely at all
    - ☐ Not Likely
    - ☐ Neutral
    - ☐ Likely X
    - ☐ Very likely

80. What are the two most useful things you got out of the event?

An idea how the bolus technology could help farmers to increase production and also the technology itself.

81. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.		X			
This product can be **useful** for my daily work.	X				
The product **improves** my **farm management**.	X				
The product provides a better **decision making**.		X			
The product makes my **production** more **transparent**.	X				
The product is **easy to use** and **understand** by all persons working with in.		X			
The **design** of the solution is easy to understand.	X				

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?

- [x] Personal invitation
- [ ] Farming press
- [ ] Website
- [ ] Social media
- [ ] Other (indicate which): ……

2. Overall, how would you rate the event?

- [ ] Excellent
- [x] Very Good
- [ ] Good
- [ ] Fair
- [ ] Poor

3. What did you like about the event?

Good organization, good presentations.

4. What did you dislike about the event?

5. Prior the event, how much information that you need did you get?

- [x] All of the information
- [ ] Most of the information
- [ ] Some of the information
- [ ] A little of the information
- [ ] None of the information

6. How do you think this event could have been improved?

Better field presentation on the farm.

7. How likely are you to attend one of our future events?

- [ ] Not likely at all
- [ ] Not Likely
- [ ] Neutral
- [x] Likely
- [ ] Very likely

8. What are the two most useful things you got out of the event?

Far range of the system.

9. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear.	✖				
This product can be **useful** for my daily work.					
The product **improves** my **farm management**.					
The product provides a better **decision making**.	✖				
The product makes my **production** more **transparent**.					
The product is **easy to use** and **understand** by all persons working with in.		✖			
The **design** of the solution is easy to understand.		✖			

UC 3.2 - Webinar - Which practical solutions can Internet Of Things new technologies bring to Grape & Wine producers

(with UC 3.1, 3.6, 4.4)

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Wine shipping monitoring: 85% replied the solutions are useful for their businesses – 51% of which asked to have more information (*) Remote quality analysis: 72% replied the solutions are usefull for their businesses – 40% of which asked to have more information (*) See also survey on annex 2	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Webinar went well, no bad feedback from attendees	
Communication with stakeholders	(*)	In the post webinar survey we had 2 interesting feedback: To have information on the technology cost (which can be provided by each solutions presenter to the people who replied they need more info during the dedicated survey) To be able to try the solutions in their context (which can be organized by each solutions presenter to the people who replied they need more info during the dedicated survey) We need to go deeper in the information to evaluate the different applications, but these need to be easy because the farmers people are curious but

		also not very already prepared to use technology in the work of every days ..they need to understand the true utility . An important goal will be to make and increase culture of the technology in all the process from grape to wine, and more and more will be possible because the instruments are easy and performing

Target audience and feedback

Total number of participants (from all target groups):	318

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

⇨ From initial survey

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
20%							*55%*	*25%-15% students*

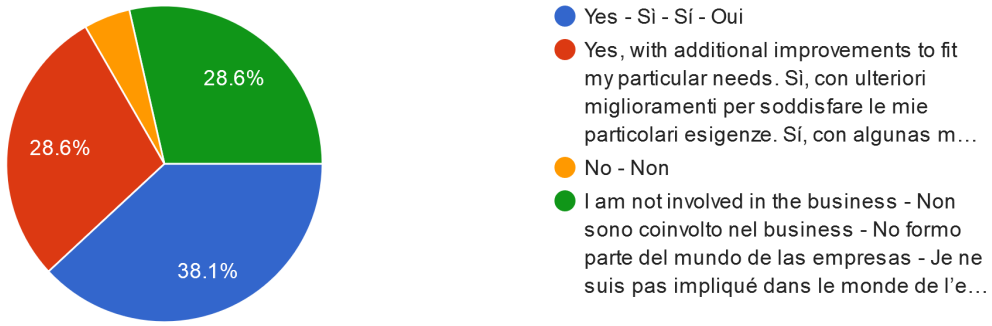
How will you implement feedback you have received form the participants?	Ask the solutions presenters For instance the 3.6/3,2 wine shipping monitoring will invite the people who need more info to a dedicated session in January where they will provide more info and propose the people to perform tests
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**See survey in annex 2**

Feedback from participants

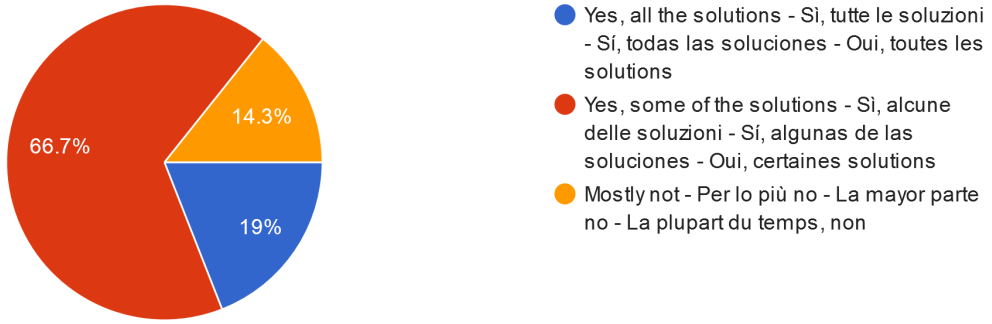
A feedback has been asked during the event:
85% replied the solutions are useful for their businesses – 51% of which asked to have more information
A survey was made after the event:

1. The additional benefit of the presented solutions in the grape and wine sector is clear. Il vantaggio delle soluzioni presentate nel settore dell...s dans le secteur de la vigne et du vin est évident.
21 responses

2. The proposed solutions can be useful for my daily work. Le soluzioni proposte possono essere utili per il mio lavoro quotidiano. Las soluciones p...sées peuvent être utiles pour mon travail quotidien.
21 responses

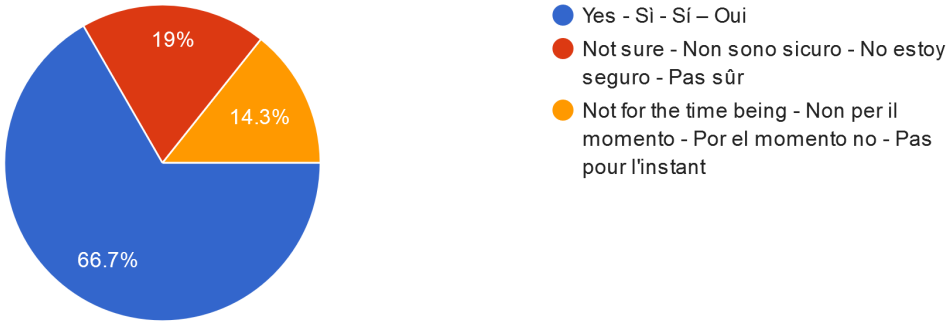


3. Do you think these IoT Technologies are easy to use and understand by the people working in the grape and wine sector? - Ritiene che queste tecn...travaillant dans le secteur de la vigne et du vin ?
21 responses

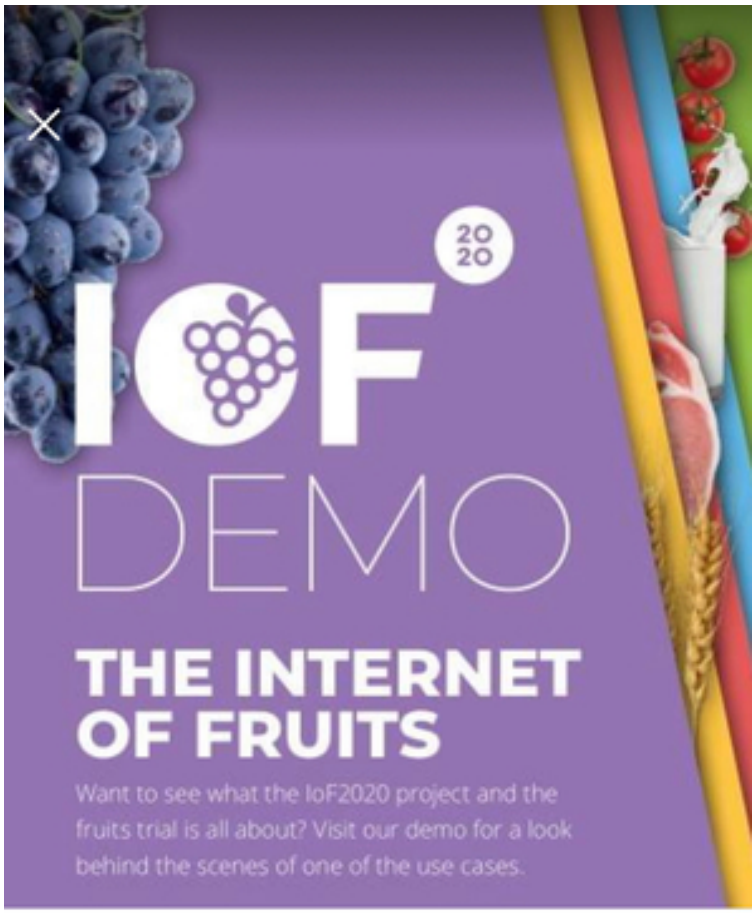


4. Would you be willing to pay for such (IoT) solutions - Sareste disposti a pagare per tali soluzioni (IoT) - ¿Estaría dispuesto a pagar por este tipo de...riez-vous prêt à payer pour ces technologies (IdO)

21 responses



Dissemination tools



Internet of Food & Farm 2020
29 lug ·

Want to have a look behind the scenes of our **#fruits #UseCases**? Then we suggest to check out the **#demonstration #webinar** by Big **#Wine #Optimization** & Beverage Integrity **#Tracking**. We just uploaded the recordings of this multilingual webinar (English, Spanish, French, Italian) for you!
Panagiotis Arapitsas from **Fondazione Edmund Mach** and Gianni Trioli from **Vinidea** talk about the impact storage temperature has on wine quality and the new **#IoT** technologies which allow the remote analysis of wine and the monitoring of shipments. Both technologies were developed in collaboration with **Wenda** & **Isvea srl**.
Other project partners: **VINIDEAs**, **Highclere Consulting** & **SIVE - Società Italiana di Viticoltura e Enologia**.

https://www.iof2020.eu/latest/demonstrations/2020/07/new-iot-technologies-for-wine-quality

Webinar was promoted trough several different internet posts, such as Facebook posts, newsletter articles etc.

7/9/2020 Zimbra

Zimbra **celine.caffot@vinidea.it**

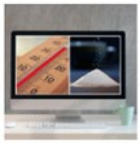
Webinar multilingüe gratuito: "Nuevas soluciones IoT para la calidad del vino"

Da : Formazione Vinidea <formazione@vinidea.it> mer, 03 giu 2020, 18:27
Oggetto : Webinar multilingüe gratuito: "Nuevas soluciones IoT para la calidad del vino"
A : celine caffot <celine.caffot@vinidea.it>
Rispondi a : iscrizioni@vinidea.it

Si no puede ver correctamente este mensaje pulse aquí.

VINIDEA

Webinar multilingüe gratuito:
"Nuevas soluciones IoT para la calidad del vino"
Viernes 12 de junio a las 10.30 am CEST (Hora Madrid)



El webinar incluirá las presentaciones de:

- **Panagiotis Arapitsas** de la Fondazione Edmund Mach (Italia) sobre el impacto de la temperatura de conservación **en la calidad de los vinos blancos y tintos**.
- **Gianni Trioli** de **Vinidea** sobre las **soluciones IoT** desarrolladas en el marco del proyecto europeo IOF2020 - Internet of

lyra.irixweb.com/h/printmessage?id=27319&tz=Europe/Berlin&xim=1 1/2

7/9/2020 Webinar "Nuevas soluciones IoT para la calidad del vino" - Plataforma Tecnológica del Vino

PTV

Home | Noticias | Webinar "Nuevas soluciones IoT para la calidad del vino"

Webinar "Nuevas soluciones IoT para la calidad del vino"

Buscar...

ÚLTIMAS ENTRADAS

Convocados Los Premios De Innovación Y Puesta 2020
4 Septiembre, 2020

Webinar: "Covid-19: Cambios En El Consumidor De Vino Y Claves Afrontarlos"
1 Septiembre, 2020

Premio De Innovación PTV 2020
1 Septiembre, 2020

TWITTER

El próximo **12 de junio a las 10.30** tendrá lugar el seminario web multilingüe y gratuito **"Nuevas soluciones IoT para la calidad del vino"**. Una jornada que analizará cómo las tecnologías del "Internet de las cosas" aplicadas a la elaboración y transporte del vino, pueden contribuir a una mayor calidad de éste.

www.plvino.com/es/webinar-nuevas-soluciones-iot-para-la-calidad-del-vino/ 1/3

7/9/2020 Zimbra

Zimbra **celine.caffot@vinidea.it**

2020 n. 7/3: Optimized infusion of wooden chips | A new life for winemaking lees | Micro-oxygenation | New technologies

Da : Infowine <eng@infowine.com> gio, 16 lug 2020, 21:03
Oggetto : 2020 n. 7/3: Optimized infusion of wooden chips | A new life for winemaking lees | Micro-oxygenation | New technologies
A : celine caffot <celine.caffot@vinidea.it>
Rispondi a : staff@infowine.com

If you do not read this message correctly, click here

infowine Internet Journal of Viticulture and Oenology

ENOTIMATIC:
Infusion of excellence at support to the winemaker

FRACTIONATE THE EXTRACTION
extract only the compounds of your interest

ENOTIMATIC is a new technology, efficient, economical, and practical that can improve the wine shelf -life, the stability and the organoleptic pleasantness through the fully automatized and optimized infusion of the wooden chips.
It permits to fractionate the extractions from the wood in few hours, to select those more interesting and punctually enrich both wines and distillates with compounds of oenological and nutraceutical interest.

lyra.irixweb.com/h/printmessage?id=30700&tz=Europe/Berlin&xim=1 1/3

UC 3.2 - Dedicated multilingual webinar “IoT technologies for wine quality”

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	**<u>people working in a winery and the winery owners:</u> 67% would be interested or very interested to purchase** a service to monitor the wines during their transport. and **74% would be interested or very interested to purchase a technology** to remotely analyze their wines **<u>consultants/wine makers</u>** that are **82% to be interested**	During the webinar, thanks to interaction with the public, we were comforted in the idea that the market needs solid data, linked with the typicity of the wine production region and the grape variety and that it is important to establish with the customer of the spectrophotometer a partnership so that he can feed the calibration curve, realizing analysis with traditional method and remote wine analysis

	or very interested to purchase a technology to remotely analyse their wines. .	method. **Therefor we consolidated the partnership with the Californian lab that will feed the system with data measured on their region wine. Moreover, the more calibration can integrate different region and variety values the larger the remote wine analysis market will become.** **(**)**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Webinar went well, no bad feedback from attendees	
Communication with stakeholders		

Target audience and feedback

Total number of participants (from all target groups):	274

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

- ⇨ From initial survey

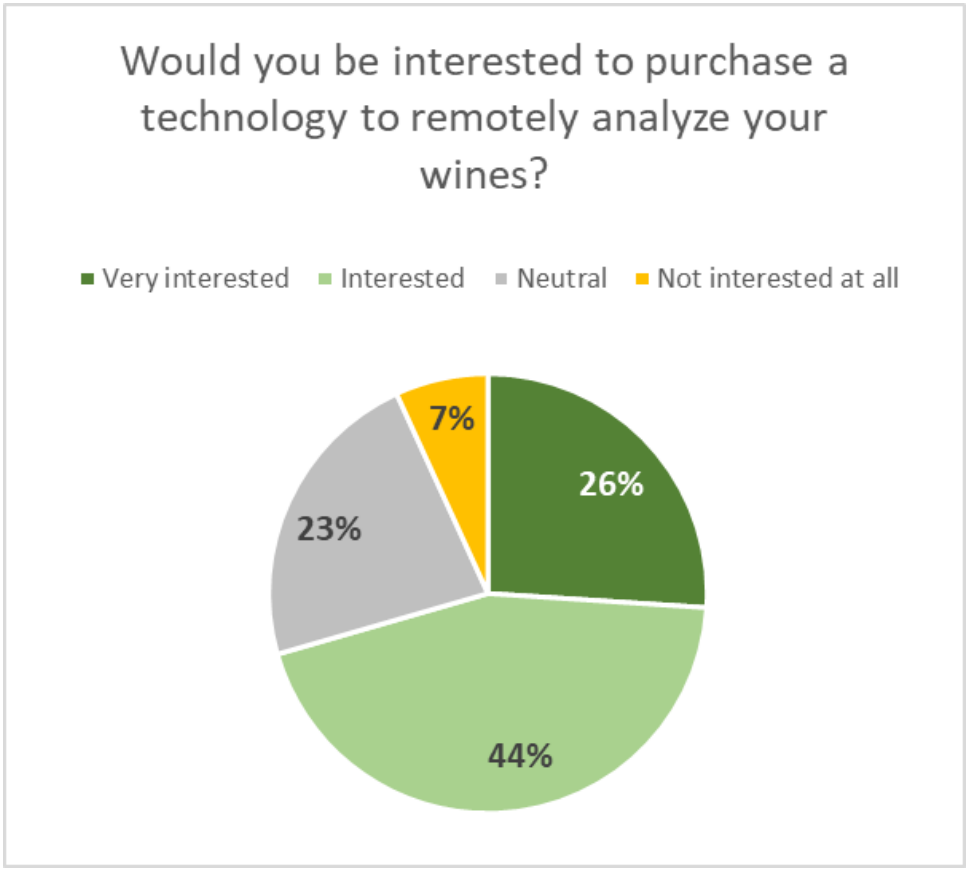
Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
13% researchers	*14% service/product providers*						*29% winery employee or owners* *28% consultants/wine markers*	*14% students*

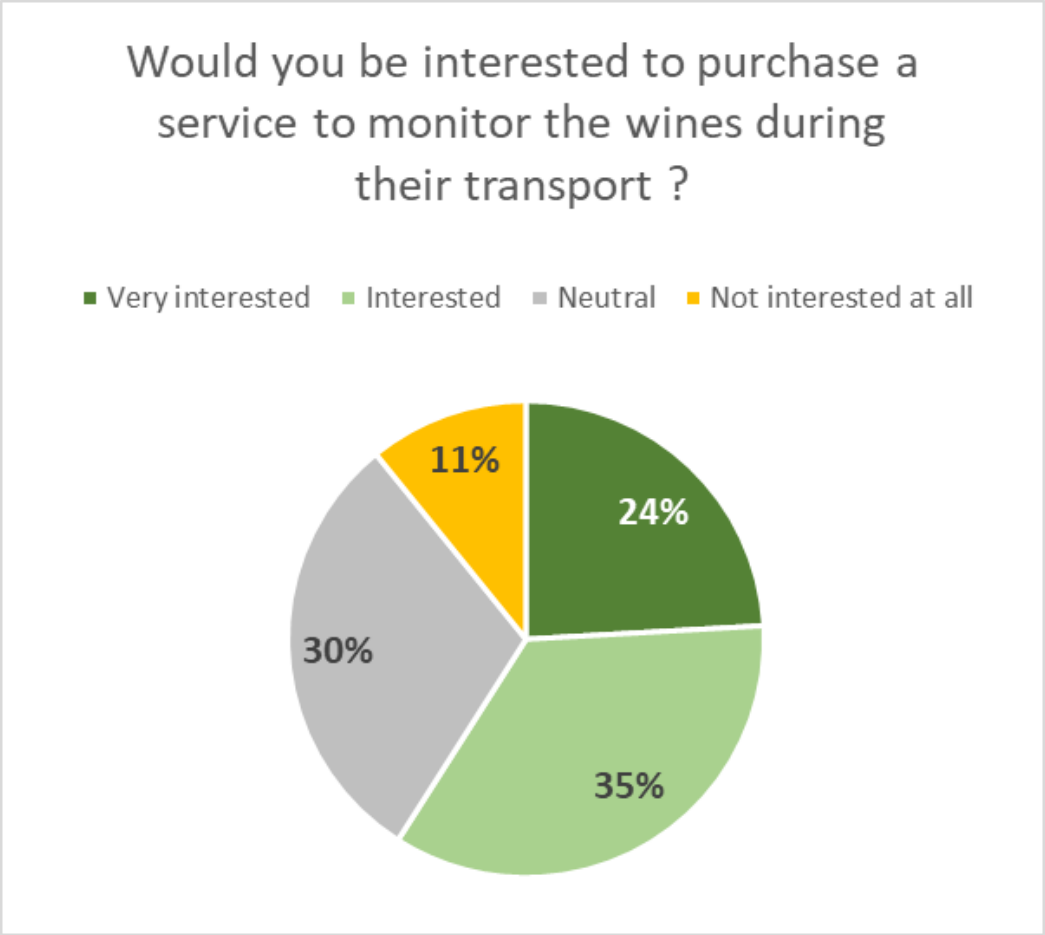
How will you implement feedback you have received form the participants?	For instance the 3.6/3.2 wine shipping monitoring solutions will invite the people who need more info to a dedicated session in January (21st of January) where they will provide more info and propose the people to perform tests

	For remote quality control, see also precedent point (**)
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**<u>people working in a winery and the winery owners:</u> 67% would be interested or very interested to purchase** a service to monitor the wines during their transport. and **74% would be interested or very interested to purchase a technology** to remotely analyse their wines **<u>consultants/wine makers</u>** that are **82% to be interested or very interested to purchase a technology** to remotely analyse their wines.

Feedback from participants

During the dedicated webinar (274 attendees) organized in June 2020 in English with simultaneous translation in Spanish, Italian and French, a survey gave the following results:





The results are even better while looking at the answer given:

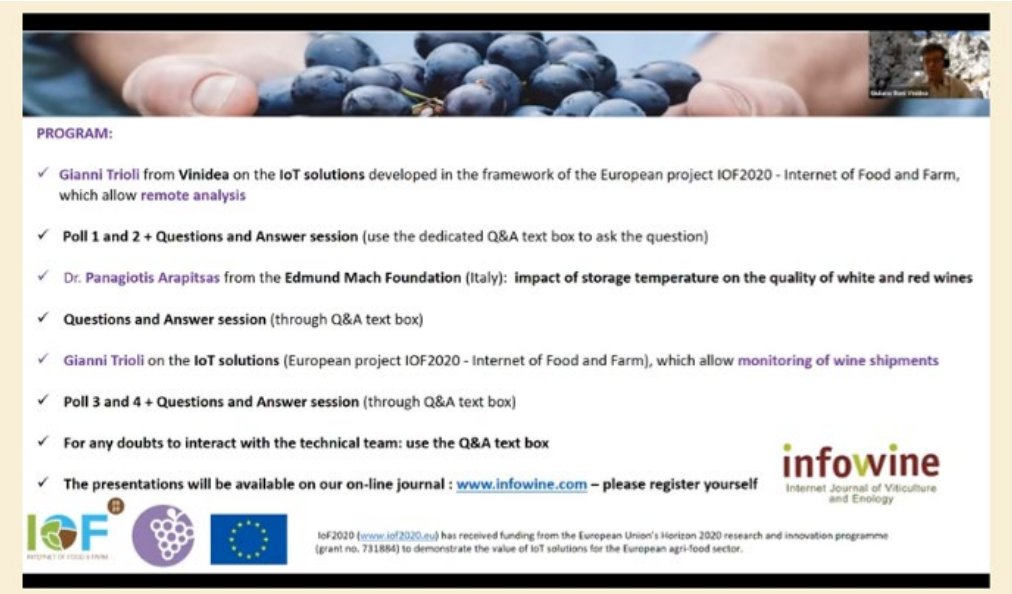
- by **the people working in a winery and the winery owners: 67% would be interested or very interested to purchase** a service to monitor the wines during their transport. and **74% would be interested or very interested to purchase a technology** to remotely analyse their wines
- by the **consultants/wine makers** that are **82% to be interested or very interested to purchase a technology** to remotely analyse their wines.

Supporting material

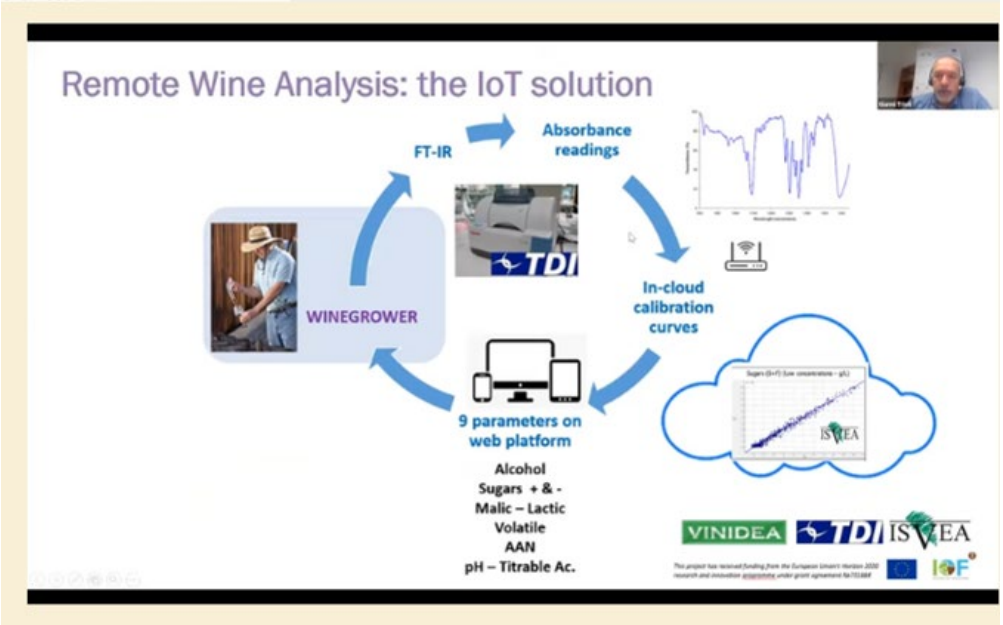
Recordings from the webinar in EN are available (also available in IT, SP and FR):

- https://www.infowine.com/en/news/new_iot_technologies_for_wine_quality_sc_18663.htm

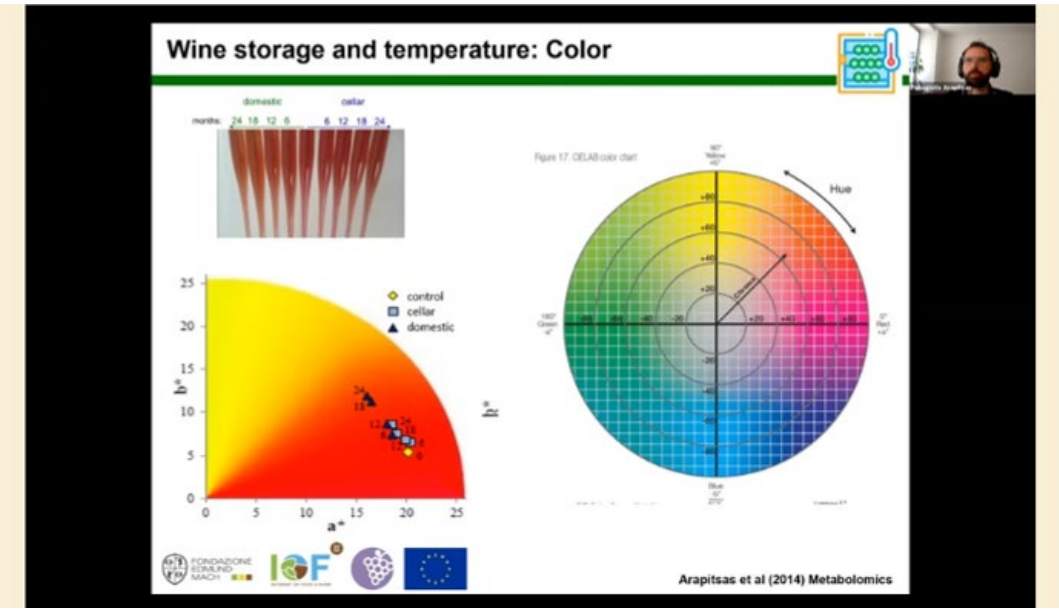
- Some screenshots from webinar:



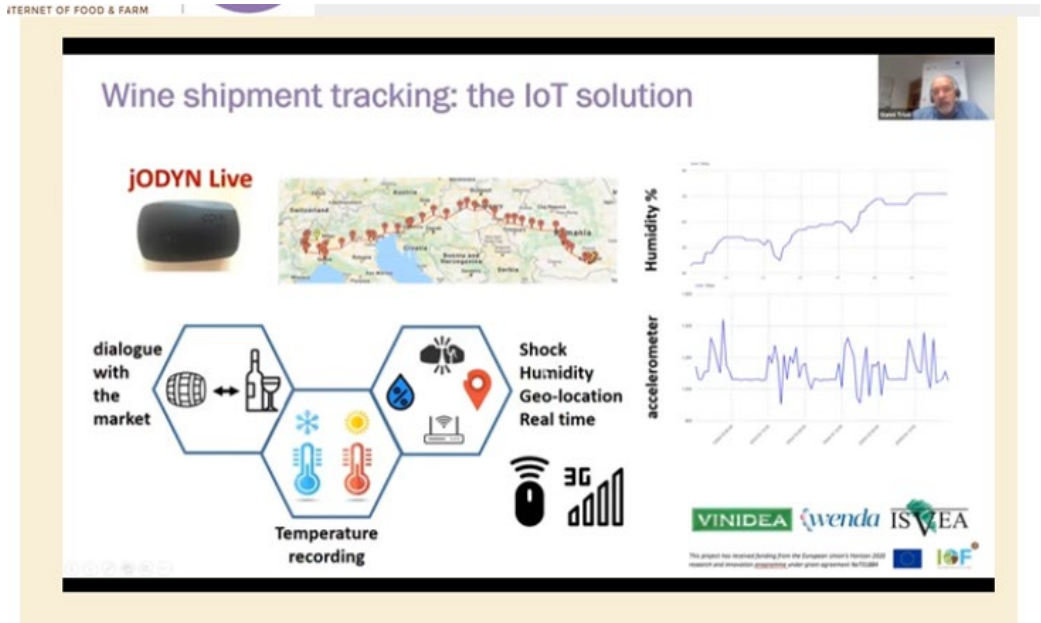
Introduction slides with the program



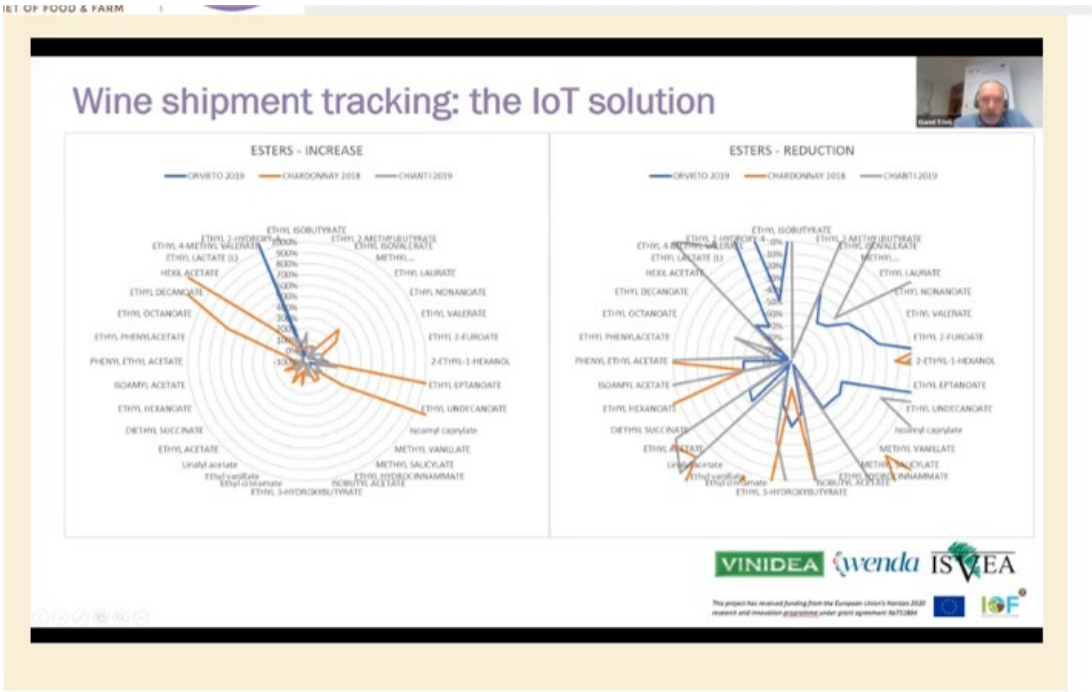
Extract from presentation Gianni Trioli on remote wine analysis solution



Extract from presentation by the expert -Dr Arapitsas on impact of storage temperature on the quality of wine



Extract from presentation Gianni Trioli on wine shipping monitoring solution



Extract from presentation Gianni Trioli on the test on winenresistance to high temperature

UC 3.2 - "Infowine forum web-wine-way" congress

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	Remote quality analysis: 28% replied that they are very interested to purchase the solution and 30% that they are interested so as a total 58%, consider that the public was also made of people who do not have a business position (researcher for instance) so if we remove the	

	neutral we have 78% interested Wine shipping analysis: 22% replied that they are very interested to purchase the solution and 40% that they are interested so as a total 62%, consider that the public was also made of people who do not have a business position (researcher for instance) so if we remove the neutral we have 79% interested	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The presentation went well, no bad feedback from attendees	
Communication with stakeholders		

Target audience and feedback

Total number of participants (from all target groups):	768 registered to the event

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others

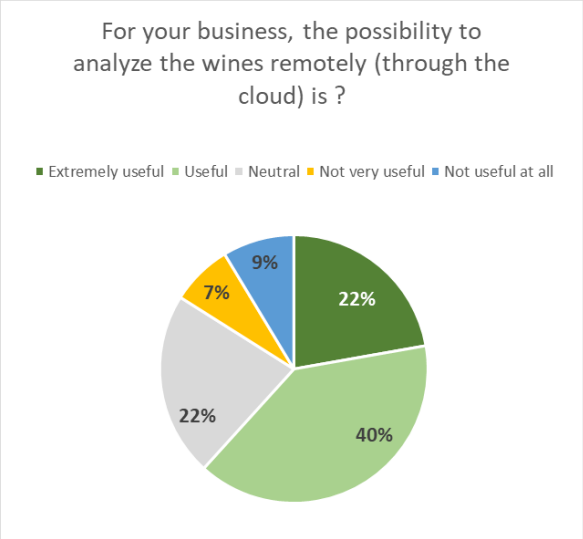
How will you implement feedback you have received form the participants?	

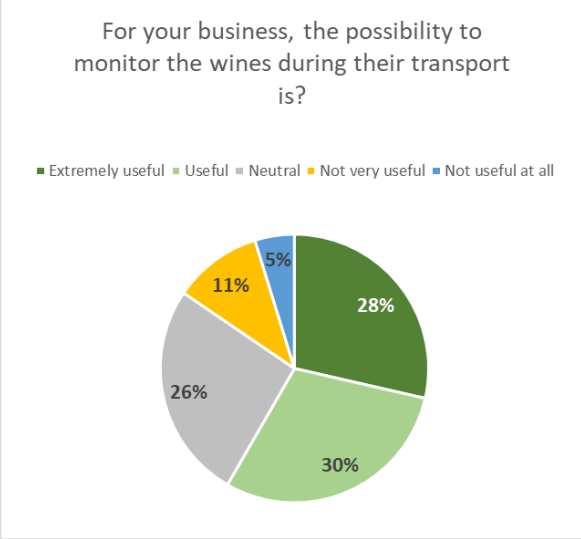
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	Remote quality analysis: 28% replied that they are very interested to purchase the solution and 30% that they are interested so as a total 58%, consider that the public was also made of people who do not have a business position (researcher for instance) so if we remove the neutral we have 78% interested. Wine shipping analysis: 22% replied that they are very interested to purchase the solution and 40% that they are interested so as a total 62%, consider that the public was also made of people who do not have a business position (researcher for instance) so if we remove the neutral we have 79% interested.

Feedback from participants

With 768 registered people the event achieved its goal of disseminating scientific knowledge and research produced by companies and institutions to the entire wine sector.

During the event a feedback was asked to Portuguese wine technicians giving the following results:





UC 3.2 - “Enoforum Web” congress

Target audience and feedback	
Total number of participants (from all target groups):	768 registered to the event
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)	

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
15%							*51%*	*Students: 18%* *Sommelier: 6%* *Other :* *10%*

UC 3.2 – Data Analysis Presentation

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	Useful feature for the prediction models (weather, frost, water and electricity consumption) for winegrowers	More data needs to be collected to showcase predictions within the full scope of the system. Testing will be done on more farms only in the upcoming period.
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The platform was showcases with all its functionalities for vineyards and wine cellars as well.	
Communication with stakeholders	Trough Q/A	

Target audience and feedback

Total number of participants (from all target groups):	2

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
	1							*1*

How will you implement feedback you have received form the participants?	The feedback received within the presentation will be integrated in the platform such as alarm systems and failures of sensors in the field.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	High interest expressed in the solution.

UC 3.3 - Smart Irrigation in Small Olive Orchards

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	**The IoT solution can provide useful information and save time and money to the olive growers.** **Remote control of irrigation is the future of irrigation and must be adopted by farmers for being more competitive.**	**The software must be easy to use.** **There must be a way for the old farmers to adopt modern technologies.**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**In the beginning, there was a short presentation from Antonis Paraskevopoulos (Regional Government Representative) on challenges that the olive crop faces.** **After that, Giorgos Kokkinos (president of Nileas farmers group) referred to the impact of IoF2020 in the area, and how the use of internet in the modern cultivation of olives and in the production of olive oils, can benefit the stakeholders in the olive oil value chain.** **Professor Spyros Fountas (AUA) presented the ways that precision agriculture can help farmers to be more competitive.** **Evangelos Anastasiou (AUA) presented the IoF2020 results on the application of smart irrigation in small olive orchards.** **Kostas Pramataris (Synelixis) conducted presentation on IoT technologies used on the UC3.3 trials.** **After that there was field visit in an olive**	**The demonstration activity took place in two days due to the Covid19 situation. The audience was splitted in half for this reason. The demonstration activities schedule was the same at both days.**

	orchard, in which the participants had the ability to check the IoT technologies of the UC3.3	
Communication with stakeholders	**The audience stated that learnt a lot on how the new technologies can help them be more productive and competitive.**	**Many olive growers were very old to learn how to use these technologies. They also stated that these are technologies for the younger farmers, and the only way to adopt these type of technologies is by collaborating with younger farmers or agronomists, who know how to operate these systems.**

Target audience and feedback

Total number of participants (from all target groups):	**73**

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
17	**53**			**3**				

How will you implement feedback you have received form the participants?	**New designs of the Graphic User Interface and of the equipment will be developed for making the IoT solution more user friendly.**
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**Most of the farmers stated that they are willing to pay for purchasing the IoT solution. The attendees identified a two-step process for purchasing this type of equipment. The first step includes the installation of the weather system, and after getting familiar with it they can move to the second step and purchase the irrigation control system.**

Feedback from participants

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	**[48]**	**[15]**			
This product can be **useful** for the daily work	**[35]**	**[20]**	**[8]**		

The product **improves** the **end user's (farm) management**	**[45]**	**[18]**			
The product provides a better **decision making**.	**[23]**	**[29]**	**[11]**		
The product makes the **production** more **transparent**	**[8]**	**[32]**	**[23]**		
The product is **easy to use** and **understand** by all persons working with it	**[10]**	**[21]**	**[32]**		
The **design** of the solution is easy to understand	**[43]**	**[20]**			

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)
   total

	Very useful	Useful	Neutral	Not useful
Lecture	**[53]**	**[10]**		
Field walk	**[30]**	**[7]**		
Technologies	**[45]**	**[18]**		

2. Replicability potential – can the suggested solution be adjusted to address your needs?

Yes [55]

3. What is your wiliness to pay for the solution?

Most of the farmers stated that they are willing to pay for the solution. However, the old farmers stated that they cannot use these technologies and for this reason they only way to pay for the solutions would be if there was someone else that would control them (e.g. agronomists, other farmers, cooperatives).

4. Open suggestions

- The state must support farmers and cooperatives on the adoption of these type of technologies through subsidies.
- Local resellers or other trained personnel (e.g. agronomists, young farmers, cooperatives) could support farmers on the control of this type of equipment.
- More workshops should be conducted for helping farmers to learn and adopt new farming technologies and practices.

IMAGES FROM IOF2020 DEMO EVENT IN CHORA MESSINIAS

Georgios Kokkinos from Nileas farmer's group presents on how IoF2020 impacted the area.

UC 3.4 - Consumer Electronic Show (CES 2020)

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	**Low cost, universal asset tracking functionality with global coverage**	**New sensors like BLE, Wi-Fi. Indoor asset tracking**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**Tracker (IoT device) integrated into EPS IoF Fruit case, Backend/Cloud for Sensor data visualization, Short summary presentation of tracker functionality**	**Live demo wasn't always functional (spotty SigFox network connectivity in Vegas)**
Communication with stakeholders	**Most of them requested for market launch date, samples for testing, compatibility with their cloud solutions**	**The solution was at TRL6. Detailed plans for TRL8 is currently underway**
Target audience and feedback		

Total number of participants (from all target groups):	>1000
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)	

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
>100	*>500*	*>100*	*>1000*	*>100*	*>100*	*>100*	*>100*	*>100*

How will you implement feedback you have received form the participants?	**Will be considered for the next design or industrialization phase of the tracker solution**
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**Yes most of them were willing to pay for the solution. As per the market research done, many commercial solutions in the market are at least 10 times the cost (estimated selling price) of NXP tracker. Hence many customers asked for engineering samples to test them. They also wanted to know the market launch date.**

UC 3.4 - “Deutsche Obst & Gemüse Kongress” (German Fruit & Vegetable Congress)

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
Technical Track	**NXP Tracker**	**Combination if Tray and Tracker**
Software Track	**Locman**	**Logic behind it**
Business Track	**Value Chain partner**	**Networks**

Target audience and feedback	
Total number of participants (from all target groups	>320 people (web based and physical)

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
>10	*>200*				*>10*			*>100*

How will you implement feedback you have received form the participants?	**Via an online survey organized by Dt. Obst und Gemüsekongress**
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**Very positive feedback from the customers.**

UC 3.5 - Coloquio sobre tecnologia para a agricultura biologica (Samuel Salgado)

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**Everyone involved was surprised with the features of the Smartomizer**	-
Solution presentation (how, what	**The reduction of the**	-

additional material was used, structure of demonstration, etc.)	**environmental impact was the big surprise along with the reduction on the quantity of materials used and consequent reduction of costs.**	
Communication with stakeholders	**Friendly environment, with an easy approach and involvement from everybody**	-
Open field for suggestions	**-**	**-**

Questionnaire for attendees
General questions:

1. How did you learn about this demonstration event (tick box)?

Personal invitation
Farming press
X Website
Social media
Other (indicate which): ……

2. Overall, how would you rate the event?

Excellent
X Very Good
Good
Fair
Poor

3. What did you like about the event?
4. What did you dislike about the event?

5. Prior the event, how much information that you need did you get?

All of the information
Most of the information
X Some of the information
A little of the information
None of the information

6. How do you think this event could have been improved?
7. How likely are you to attend one of our future events?

Not likely at all
Not Likely
Neutral
Likely
X Very likely

8. What are the two most useful things you got out of the event?
9. Please identify any specific priority areas for you that could be the focus at future events.

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event

	Very useful	Useful	Neutral	Not useful
Lecture		X		
Field walk			X	
Technologies		X		

2. Are functionalities easy to understand?
3. Replicability potential – can the suggested solution be adjusted to address your needs?
4. Open suggestions

UC 3.5 - Demonstration of SMARTOMIZER technology in field (Promodis)

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	Testing, functionality and usefulness are examined.	In agriculture, APP and IoT can be understood, interpreted, and differentiated by the farmer with separate prior learning, which is difficult for him at first.
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The Smartomizer catalogues and associated tablet will be used.	The Smartomizer tablet and cloud can only be presented effectively to a small number of students with a special focus on students.
Communication with stakeholders	Development and implementation of technical journals, technical cooperation with farmers and engineers for the development of the Smartomizer system.	Overall, the needs of the orchard and vineyards can be coordinated with the program. Unfortunately, it is expected that many will be able to copy between each other.
Open field for suggestions	Collaboration, new ideas contribute to the development of the Smartomizer system..	learnt from competition, not real needs of farmers.

Feedback from participants

Report on conducted activities ΣΑΛΑΤΟΒΟΛΑΙΑ, 2020 oh xo

General questions:

1 . How did you learn about this demonstration event (tick box)?
- ☐ Personal invitation
- C] Farming press
- Website
- ☐ Social media
- ☐ Other (indicate which):……

2. Overall, how would you rate the event?
- ☐ Excellent ☑ very
- Good
- ☐ Good
- ☐ Fair
- ☐ poor

3. What did you like about the FIELD DEMONSTRATION event?
4. What did you dislike about the ? NOTHING event?
5. Prior the event, how much information that you need did you get?
- ☐ All of the information
- Most of the information
- ☐ Some of the information
- ☐ A little of the information
- ☐ None of the information

6. How do you think this event could have been improved?
CLOSER TO THE FIELDS
7. How likely are you to attend one of our future events?
- ☐ Not likely at all
- ☐ Not Likely
- ☐Neutral
- Likely
- ☐ Very likely

8. What are the two most useful things you got out of the event?
9. Please identify any specific priority areas for you that could be the focus at future events.
SPRAYERS, GRAPES HACHINERY

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	x			
Field walk		x		
Technologies	x			

2. Are functionalities easy to understand? YES
3. Replicability potential — can the suggested solution be adjusted to address your needs?
4. Open suggestions

(to be added, based on your questions indicated in DAP, Feedback from participants)

TECHNOLOGY

UC 3.5 - Master degree “Plant Health”

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	Very advanced technology for the current state of special crops.	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The demonstration was done online, with Microsoft Teams. This allows reaching many people, and answering their questions, with a low investment in resources.	
Communication with stakeholders	Students	Different levels of knowledge of spray technology in specialty crops.

Target audience and feedback

Total number of participants (from all target groups):	15

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others	
X									

How will you implement feedback you have received form the participants?	We will improve the content for future demonstrations, to adapt it to all levels of knowledge.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	The attendees of this demonstration were students, so this point was not discussed.

Feedback from participants

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	X				
This product can be **useful** for the daily work		X			
The product **improves** the **end user's (farm) management**	X				
The product provides a better **decision making**.	X				
The product makes the **production** more **transparent**	X				
The product is **easy to use** and **understand** by all persons working with it		X			
The **design** of the solution is easy to understand		X			

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Regulation system based on TRV	X			
H3O Connect	X			
My Fede APP		X		

2. Replicability potential – can the suggested solution be adjusted to address your needs?
The general opinion is that this technology is necessary in today's specialty crop plantations.

3. What is your wiliness to pay for the solution?

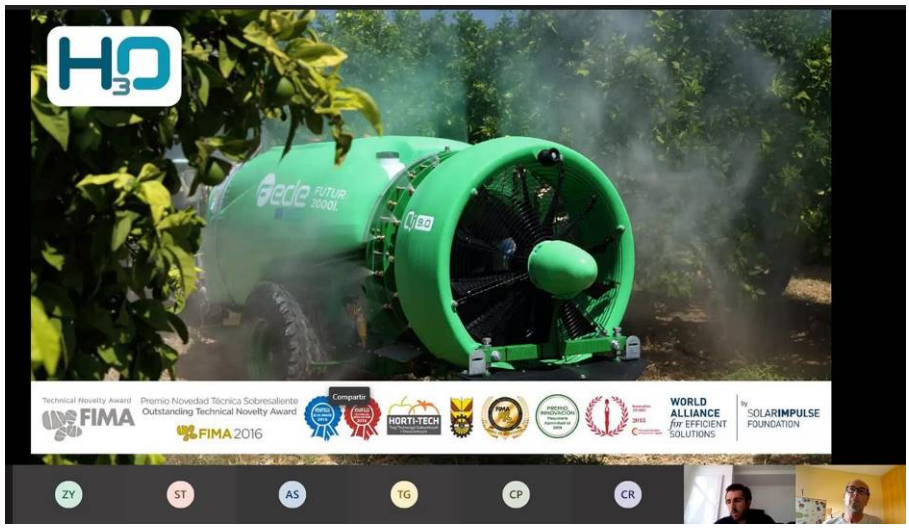
The attendees of this demonstration were students, so this point was not discussed.

4. Open suggestions

No open suggestions.

5. *…additional questions to be added based on UC specific needs)*

Some screenshots of the presentation used.



Approach & Methodology

UC 3.5 - Webinar "Connectivity in high value crops: Smartomizer"

Lessons Learnt report

DA field	Highlights	Attention points

IoT solution features – observation (based on interaction with attendees)	Technology needed in certain plantations today.	Some questions regarding the distribution of this technology in different countries.
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The demonstration was conducted online, with Microsoft Teams, by Fede Perez, CEO of Pulverizadores Fede. This allowed us to have a large number of participants, including a large part of our dealers.	More time for questions.
Communication with stakeholders	Great opportunity to get feedback.	

Target audience and feedback

Total number of participants (from all target groups):	40

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
X							*X*	

How will you implement feedback you have received form the participants?	We will improve the content for future demonstrations, to adapt it to all levels of knowledge.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	The attendees of this demonstration were students, so this point was not discussed.

Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	X				

This product can be **useful** for the daily work		X			
The product **improves** the **end user's (farm) management**		X			
The product provides a better **decision making**.	X				
The product makes the **production** more **transparent**	X				
The product is **easy to use** and **understand** by all persons working with it		X			
The **design** of the solution is easy to understand		X			

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Regulation system based on TRV	X			
H3O Connect	X			
My Fede APP	X			

2. Replicability potential – can the suggested solution be adjusted to address your needs?

Yes, for dealer it is an interesting added value at a commercial level to have this technology.

3. What is your wiliness to pay for the solution?

For agricultural technicians very high, since they obtain traceability of the phytosanitary treatments carried out, in addition to reducing the dose of product applied.

4. Open suggestions

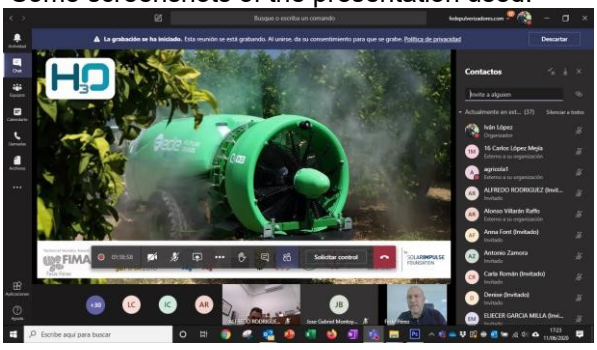
No open suggestions.

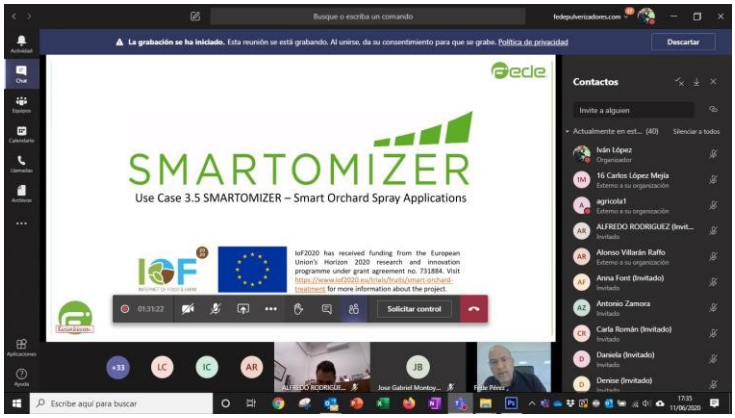
5. *…additional questions to be added based on UC specific needs)*

Promotion tools:

Invitation

Some screenshots of the presentation used.





UC 3.5 - Webinar “Efficient application and treatment.”

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Importance of properly calibrated Smartomizer H3O technology to achieve effective and efficient treatments.	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The demonstration was carried out by Roberto Grau, Chief Customer Service Officer of Pulverizadores Fede. The structure was to carry out a brief review of the history of application systems, until to the current technology. Subsequently, the Smartomizer H3O technology was presented and how to calibrate them to perform an effective and efficient treatment.	Constant improvement and update according to the demands of the users.
Communication with stakeholders	The Online Dissemination Activity allow us to transfer the knowledge of the Smartomizer H3O in an effective way thanks to contact with key stakeholders from anywhere.	
Target audience and feedback		
Total number of participants (from all target groups):	50 aprox	
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)		

	Scientific	Industry	Civil Society	General Public	Policy	Media	Investors	Others	Customers	
								X		

How will you implement feedback you have received form the participants?	The proposals made are already on our development roadmap, so we will continue working on them.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	Unanimous opinion on the need for this technology in these different levels of functionalities.

Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	X				
This product can be **useful** for the daily work		X			
The product **improves** the **end user's (farm) management**	X				
The product provides a better **decision making**.		X			
The product makes the **production** more **transparent**	X				
The product is **easy to use** and **understand** by all persons working with it			X		
The **design** of the solution is easy to understand		X			

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Calibration of sprayers	X			
Connectivity	X			

My Fede APP	X			

2. Replicability potential – can the suggested solution be adjusted to address your needs?
Digitization is a necessary step to optimize resources (PPP, fuel, etc…) and improve agri-food safety

3. What is your wiliness to pay for the solution?
The need to acquire this technology increases as regulatory pressure to reduce the use of PPP grows. It is also necessary in large farms to reduce costs.

4. Open suggestions
Possibility of implementing the data generated by the Smartomizer H3O and the Specialty Crops Platform in ERPs or different farm management software.

5. *…additional questions to be added based on UC specific needs)*

UC 3.5 - Demonstration of SMARTOMIZER technology in field (Samuel Salgado Portugal)

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**Positive evolution of technology** **Useful** **Saving tool for all partners**	**The first impression, some costumers doubt the system and the advantages of Smartomizer. After they are interacting with the system H3O and seeing the benefits, they have been more receptive to this technology.**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**Table, whiteboard and laptop to display the cloud.** **Tablet – H3O system** **Catalogues** **Hydro-sensitive paper**	**I would take power to connect a larger screen to the computer in the field. So that all attendees can have clearer view.**
Communication with stakeholders	**H3O technology will be mandatory in the future.** **Food safety depends on traceability and this system allows that it happens in the most modern agriculture.** **In agrobusiness profitability**	**Some customers comment on the difficult change from a mechanical to digital system. However, seeing the system so intuitive, they believe that it will be a little time to get used to the technology.**

	systems have already been developed for a long time while in agriculture they are not. Therefore, this system will meet the needs of the growing demand.	

	It is ambitious system, it makes perfect sense, saves water, reduces costs, and helps to environmental	
Open field for suggestions	**Carry out more events like this action.** **Work with some collaborations with Portuguese companies to encourage and promote the Smartomizer in large farms in different cities of Portugal.**	


SS
Salgado, Unipessoal, Lda


2000L

UC 3.5 - Demo field of Smartomizer – H3O technology and spray control (Jasienies, Poland)

Lessons Learnt report

DA field	Highlights	Lowlights
IoT solution features – observation (based on interaction with attendees)	HOW EASY IS TO SET UP SPRAYER WITH SYSTEM PROMPT H3O + DYNAMIC 8.0 + NEW HOLLAND 70 HP. INVITATIONS, LEAFLETS, ON THE FIELD DIRECT + FB + MAIL IDEA OF CHANGE INITIATE OF SPRAYING (START/STOP) DIFFICOULT TO TAP ON TARGET POINT WHILE DRIVING	AFRAID TO CHANGE QUANTITY OF CHEMICALS PER HA SMALL GROUPS ONLY – EASY TO DISCUSS – EASY TO ANSWER QUESTIONS – PANDEMIC TIME MANY OF USERS BASE ON OLD TECHNOLOGY AND THEY DO NOT CARE FOR NOZZLES SET UP. HABIST ARE MOST IMPORTANT FOR THEM
Solution presentation (how, what additional material was used, structure of demonstration, etc.)		
Communication with stakeholders		

Target audience and feedback

TWORKI, 12.11.2020

ANNEX 2

Report on conducted activities

WIESŁAW GRZYBOWSKI

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?
   - [x] Personal invitation
   - [ ] Farming press
   - [ ] Website
   - [ ] Social media
   - [ ] Other (indicate which): ....
2. Overall, how would you rate the event?
   - [ ] Excellent
   - [x] Very Good
   - [ ] Good
   - [ ] Fair
   - [ ] Poor
3. What did you like about the event?
   DIFFERENT SPRAYING WAYS and SPRAYERS
4. What did you dislike about the event?
   –
5. Prior the event, how much information that you need did you get?
   - [ ] All of the information
   - [x] Most of the information
   - [ ] Some of the information
   - [ ] A little of the information
   - [ ] None of the information
6. How do you think this event could have been improved?
   LONGER TESTS ON THE FIELD
7. How likely are you to attend one of our future events?
   YES
   - [ ] Not likely at all
   - [ ] Not Likely
   - [ ] Neutral
   - [ ] Likely
   - [x] Very likely
8. What are the two most useful things you got out of the event?
   PRECISIONS, SETTINGS
9. Please identify any specific priority areas for you that could be the focus at future events.
   3SERIES

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	X			
Field walk	X			
Technologies		X		
...				

2. Are functionalities easy to understand?
   YES, a little complicated
3. Replicability potential – can the suggested solution be adjusted to address your needs?
   Yes, many
4. Open suggestions:
   CHANGE STEERING FROM TABLET TO TOUCH BOTTOM
5. ... *(to be added, based on your questions indicated in DAP, Feedback from participants)*

TWORKI, 12.11.2020

ANNEX 2

Report on conducted activities

KAROL DERWISZ

Questionnaire for attendees

General questions:

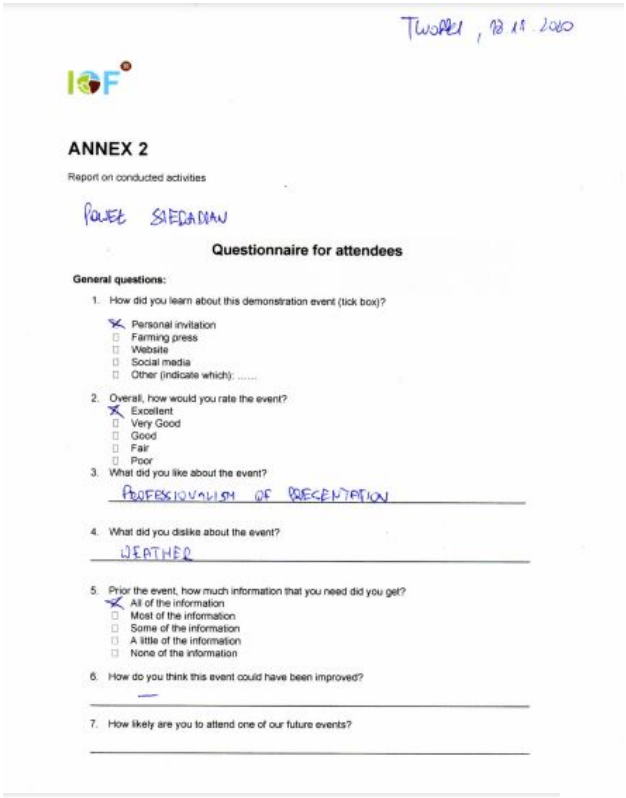
1. How did you learn about this demonstration event (tick box)?
   - [x] Personal invitation
   - [ ] Farming press
   - [ ] Website
   - [ ] Social media
   - [ ] Other (indicate which): ....
2. Overall, how would you rate the event?
   - [x] Excellent
   - [ ] Very Good
   - [ ] Good
   - [ ] Fair
   - [ ] Poor
3. What did you like about the event?
   PRECISION WE CAN TOUCH
4. What did you dislike about the event?
   –
5. Prior the event, how much information that you need did you get?
   - [ ] All of the information
   - [x] Most of the information
   - [ ] Some of the information
   - [ ] A little of the information
   - [ ] None of the information
6. How do you think this event could have been improved?
   SPRING TIME,
7. How likely are you to attend one of our future events?
   WOULD LIKE
   - [ ] Not likely at all
   - [ ] Not Likely
   - [ ] Neutral
   - [ ] Likely
   - [x] Very likely
8. What are the two most useful things you got out of the event?
   SET UP OF THE SPRAYERS
9. Please identify any specific priority areas for you that could be the focus at future events.
   ORCHARD - APPLE, CHERRY, 3SERIES

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	✓			
Field walk	✓			
Technologies	✓			
...				

2. Are functionalities easy to understand?
   Yes, many questions
3. Replicability potential – can the suggested solution be adjusted to address your needs?
   CHANGE SYSTEM OF INITIATE SPRAYING - START/STOP
4. Open suggestions:
   –
5. ... *(to be added, based on your questions indicated in DAP, Feedback from participants)*
   Good feedback about nozzles, settings and ~~[illegible]~~ GIV assistence.



TWARDY, 12.11.2020

ANNEX 2

Report on conducted activities

PAWEŁ SIEDLANIA

Questionnaire for attendees

General questions:

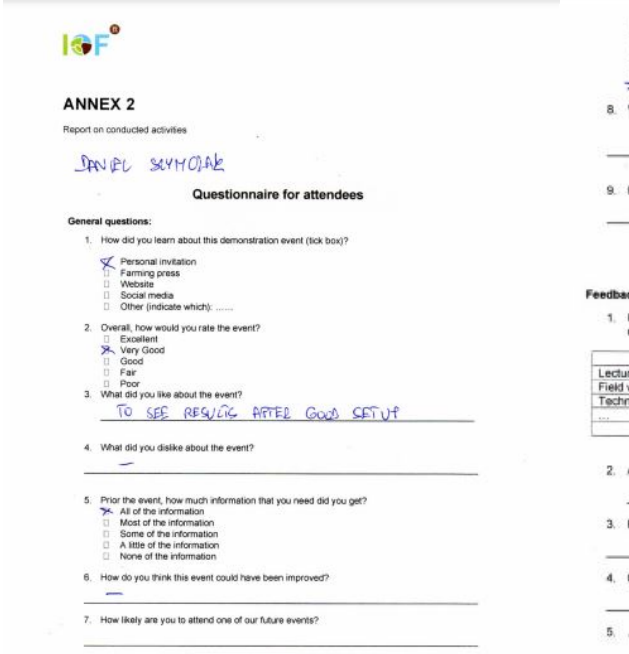
1. How did you learn about this demonstration event (tick box)?
   - [x] Personal invitation
   - [ ] Farming press
   - [ ] Website
   - [ ] Social media
   - [ ] Other (indicate which): .....
2. Overall, how would you rate the event?
   - [x] Excellent
   - [ ] Very Good
   - [ ] Good
   - [ ] Fair
   - [ ] Poor
3. What did you like about the event?
   PROFESSIONALISM OF PRESENTATION
4. What did you dislike about the event?
   WEATHER
5. Prior the event, how much information that you need did you get?
   - [x] All of the information
   - [ ] Most of the information
   - [ ] Some of the information
   - [ ] A little of the information
   - [ ] None of the information
6. How do you think this event could have been improved?
   —
7. How likely are you to attend one of our future events?
   - [ ] Not likely at all
   - [ ] Not Likely
   - [ ] Neutral
   - [ ] Likely
   - [x] Very likely
8. What are the two most useful things you got out of the event?
   NOZZLES, AIR ASSISTANCE - SETTINGS
9. Please identify any specific priority areas for you that could be the focus at future events.
   SPECIES

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	✓			
Field walk	✓			
Technologies	✓			
...				

2. Are functionalities easy to understand?
   MANY QUESTIONS MUST BE RESPONSE
3. Replicability potential – can the suggested solution be adjusted to address your needs?
4. Open suggestions:
5. *... (to be added, based on your questions indicated in DAP, Feedback from participants)*



ANNEX 2

Report on conducted activities

DANIEL SZYMCZAK

Questionnaire for attendees

General questions:

1. How did you learn about this demonstration event (tick box)?
   - [x] Personal invitation
   - [ ] Farming press
   - [ ] Website
   - [ ] Social media
   - [ ] Other (indicate which): .....
2. Overall, how would you rate the event?
   - [ ] Excellent
   - [x] Very Good
   - [ ] Good
   - [ ] Fair
   - [ ] Poor
3. What did you like about the event?
   TO SEE REGLAG AFTER GOOD SETUP
4. What did you dislike about the event?
   —
5. Prior the event, how much information that you need did you get?
   - [x] All of the information
   - [ ] Most of the information
   - [ ] Some of the information
   - [ ] A little of the information
   - [ ] None of the information
6. How do you think this event could have been improved?
   —
7. How likely are you to attend one of our future events?
   - [ ] Not likely at all
   - [ ] Not Likely
   - [ ] Neutral
   - [ ] Likely
   - [x] Very likely
8. What are the two most useful things you got out of the event?
   SET UP OF THE SCRAPER
9. Please identify any specific priority areas for you that could be the focus at future events.
   —

Feedback to UC

1. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	✓			
Field walk	✓			
Technologies	✓			
...				

2. Are functionalities easy to understand?
3. Replicability potential – can the suggested solution be adjusted to address your needs?
4. Open suggestions:
5. *... (to be added, based on your questions indicated in DAP, Feedback from participants)*

UC 3.5 - Demonstration activity – Fede and Alfersan

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**Support and value data for your process and company** **H3O technology helps to organize the work treatments and visualize without must be in the field.** **The app helps to calibrate all sprayers** **The app is for free** **"Agro Acción" TV program is a platform for all farmers to learn about Smartomizer.**	**Due to Covid -19, Alfersan can only invite to a wine cellars, because in this area does not have to meet more people.**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**Flyers, Catalogues** **Smartomizer poster**	
Communication with stakeholders	**H3O technology is the present.** **We can recollect all the data and this data will be necessary for block chain in the supermarket.** **It is a great advance and help for organic wine The app has different languages.** **The data calibration can share with other colleague by WhatsApp and other formats.**	**In the first impression, some farmers are not opened mind with the technology and does not like to change the work form. However, then they used Smartomizer, they accepted that the H3O is very intuitive and they did not effort too much during the changed.** **You have to Android mobile, because the app cannot download on IOS version.**
Open field for suggestions		

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884. Visit iof2020.eu for more information about the project.

UC 3.5 - Participation “Infowine forum web-wine-way” congress – May 12th (Italian use case)

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	24% replied that they are very interested to purchase the solution and 35% that they are interested so as a total 59%, consider that the public was also made of people who do not have a business position (researcher for instance)	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	The presentation went well, no bad feedback from attendees	
Communication with stakeholders		

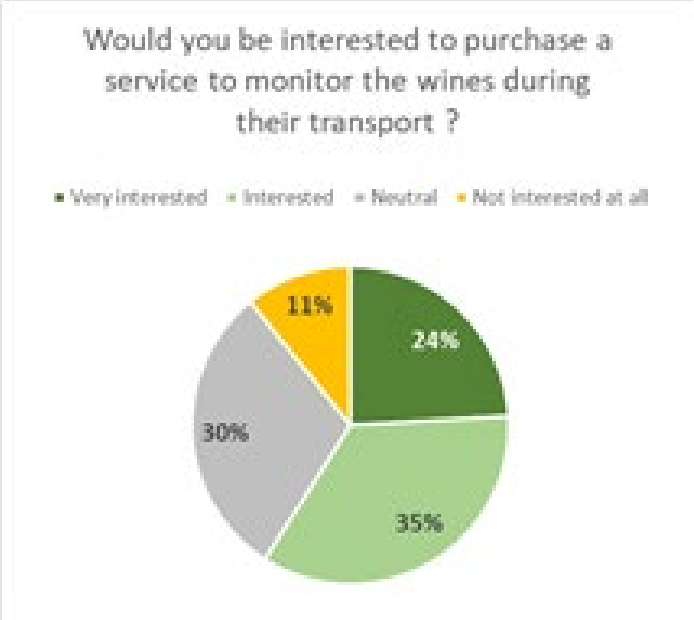
Target audience and feedback

Total number of participants (from all target groups):	768 registered to the event
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)	

	Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others

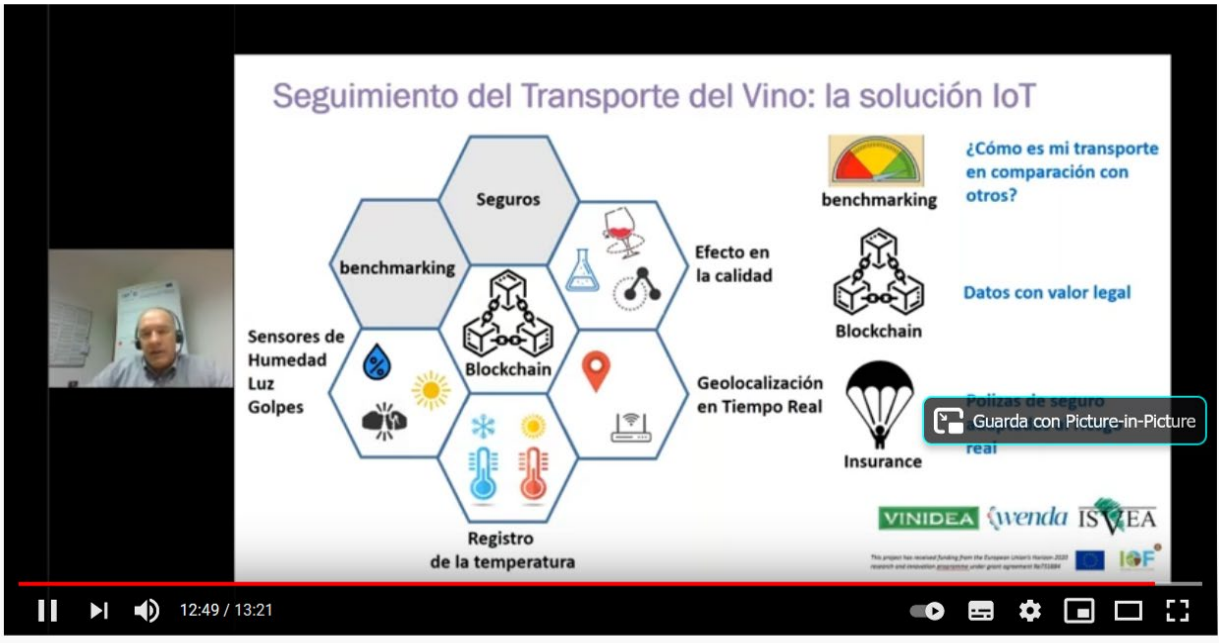
How will you implement feedback you have received form the participants?	
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	24% replied that they are very interested to purchase the solution and 35% that they are interested so as a total 59%, consider that the public was also made of people who do not have a business position (researcher for instance)

During the event a feedback was asked to Portuguese wine technicians giving the following results:



With 768 registered people the event achieved its goal of disseminating scientific knowledge and research produced by companies and institutions to the entire wine sector.

Novas soluções para adegas no âmbito de IOT



Novas soluções para adegas no âmbito de IOT

UC 3.5 - Dedicated multilingual webinar “IoT technologies for wine quality”

Lessons Learnt report

DA field	Highlights	Attention points
IoT solution features – observation (based on interaction with attendees)	71% would be interested or very interested to establish a direct communication between the wine producer and the final retailer and 67% to purchase a service to monitor the wines during their transport.	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Webinar went well, no bad feedback from attendees	
Communication with stakeholders	(*)	

Target audience and feedback

Total number of participants (from all target groups):	274

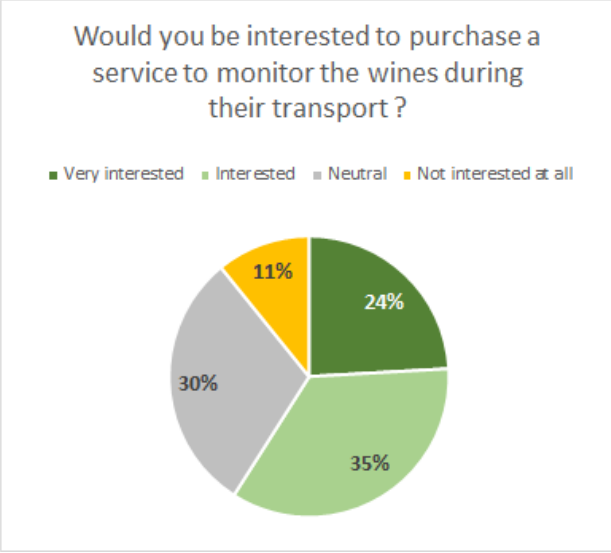
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

- ⇨ From initial survey

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
13% researchers	*14% service/product providers*						*29% winery employee or owners* *28% consultants/wine markers*	*14% students*

How will you implement feedback you have received form the participants?	For instance the 3.6/3.2 wine shipping monitoring solutions will invite the people who need more info to a dedicated session in January (21st of January) where they will provide more info and propose the people to perform tests
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	71% would be interested or very interested to establish a direct communication between the wine producer and the final retailer and 67% to purchase a service to monitor the wines during their transport.

During the dedicated webinar (274 attendees) organized in June 2020 in English with simultaneous translation in Spanish, Italian and French, a survey gave the following results:

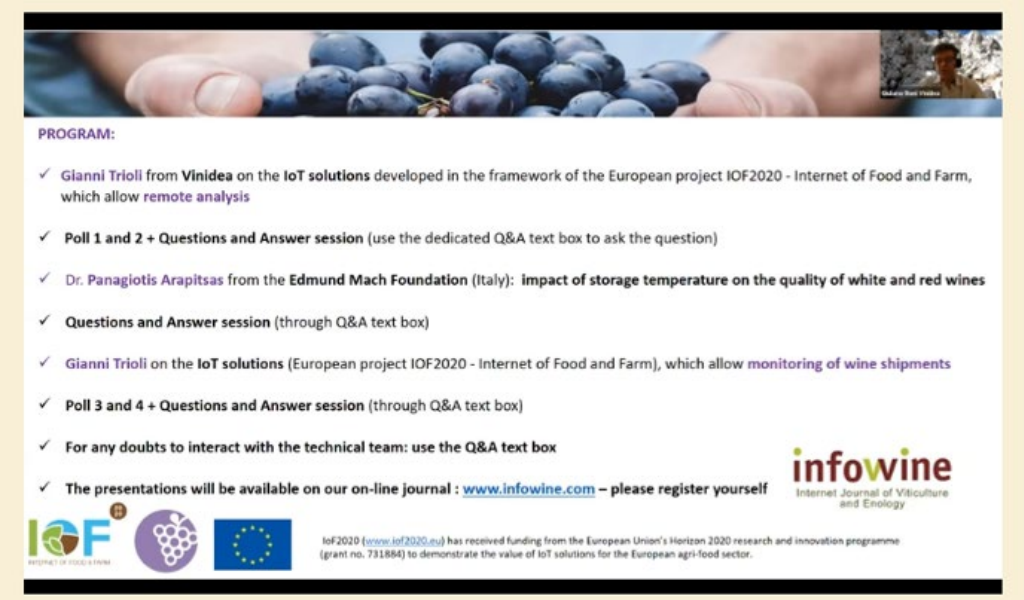


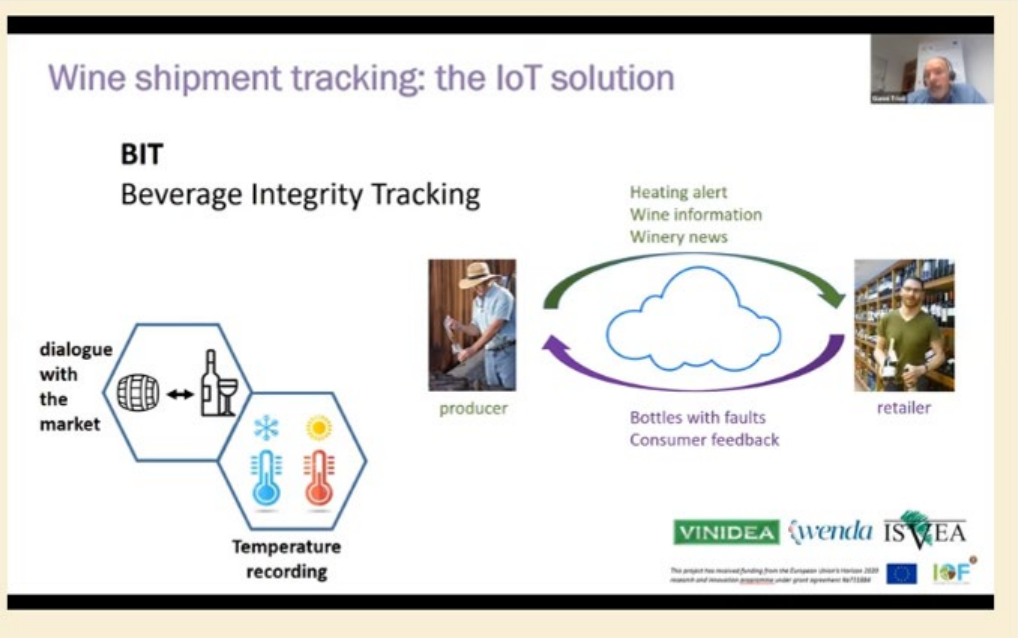
The results are even better while looking at the answer given by the people working in a winery and the winery owners: 71% would be interested or very interested to establish a direct communication between the wine producer and the final retailer and 67% to purchase a service to monitor the wines during their transport.

Recordings from the webinar in EN are available (also available in IT, SP and FR):

https://www.infowine.com/en/news/new_iot_technologies_for_wine_quality_sc_18663.htm

Some screenshots from webinar:





UC 3.5 – ENOFORUM WEB congress

Enoforum Web, the first technical and scientific conference for the wine sector held totally online, with 30 speakers from Spain, Italy, France, USA, Australia, Argentina, Chile, South Africa – took place from the 5th to the 7th of May, 2020.

Enoforum is a congress format created twenty years ago by the Italian company Vinidea, which has shown a progressive growth in its Italian, Portuguese and Spanish editions, to become the largest technical-scientific congress on wine in Europe. At the last Italian edition, held in Vicenza in May 2019, over 1200 technicians from the sector attended 120 presentations of the results recently obtained by 40 viticultural and oenological research groups from all over the world.

The Spanish edition of Enoforum 2020 was supposed to take place in Zaragoza on 7-8th of May, but the Covid19 emergency forced to cancel the on-site conference. However, thanks to the experience in webinar management gained by the Vinidea team in the past years, it was possible to transfer in 12 hours of digital event almost all the contents originally planned, giving up only the tastings and exhibition spaces.

Thanks to the collaboration of Antonio Palacios of Excell Iberica, and the patronage of the OIV (International Organisation of Vine and Wine), PTV (Wine Technology Platform) and numerous Spanish oenologists' associations, Enoforum Web has had a wide resonance among the Spanish-speaking technicians to whom it was addressed, and has registered a huge success with over 2000 participants from Spain (60%), South America (23%), the rest of Europe (7%) and North America (4%).

Target audience and feedback

Total number of participants (from all target groups):	768 registered to the event

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
15 %							*51%*	*Students: 18%* *Sommelier: 6%* *Other :* *10%*

Recordings:

https://youtu.be/0c_WGbpgiDY

Moreover the IOF2020 logo was used in the slide that was projected during the transition moments of the congress and in the program and guide of the congress -

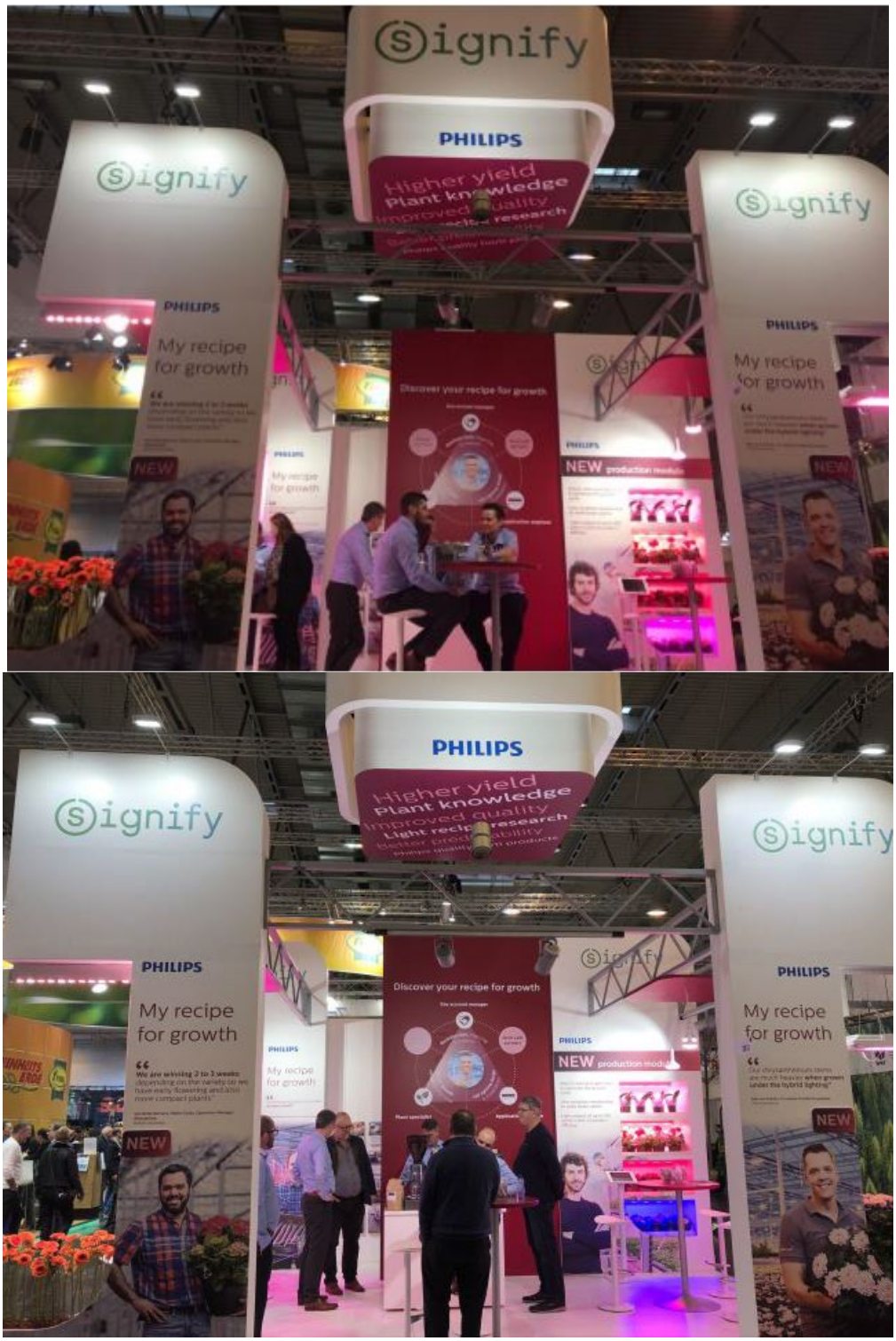
Link to the congress: https://www.enoforum.eu/en/editions/enoforum-web-2020/

UC 4.1 - IPM Fair

Lessons Learnt report

DA field	Highlights	Lowlights

IoT solution features – observation (based on interaction with attendees)	**We showed the software update from the GrowWise Control System. More functionality.** **The potential customers were enthusiastic about the update.**	**-**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**We showed the setup as in the demonstration activities plan.** **Every layer is a control area.** **Hardware components** • **Production Module** • **GrowWise Control System** **Controls** • **Tablet**	**-**
Communication with stakeholders	**Professionals from the horticultural sector or interested in vertical farming** **Stakeholders are informed by newsletters of the organization; social media (Twitter, Horti** **Daily, etcetera)**	**Due to the coronavirus no visitors from China area.**
Open field for suggestions		


Signify
PHILIPS
Higher yield
Plant knowledge
Improved quality
Light recipe research
My recipe for growth
Discover your recipe for growth
NEW production module
NEW

IPM Fair


for growth
PHILIPS
NEW production module


PHILIPS
My recipe for growth
NEW production module

UC 4.1 - Fruit Logistica Fair

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**We showed the software update from the GrowWise Control System. More functionality.** **The potential customers were enthusiastic about the update.**	**-**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**We showed the same setup as at the IPM in Essen.** **Every layer is a control area.** **Hardware components** • **Production Module** • **GrowWise Control System** **Controls** • **Tablet**	**-**
Communication with stakeholders	**General public and professionals from the horticultural sector or interested in vertical farming** **Stakeholders are informed by newsletters of the organization; social media (Twitter, Horti** **Daily, etcetera)**	**Due to the coronavirus no visitors from China area.**
Open field for suggestions		

FruitLogistica Fair booth

UC 4.2 - European Researchers' night

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Interest for the use of technology in agriculture	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	UC 4.2 Platform	
Communication with stakeholders	--	
Target audience and feedback		
Total number of participants (from all target groups):	120	

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
			120					

How will you implement feedback you have received form the participants?	It is difficult because mainly they were kids.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	

UC 4.2 – Webinar: Bases for the digital transformation in the horticultural farm of Almería (2 sessions of trainings)

UC 4.2 organized online trainings for actors interested in horticulture. Webinars were conducted in November and December 2020, and included two separate sessions – basic and advanced trainings. Both webinars gathered **around 220 industry** related actors from Andalusian region – growers and agricultural engineers. Details related to organized activities are given below:

Activity type 1: [webinar]	
Title of activity & link	*Bases para la transformación digital en la explotación hortícola de Almería (formación básica)* https://www.cajamar.es/es/agroalimentario/innovacion/formacion/actividades-de-transferencia/ano-2020/webinar-bases-para-la-transformacion-digital-en-la-explotacion-horticola-de-almeria-formacion-basica/
Audience reached	*70 people, Growers*
Geolocation	*Andalusian region*
Key message (s)	*Models as a decision support system*

Webinar - Bases for the digital transformation in the horticultural farm of Almería (basic training)

Under the title **'Bases for the digital transformation in the horticultural exploitation of Almería (basic training)'** the digital innovation hub *'Almería Smart Agrihub'* has organized some online sessions in which the foundations of this digital agriculture will be established. From here, an itinerary will be designed to improve knowledge of new technologies. Webinars will take place on **1 and 3 December** 16:30 to 18h, with the following agenda:

16:30 h. Welcome and introduction

16:35 h. **Smart agriculture: the importance of data. Sensors, machine vision, drones and satellites** – presented by Javier Gutierrez (HISPATEC)

17:15 h. **The Internet of things inside the greenhouse, IoF**, presented by UC coordinator Jorge Sanchez (University of Almeria) and Antonio Cespedes (Cajamar Experimental Station)

17:45 h**. Video presentation of the Nefertiti Project,** presented by Miguel Gimenez (University of Almeria)

17:55 h. **Discussion table**

18:00 h. End of event

Dissemination material

Programa Martes 1 Diciembre

16.30 hs.
Bienvenida y presentación

16.35 hs.
Agricultura inteligente: la importancia de los datos. Sensores, visión artificial, drones y satélites
- **Javier Gutiérrez**. HISPATEC

17:15 hs.
El Internet de las cosas dentro el invernadero. IoF
- **Jorge Sánchez**. Universidad de Almería
- **Antonio Céspedes.** Estación Experimental Cajamar

17:45 hs.
Presentación de vídeos del Proyecto Nefertiti
- **Miguel Giménez.** Universidad de Almería

17.55 hs
Mesa debate

18.00 hs
Cierre de la Jornada

Programa Jueves 3 Diciembre

16.30 hs.
El almacenamiento de la información: la nube
- **Alberto Oikawa** HISPATEC

17.00 hs.
Herramientas de apoyo a la decisión en riego y fertilización
- **Marisa Gallardo**. Universidad de Almería
- **María Dolores Fernández y Juan José** Estación Experimental Cajamar

17:40 hs.
Otras posibilidades de apoyo a la decisión en riego y fertilización
- **Rafael Ángel Ferrer**. HISPATEC

18.00 hs
Mesa debate

18.10 hs
Fin de evento

Activity type 2: [webinar]	
Title of activity & link	*Bases para la transformación digital en la explotación hortícola de Almería (formación básica)* https://www.cajamar.es/es/agroalimentario/innovacion/formacion/actividades-de-transferencia/ano-2020/webinar-bases-para-la-transformacion-digital-en-la-explotacion-horticola-de-almeria-formacion-avanzada/
Audience reached	*150 people, Agricultural engineers*
Geolocation	*Andalusian region*
Key message (s)	*Models as a decision support system*

Webinar - Bases for the digital transformation in the horticultural farm of Almería (advanced training)

Under the title '**Bases for digital transformation in the horticultural exploitation of Almería (advanced training)**' the digital innovation hub *'Almería Smart Agrihub'* has organized some online sessions in which the foundations of this digital agriculture will be established. From here, an itinerary will be designed to improve knowledge of new technologies. Webinars will take place on **17 and 19 November** 16:30 to 18h, with the following agenda:

16:30 h. Welcome and introduction

16:35 h. **Smart agriculture: the importance of data. Sensors, machine vision, drones and satellites** – presented by Javier Gutierrez (HISPATEC)

17:15 h. **The Internet of things inside the greenhouse, IoF**, presented by UC coordinator Jorge Sanchez (University of Almeria) and Antonio Cespedes (Cajamar Experimental Station)

17:45 h**. Video presentation of the Nefertiti Project,** presented by Miguel Gimenez (University of Almeria)

17:55 h. **Discussion table**

18:00 h. End of event

Dissemination material

UC 4.5 - Agrotica2020		
Lessons Learnt Report		
Demonstration Activity field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	Useful sensor data, traceability potential very interesting, low-cost approach, user-friendly IoT platform	Translate data to actions
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Perfect duration (approx.. 30 min), useful information in ppt before the actual DEMO	Not much privacy, noise etc;
Communication with stakeholders	Interesting tools to be used by farmers, good to see a Greek company to modernize local agrofood, young people working with old problems	Old generation's experience must also be tracked somehow, benchmark your solution to other relevant
Open field for suggestions	Promote products with a special offer to realise actual sales	
Feedback from participants		
Booth visitors were given a short pitch about IoF2020 4.5 trial and later they had a hands-on tour on the IoT platform currently in place and the sensors deployed in Slovenia and Cyprus. Next steps were also discussed and contacts made to continue updating the ones that were interested. Overall, there was massive participation at the booth more than 200 people stopped by and discussed while more than 50% left contact details. Also, survey responses were very encouraging although this response rate was a less than 10% but it is excusable in such a busy Fair. apparently, the general feedback was that this is a very good work and shall stay in touch for B2B or B2C collboration.		

Agrotica2020


HALL:02
STAND:54
Agrotica
FUTURE INTELLIGENCE
HALL:02
STAND:54
Agrotica
FUTURE INTELLIGENCE


FUTURE INTELLIGENCE
ΝΕΑ ΓΕΩΡΓΙΑ
ΓΙΑ ΤΗ ΝΕΑ ΓΕΝΙΑ
Farmers Uni
Η πρώτη
συνεργατική
πλατφόρμα στην
Ελλάδα!


NO SMOKING


HALL:02
STAND:54
Agrotica
FUTURE INTELLIGENCE
FUTURE INTELLIGENCE

UC 4.5 - Technology demonstration		
Lessons Learnt Report		
Demonstration Activity field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	Useful sensor data, maps also of great help, farm calendar extends the monitoring to management of the farm, interoperability with existing systems, excellent mobile UX	Update the Slovenian translate
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	duration (approx.. 120 min),	
Communication with stakeholders	Can we keep the equipment after the end of the project	Beware of the after sales support
Open field for suggestions	More sensors	
Feedback from participants		
Useful sensor data, maps also of great help, farm calendar extends the monitoring to management of the farm, interoperability with existing systems, excellent mobile UX		

Deployments in Slovenia





Deployments in Cyprus

UC 4.5 - FINT sales

Lessons Learnt Report

Demonstration Activity field	Highlights	Lowlights
IoT solution features – observation (based on interaction with attendees)	Useful sensor data, maps also of great help, farm calendar extends the monitoring to management of the farm, interoperability with existing systems, excellent mobile UX	
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	duration (approx.. 30 min),	Lengthy talks to prepare farmers for this step
Communication with stakeholders	Easy deployment	Beware of the after sales support
Open field for suggestions	More sensors	

Feedback from participants

Feedback is very encouraging, 40 offers already sent and first pre-payments are expected within December so projects start early next year

UC 4.5 – Open Study Slovenia

Invitation letter with agenda

Vabilo na študijski obisk OPEN STUDY TOUR po Sloveniji

Tehnološki park Ljubljana d.o.o. (partner projekta ODEON: Open Data for European Open Innovation), v sodelovanju z Ministrstvom za javno upravo ter Gospodarsko zbornica Slovenije (EK) Horizontalna mreža) vabi vse člane OPSI Huba (Središča odprtih podatkov Slovenije), zainteresirane podjetja, organizacije in študentke, na študijski obisk ključnih deležnikov s področja spodbujanja inovativnosti, razvoja novih tehnologij, ter uporabe/ponovne uporabe odprtih podatkov v smislu povezovanja javnega sektorja ter gospodarstva, z namenom ustvarjanja novih podjetniških priložnosti.

Vabimo vas, da se nam pridružite na

ŠTUDIJSKEM OBISKU »ODPRTO PO SLOVENIJI«,

v četrtek, 10. in petek, 11. septembra 2020

Prvi dan študijskega obiska se bomo najprej seznanili z aktivnostmi, ki jih v zvezi z obdelavo podatkov izvajajo v Centru za umetno inteligenco na Inštitutu Jožef Štefan, ki deluje pod okriljem Unesca, nato bomo pot nadaljevali do Vzorčnega mesta, kjer testirajo različne pametne sisteme na področju mesta in regij. Z deležniki lokalnega OD ekosistema pa bomo poiskali tudi nove možnosti za generiranje in vključevanje odprtih podatkov in predstavili napredne inovativne tehnologije, uporabne v mestih prihodnosti. V popoldanskem času bomo nadaljevali pot v Maribor, kjer bomo skupaj z raziskovalci Digitalnega inovacijskega stičišča Univerze v Mariboru, pokukali v vizijo HPC računalnikov in splošne uporabe umetne inteligence za delo s podatki. Sledil bo pogovor z deležniki OD ekosistema o pomenu prenosa znanja od raziskovalnih institucij na start-up in spin-off podjetja. Temu pa bo sledil kratek ogled mestnega središča Maribora z večerjo ter obiskom laboratorija za združevanje znanosti in umetnosti KiblaZlab.

Drugi dan se bomo v dopoldanskih urah odpravili proti Prekmurju, kjer se bomo s predstavniki Digitalnega inovacijskega stičišča Pomurskega tehnološkega parka pogovorili o možnostih uporabe OD v kmetijstvu in tovarnah prihodnosti, hkrati pa bomo deležnikom prekmurskega OD/LOD ekosistema predstavili prednosti OPSI HUB in ovrtili potrebe ter priložnosti za nadaljnji razvoj portala odrtih podatkov Slovenije. Zaključek študijskega obiska bo potekal v paviljonu Expano, kjer se bomo seznanili z interaktivni doživetjem Prekmurja in še to povezali z uporabo odprtih podatkov.

Odhod udeležencev bo v četrtek, 10.9 ob 7:45 iz Ljubljane, (Dolgi most), predviden povratek nazaj v petek, 11.9. ob 19:00.

OPSI Hub

Program študijskega obiska

10. in 11. september 2020

1. dan

7:30 – 7:45	Zbiranje / Odhod - Dolgi most, Lj
8:00 – 9:30	Ogled centra umetne inteligence – IJS
9:30 – 11:00	Pot Ljubljana - Velenje
11:00 – 12:30	Vzorčno mesto Velenje
13:00 – 14:00	Kosilo (Velenje)
14:00 – 15:00	Pot Velenje – Maribor
15:00 – 17:00	Digitalno inovacijsko stičišče Univerze v Mariboru
18:00 – 19:30	Sestanek z deležniki OD – Maribor
19:30	Večerja in obisk KIBLAZLAB

2. dan

09:00 – 10:00	Pot Maribor - Murska Sobota
10:00 – 12:00	Pomurski tehnološki park, ITC-DIH AGRIFOOD, DIH Pametne tovarne razprava z deležniki OD
12:00 – 13:30	Kosilo
13:30 – 16:00	Obisk paviljona Expano
18:00	Vrnitev v Ljubljano

Udeležba na študijskem izletu je brezplačna. Stroške prevoza, kosila in večerje, kot tudi morebitne vstopnine v inštitucije v celoti krije projekt ODEON (Interreg Mediteran).

Prijave na študijski obisk preko spletnega obrazca sprejemamo do 6. 9. 2020 (do 12 ure); več informacij na tel. št. 01 62037474 (Monika Cvetkov) ali prek e-pošte monika.cvetkov@tp-lj.si. Število udeležencev je omejeno na 30, prijave sprejemamo do zasedbe prostih mest.

Pridržujemo si pravico do odpovedi oz. zmanjšanja števila udeležencev študijskega obiska v primeru spremenjenih razmer zaradi COVID19.

Veselimo se srečanja z vami,

Aleš Pevc

Tehnološki park Ljubljan

OPSI Hub

Participants - Murska Sobota :

General presentation :

Equipment demonstration :

Farmers application DEMO:

End of DEMO in EXPANO:

Demo participants :

UC 5.1 - Webinar: Towards a better pig farm management with data

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	There was a great interest in all proposed solutions (the dashboard, the early-warning systems and the slaughterhouse data analysis). Participants asked for the website of the dashboard product.	Some of the participants found the proposed solutions not very innovative. This will probably be the case for farmers that do individual level monitoring of pigs. It should be stated more clearly in the invite that the webinar was about group level solutions to attract the right attendants.
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Because of the webinar, we were able to reach more people than would probably have been present on a physical event. Farmers, researchers and industry from both Belgium and the Netherlands were able to attend.	Some participants mentioned technical problems, like problems with sound, video or small text size of the slides. Some of this was due to the choice of the webinar tool.
Communication with stakeholders	The chat function was used for questions and suggestions, this allowed people to pose their question during the presentations or after and provides the opportunity for everyone to ask their questions.	Due to the webinar set-up communication with the stakeholders was limited to the Q&A sessions and the questionnaire. A physical meeting would probably have resulted in more interaction with the stakeholders also after the session.
Target audience and feedback		
Total number of participants (from all target groups):	**87 people subscribed for the webinar**	
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)		

- **Farmers: 51**
- **Farm periphery (veterinarians, feed industry, breeders and artificial insemination centers, farm advisors, slaughterhouses, tool developers, farmers organizations): 26**
- **Researchers & students: 8**
- **Press: 2**

How will you implement feedback you have received form the participants?	**As the dashboard is not yet released on the market, there is still time to test and further improve developments with a select group of farmers.** **Regarding the feedback on slaughterhouse data insights and individual level pig monitoring, the feedback is encouraging to continue research and developments in that trajectory.**
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	**The willingness to pay was not researched during the webinar.**

Due to the nature of the demonstration and the tool used to organize the webinar, we were only able to have a small questionnaire for the participants at the end of the webinar. 33 of the participants provided their feedback.

The webinar received an overall score of 3.5/5.

42% of the people that filled in the questionnaire were not pig farmers and did not judge the usefulness of the proposed solutions. 68% of the farmers found the presentation of the slaughterhouse data useful. The dashboard was thought to be useful by 37% of the farmers that filled in the questionnaire and 42% felt this way about the presented early-warning systems.

During the discussion it became clear that some of the farmers that had joined the session were farmers that applied individual level monitoring of pigs on their farm. Because of this, they already had quite some experience with data and data monitoring on their farm and we would expect that group level solutions are not their main interest.

Participants wanted a next webinar to be about:

Individual level monitoring (42%)

Insights in slaughterhouse data (42%)

Early-warning systems (33%)

Boar taint (15%)

Invitation letter

Beste heer/mevrouw,

Live data die verzameld worden op het vleesvarkensbedrijf (voedergegevens, klimaat, etc.) kunnen gebruikt worden om het management te verbeteren door snellere bijsturingen en verhoogde inzichten.

Tijdens het Europees project IOF2020 werd gewerkt rond optimaal gebruik van data uit de stal en uit het slachthuis, zoals het ontwikkelen van een dashboard met vroegtijdige waarschuwingssystemen en het genereren van inkijk in slachthuisgegevens. Als afsluitstuk van het project worden het ontwikkelingstraject en de inzichten verzameld en gedemonstreerd in een webinar voor varkenshouders en belanghebbende periferie.

Zin om erbij te zijn? Schrijf je dan nu in voor dit gratis webinar! Klik hier om je aan te melden.

Datum

Donderdag 14 januari 2021, 19:00 – 20:30

Programma

19:00-19:10: Welkom en inleiding van de webinar
Jarissa Maselyne, projectcoördinator bij ILVO

19:10-19:30: Pig Insight: ontwikkeling van een vleesvarkensmanagement dashboard
Saartje Linssen, product expert bij Evonik Porphyrio

19:30-19:50: Vroegtijdig waarschuwingssysteem: wat, hoe en waarom?
Toon Leroy, datawetenschapper bij Evonik Porphyrio

19:50-20:10: Inzichten in slachthuisgegevens en combinatie met staldata
Chari Vandenbussche, onderzoeker bij ILVO

20:10-20:30: Vragen- en antwoordsessie
Jarissa Maselyne, projectcoördinator bij ILVO

Met vriendelijke groet,

Daniëlle Aarts - van de Loo
Projectleider Dier ZLTO

UC 5.2 - Webinar: IoT Based Poultry Chain Management

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	Smart data collection to support decision making and optimization Offer useful user-oriented information about key indicators is crucial Crossing information between production stages maximizes decision making effects	Combination of health-related direct observation statistics with digital information sources Dependency of every stage on the final result of the production process (e.g. inadequate manipulation/load of animals into trucks may invalidate any previous health or quality optimization strategy during briding/growing)
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	Online presentation (only slides and embedded animations). Stage per stage description of solutions, with a final section about inter-stages aggregated data analysis and cross-stage indicators	Every stage has specific needs and focus points Appropriate identification, measurement and tracking of key parameters is crucial
Communication with stakeholders	Open round of questions after the presentation, some participants offered feedback, others asked more specifics	Webinars are not optimal to establish an agile interaction with stakeholders, however questions and comments were raised at the moment Questionnaires are a good option to collect a more general feedback
Target audience and feedback		

Total number of participants (from all target groups):	10-15
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)	

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others

How will you implement feedback you have received form the participants?	n/a
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	We can't answer for a general consensus. However, comments received clearly stated that digital solutions that can be offered in a cost-efficient, non-invasive, with a simple-to-use/simple-to-understand usage and information offering will be for sure well accepted by the stakeholders, as they all agree on the benefits of adopting IoT and digital solutions in such case.

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Attendee 1	Attendee 2	Attendee 3	Attendee 4	Attendee 5	Attendee 6
The **additional benefit** for the farm is clear	Strongly agree	Strongly agree	Strongly agree	Agree	Strongly agree	Strongly agree
This product can be **useful** for the daily work	Strongly agree	Strongly agree	Agree	Agree	Agree	Agree
The product **improves** the **end user's (farm) management**	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Agree
The product provides a better **decision making**.	Strongly agree	Strongly agree	Agree	Agree	Agree	Agree
The product makes the **production** more **transparent**	Strongly agree	Strongly agree	Agree	Agree	Strongly agree	Agree
The product is **easy to use** and **understand** by all persons working with it	Strongly agree	Strongly agree	Agree	Agree	Disagree	Agree
The **design** of the solution is easy to understand	Neutral	Strongly agree	Agree	Agree	Neutral	Neutral

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Attendee 1	Attendee 2	Attendee 3	Attendee 4	Attendee 5	Attendee 6
Lecture	n/a	n/a	n/a	n/a	n/a	n/a
Field walk	n/a	n/a	n/a	n/a	n/a	n/a
Technologies	Very useful	Very useful	Useful	Very useful	Very useful	Very useful
…						

3. Replicability potential – can the suggested solution be adjusted to address your needs?

Attendee 1	Attendee 2	Attendee 3	Attendee 4	Attendee 5	Attendee 6
Yes	Yes	No response	No response	Yes	Yes

4. What is your wiliness to pay for the solution?

Attendee 1	Attendee 2	Attendee 3	Attendee 4	Attendee 5	Attendee 6
Medium	Low	Medium	Low	None	Medium

5. Open suggestions

No suggestions

6. *…additional questions to be added based on UC specific needs)*

n/a

Invitation letter

Tekniker (https://www.tekniker.es/es) ES

INICIO (HTTPS://WWW.TEKNIKER.ES/ES) / COMUNICACIÓN (HTTPS://WWW.TEKNIKER.ES/ES/COMUNICACION) /
AGENDA (HTTPS://WWW.TEKNIKER.ES/ES/AGENDA) /
INTELIGENCIA ARTIFICIAL E INTERNET DE LAS COSAS PARA LA MEJORA DE LA CADENA DE VALOR EN LA PRODUCCIÓN DE CARNE AVÍCOLA

Comparte esta página

INTELIGENCIA ARTIFICIAL E INTERNET DE LAS COSAS PARA LA MEJORA DE LA CADENA DE VALOR EN LA PRODUCCIÓN DE CARNE AVÍCOLA

14-12-2020 - 14-12-2020 Online | 10:00 - 11:00 h | 1 hora

La mejora en la eficiencia de la gestión de la producción avícola es un reto que incluye objetivos como la reducción de incidencias relacionadas con el bienestar (muertes, hematomas) en toda la cadena productiva, hasta la optimización de consumos (alimento, agua, medicamentos, etc.). Esto puede reportar grandes mejoras tanto a nivel empresarial como a nivel global.

En este contexto, el centro tecnológico **Tekniker** organiza, en colaboración con **Neiker**, el webinar "Inteligencia artificial e internet de las cosas para la mejora de la cadena de valor en la producción de carne avícola", que tendrá lugar el próximo lunes **14 de diciembre** a las **10:00 horas**.

En este webinar de una hora se presentarán los diferentes avances desarrollados en los últimos años gracias a la digitalización que se está produciendo en el sector, permitiendo un mayor conocimiento de cada explotación y una mejora en los resultados.

Inscríbete aquí (https://docs.google.com/forms/d/1DtYQzMj7LmNaRoTiUS8ZsXPbGRCZLiWA48-D_rdDkM8/viewform?edit_requested=true)

UC 5.4 - Datagri 2020 online

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**30**	**0**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**30**	**0**
Communication with stakeholders	**80**	**0**
Open field for suggestions	**3 suggestions**	**1 suggestion**

The conference was presented by Carlos Callejero CEO of Sensowave. The event reached 80 people connected. At the end of the event we could show QR code developed for the test bed Carrera d'en Bas avaliable in this link.

At the end of the presentation to have a feedback from users, we offered the oportunity to attendants to give their feedback in a survey about the information of the QR and their experiences.

The results we could obtain from the survey are described below:

- 30 people answered the survey from who, 4 were related to public authorities, 4 to technological companies, 1 to agri-food industries, 3 to press, 8 to research and universities and the rest not specified.
- The answers were very positive about the functionality of blockchain in the food chain and included:
- To the question Are you willing to pay more for a food product if you know information from the farm? 28 respondents answered yes, 2 respondents answered no.
- To the question would you willing to pay more for a product if they assured animal welfare assessment. All (30) respondents answered yes
- To the question would you like to talk directly with the farmer or even know him. 20 respondents answered yes, 10 no.
- Free comments and suggestions included to add nutritional information and not only the animal information, to identify which data is collected under blockchain and IoT and which is not and finally one respondent ask to use a less technical language.

The entire event is recorded and shared in YouTube available under this link2.

UC 5.4 - UC webinar for Famers cooperatives, Agrifood companies, researchers and IoF2020 community

The webinar focused on results obtained along the project. It was a good the opportunity for Use case 5.4. to show the results of the project to the scientific community from the IoF2020 project The presentation was hold by Tuesday 14th December 2020

Lessons Learnt report		
DA field	**Highlights**	**Lowlights**
IoT solution features – observation (based on interaction with attendees)	**15**	**0**
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	**15**	**0**
Communication with stakeholders	**15**	**0**
Open field for suggestions	**1 suggestions**	**0 suggestion**

The entire event is recorded and shared in available under the IoF2020 website in this link

The presentation covered the entire use case, first a presentation by Francisco Maroto UCO partner in the use case made an interesting presentation about the use case, and digitalization of the food chain. Second Ana Bugueiro from Sensowave explain the results obtained, showing the application of the QR code for the test bed in Girona, and finally Javier Martínez veterinarian at COVAP, explained his user experience as test bed for the project, and how they implemented the solutions for fatteners and breeders in their facilities.

The online webinar worked on time, the only problem, was the expected reached people was lower than expected, due to many of the interested public, preferred to watch it online from the recorded file. The file is already available from IoF2020 channels, and we expect much more visualizations in the upcoming weeks.

1. Feedback to Use Case related to demonstrated product (tick boxes)

Collected feedback from 15 farmers through phone interviews

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	4	6	4	1	-
This product can be **useful** for the daily work	3	5	6	1	-
The product **improves** the **end user's (farm) management**	-	2	10	3	-
The product provides a better **decision making**.	-	-	15	-	-
The product makes the **production** more **transparent**	7	7	1	-	-
The product is **easy to use** and **understand** by all persons working with it	3	6	3	3	-
The **design** of the solution is easy to understand	1	5	6	2	1

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
IoT devices	10	4	1	-
QR information	8	5	2	-
Digital marketing	7	6	2	-
E-commerce	10	4	1	-

3. Replicability potential – can the suggested solution be adjusted to address your needs?

All those present agreed on the possibility of replicating the solution and adapting it to their herds. There is a part of replicability that is very specific, such as brand design, packaging, but it is done only once, and the cost is not very high. The part of e-commerce and digital marketing as well as the IoT devices is highly replicable since it is to perform the same actions for the different herds.

4. What is your wiliness to pay for the solution?

In relation to the sale mechanism there were certain discrepancies. When a margin was proposed to them in relation to the sales generated by this new channel, the vast majority found it the most appropriate mechanism. They all agreed that the percentage on sales would depend on different factors (contracted services) and that this percentage should be between 10-25% of the sales generated by this channel. SensoWave presented preliminary results showing that this percentage would be covered for the most part by the increase in sales price compared to its traditional channels.

5. Open suggestions

A multitude of practical questions arose with the different practical farmers such as how to manage the transport of goods (SensoWave already has agreements with the two main cold logistics operators in the country), logistics related to the slaughterhouse and cutting room, QR codes, tasks that they had to perform, etc. Since preliminary results were still available, in most cases a new call was proposed during the first quarter of 2021 to advance the new line.

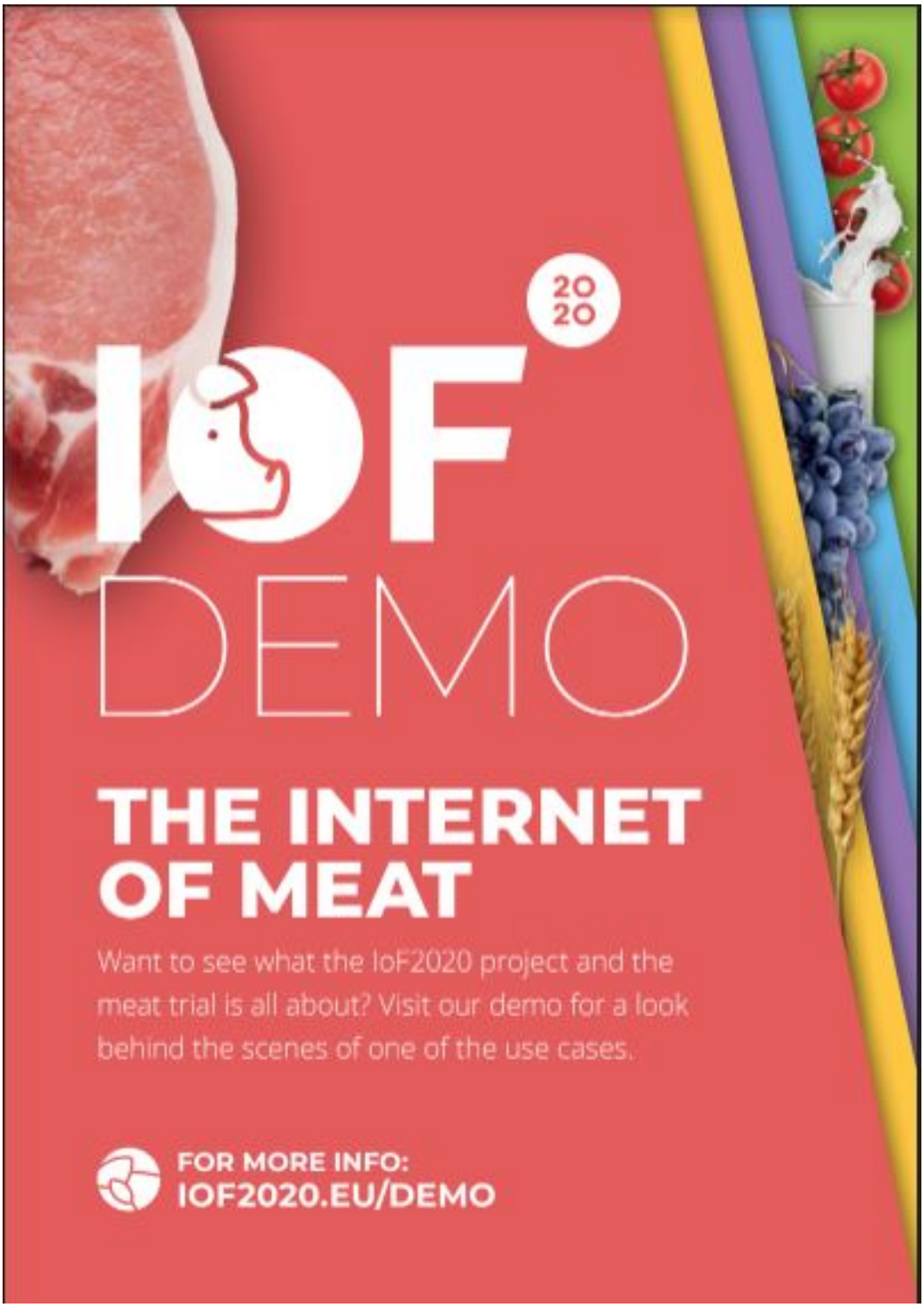
6. Do you want to get in contact with consumers and get their feedback?

The vast majority of those interviewed (more than 80%) believed that it was essential to establish a communication channel with the consumer to retain them and increase sales. Everyone saw the combination of information in QR code, social networks and digital marketing as the perfect combination to connect with consumers.

7. Do you think that “farm to fork” is a channel for the short-term future?

All of them agreed the online sales channel as a fundamental channel in the short term, more given the current situation of the Covid19 crisis. All of them saw a differential factor in being able to provide the consumer with expanded traceability information showing indicators of certification of origin, animal welfare, etc.

Invitation letter



Possibilities of traceability blockchain platform for beef products

In this webinar we will demonstrate the technical, administrative and business possibilities based on technological tools as IoT, blockchain, and Artificial intelligence applied to traceability and trade the benefits of data exchange between the different agents in the meat production chain. This webinar is part of the Use Case Decision-Making Optimisation in Beef Supply Chain of the IoF2020

Apply via (https://us02web.zoom.us/webinar/register/WN_5xpI7gFaSeiqkhgJhtkJ)

LOCATION

ONLINE WEBINAR

For more information write to:
info@sensowave.com

DATE & TIME

14 DECEMBER 2020
16:00 - 17:30

AGENDA

16:00 (CET) - Presentation (Carlos Callejero- CEO Digitanimal and Sensowave)
16:10 (CET) - Digitalisation of the traceability and data sharing implications. (Francisco Maroto - University of Córdoba)
16:30 (CET) - Use case results. (Ana Bugueiro - Project manager Sensowave)
17:00 (CET) - User experience. (Javier Martinez-Farmer & DVM COVAP)
17:15 (CET) - Future challenges and closure. (Carlos Callejero- CEO Digitanimal and Sensowave)

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

UC 5.5 - IOFEED: Smart Feed Supply Chain

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)	The general perception was good, really impressed with the installation process and the inventory tracking capabilities.	Easy to install, easy connectivity. Weather conditions may be complicated.
Solution presentation (how, what additional material was used, structure of demonstration, etc.)	It was an online session with powerpoint slides plus a video with the service explanation and the platform. 45min presentation plus 15min for QA.	Simplicity of the solution.
Communication with stakeholders	English was used for the session. Lantmannen's responsible helped the session with live translations into Sweden when needed. Was fluent and participating.	English is not that common for farmers though they are Swedish. They were interested, somehow curious about having the inventories tracked.
Target audience and feedback		
Total number of participants (from all target groups):	15 farmers, 1 feed mill	

Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)

Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others
0	*16*	*0*	*0*	*0*	*0*	*0*	*0*	*0*

How will you implement feedback you have received form the participants?	Due to the nature of this session, feedback was limited, but we'll definitely need to include Swedish translations to the

	app.
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	As the main target was basically farmers, their willingness to pay is there, but still, some reluctancy about the outcomes they could have from the solution, and how the feed mill gets most of the benefits. Hence, strategies were farms could share costs with feed mills or could get profit from feed mill's savings make sense.

1. Feedback to Use Case related to demonstrated product (tick boxes)

x	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear		x			
This product can be **useful** for the daily work		x			
The product **improves** the **end user's (farm) management**			x		
The product provides a better **decision making**.		x			
The product makes the **production** more **transparent**			x		
The product is **easy to use** and **understand** by all persons working with it	x				
The **design** of the solution is easy to understand	x				

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

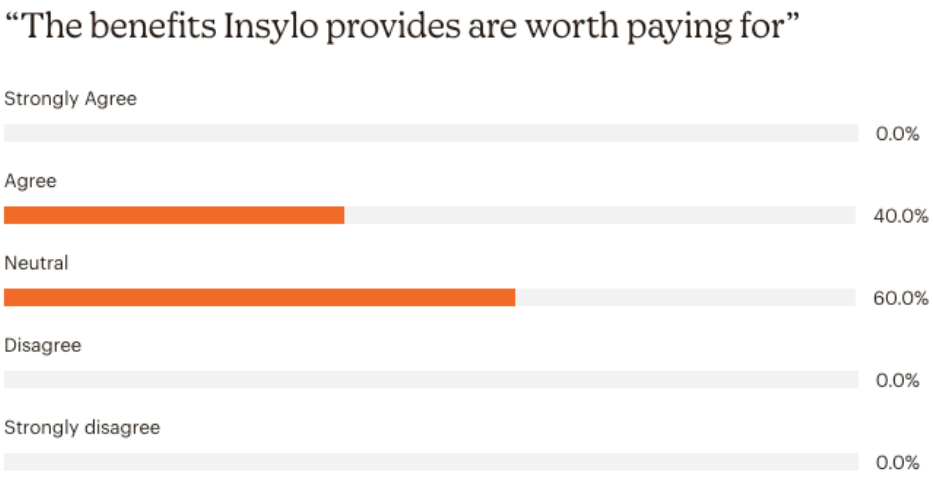
	Very useful	Useful	Neutral	Not useful
Lecture		x		
Technologies		x		

3. Replicability potential – can the suggested solution be adjusted to address your needs?

Sure, definitely. It is one of the strongest points. The capability to offer a generic and scalable solution.

4. What is your wiliness to pay for the solution?

Willingness to pay tends to be positive.



Customized survey provided to the audience

Responses gathered so far (12th March, 2021 – 5 contributors)

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Question 1: How many emergency feed deliveries do you order per year?	5	3	3	5	2
Question 2: How many hours do you spend each week checking your feed?	1	1	1	1	0
Question 3: How many hours per week do you spend managing feed orders per week?	1	1	1	1	0
Question 4: Knowing exactly how much feed is in my silo at any one time is really important to me	Agree	Agree	Strongly Agree	Strongly Agree	Agree
Question 5: The benefits of using Insylo are clear	Neutral	Agree	Strongly Agree	Strongly Agree	Agree
Question 6: Insylo would improve the management of farms	Neutral	Agree	Strongly Agree	Strongly Agree	Neutral
Question 7: Insylo looks easy to use and understand	Agree	Strongly Agree	Neutral	Strongly Agree	Neutral
Question 8: Insylo would be useful in my daily work	Agree	Agree	Strongly Agree	Strongly Agree	Neutral
Question 9: Insylo provides a better decision making on feed requirements	Agree	Strongly Agree	Agree	Strongly Agree	Neutral
Question 10: Insylo would reduce my daily workload	Neutral	Neutral	Agree	Strongly Agree	Neutral
Question 11: Knowing the temperature inside my silo would be very useful	Neutral	Neutral	Neutral	Strongly Agree	Neutral
Question 12: Knowing the moisture levels inside my silo would be very useful	Agree	Neutral	Strongly Agree	Strongly Agree	Neutral
Question 13: It would be very useful to have access to images of inside our silos	Agree	Neutral	Strongly Agree	Strongly Agree	Agree
Question 14: Knowing my daily feed consumption by silo would be very useful	Agree	Agree	Strongly Agree	Strongly Agree	Agree
Question 15: We need a reliable measurement system for our silo with accuracy errors below 5% of total volume	Agree	Agree	Strongly Agree	Strongly Agree	Agree
Question 16: I wouldn't use a measurement system on our silo if the accuracy errors was above 20% of total volume	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree
Question 17: I am happy to share the data from my silos with the feed supplier if I can get a better service in return	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree
Question 18: The benefits Insylo provides are worth paying for	Neutral	Agree	Neutral	Neutral	Agree
Question 19: If you would like to be contacted about Insylo please leave contact details below	-	-	-	-	-

UC 5.6 - “FITPigs” Demo

Participants feedback #1

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	x				
This product can be **useful** for the daily work		x			
The product **improves** the **end user’s (farm) management**		x			
The product provides a better **decision making**.		x			
The product makes the **production** more **transparent**		x			
The product is **easy to use** and **understand** by all persons working with it			x		
The **design** of the solution is easy to understand	x				

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	x			

Field walk				
Technologies	x			
…				

3. Replicability potential – can the suggested solution be adjusted to address your needs?

Not applicable.

4. What is your wiliness to pay for the solution?

Not applicable.

5. Open suggestions

6. *…additional questions to be added based on UC specific needs)*
7.

Participants feedback #2

Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear	X				
This product can be **useful** for the daily work			X		
The product **improves** the **end user's (farm) management**			X		
The product provides a better **decision making**.	X				
The product makes the **production** more **transparent**	X				

The product is **easy to use** and **understand** by all persons working with it			X		
The **design** of the solution is easy to understand	X				

3. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture	X			
Field walk				
Technologies	X			
…				

4. Replicability potential – can the suggested solution be adjusted to address your needs?

I am fortunate enough to work with cattle who are less aggressively attacking their tags so this was more of a look at the state of the art than a solution I need at the moment.

5. What is your wiliness to pay for the solution?

Not applicable.

6. Open suggestions

7 …additional questions to be added based on UC specific needs)

4. CONCLUSION

The same demonstration activity procedure was introduced to both initial and open call UCs. Aim of the procedure was to create a demonstration framework for UCs and initiate the scaling up of their solutions by presenting them to potential end-users and customers. **Demonstration Activity Procedure for face-to-face events** was fine-tuned to respond to comments and recommendations arising from the General Project Review Consolidated Report (from 26.03.2020), including the impact of demonstrations in terms of the level of interest, positive and negative feedback for the presented solutions, overall interest in the presented solutions, etc. With the outbreak of Covid19 in March 2020, WP2 created a **Demo procedure and guidelines for organising and conducting online demonstration events (demo webinars)**. Taking into account the ongoing Covid-19 spread in Europe and measures in force including a ban on any forms of gatherings (events and demonstrations), switching to online demonstrations, as a substitute to face-to-face meetings is perceived as an adequate and encouraged form of UC product presentation.

All use cases faced different challenges regarding the reorganisation of all planned events, in some cases it resulted in the cancelation of all planned demonstrations, but in most cases, UC coordinators and the team members reacted promptly and managed to either organize face to face demonstrations with a drastically reduced number of participants, or to host an online events, workshops and webinars, in order to present and demonstrate UC specific results and solutions in the final year of the project. The number of people reached through online events is significantly higher than the number involved in physical demo events, but the target audience was different – the general public had an opportunity to attend online meetings, which had some impact on general feedback. In this document, all collected attendee's feedback was analysed and presented, but with main focus on the feedback provided by UC's target audience (i.e., farmers, researchers, policymakers and other agricultural actors and stakeholders).

The most often received feedback is that the topic of the presentations needs to be in line with the attendees' background. Also, the IoT solutions are generally considered as the future of agriculture, in all branches. International fairs, that weren't cancelled due to pandemic, had fewer visitors than expected. Also, a major impact on fairs successfulness had the fact that presenters and stakeholders of China were not involved, since the whole country was locked down. Young people, like students and young farmers, were highly interested and attracted by the user-friendliness of the solutions, bright design and technical performances presented. When it comes to smaller events, the main recommendation from previously conducted demonstrations, regarding the need to have a prototype presentation in real-life conditions (on the field, in the barn, etc.) and explaining the readings of the instrument in the computer, was taken into consideration and made a tremendous impact on the success of small-scale events.

Demonstration events were beneficial both for UCs and end-users, as both parties were able to learn from each other. In general farmers and other participants were very happy with the opportunity to see the actual examples. UC demonstrations proved to be highly beneficial as they triggered high interest from farmers, agronomists, researchers, students, and potential customers. Overall positive feedback during acceptance testing and demo events was also observed as demonstrated technologies are creating even more interest with farmers but also with customers and researchers than in previous years. Some UCs will continue with demonstrating their solutions during 2021, within fairs and congresses with a general hope that more face-to-face events will be attended by the end of 2021. The demonstration procedure can be treated as very successful as also demonstrated within this document. Collected feedback from the audiences will be used by UCs to modify their final solutions and better respond to the needs of the end-user.

ANNEXES:

ANNEX 1 - Demonstration Activity Guidelines and Procedure for organizing online demo events and Updated elements of Demonstration Activity Procedure for face-to-face events

ANNEX 2 - IoF2020 Booklet

ANNEX 3 - Demo leaflets and Agenda

ANNEX 4 - Use Case poster

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884. Visit iof2020.eu for more information about the project.

ANNEX 1

ONLINE DEMONSTRATION PROCEDURE

WP2

April 2020

TABLE OF CONTENTS

INTRODUCTION

The purpose of this document is to provide guidelines **for organizing and conducting an online demonstration event (demonstration webinar) in the course of IoF2020 project.**

Taking into account ongoing Covid19[1] spread in Europe and measures in force including ban on any forms of gatherings (events and demonstrations), switching to online demonstrations, as a substitute to face to face meetings is perceived as adequate and encouraged form of Use Case (UC) product presentation.

The aim of the demonstration webinar is to present UC latest advancements and product developments using voice audio, slides, screen sharing and text chat. Webinars are organized around specific objectives identified in advance, serving as the basis for relevant webinar content and interaction. Online demonstration events imply knowledge/experience exchange on three levels – among IoF2020 partners, with other relevant H2020 projects and with external participants interested in the topic of demonstration. The common characteristics of all demo events are:

- Knowledge/experience exchange
- Involvement of different stakeholder groups (farmers, IT community, researchers, etc.)
- Broad promotion of the event (both as an announcement, prior to the event as well as after)
- Lessons Learnt (LL) collection, which could be used in later a phase of the project

Every online demonstration event should have a facilitator and one or more presenters (in some cases a single person can be both the facilitator and the presenter).

The facilitator's responsibility is to promote the event, arrange and launch the online platform, open the webinar, accommodate the technical support, and ensure a proper follow-up.

The presenter, usually an expert on the subject's matter, forms and presents the demonstration content of the webinar, and engages the participants through interaction.

Some of the benefits of the online demonstration events include cost effectiveness, quick organization and setting up, and an easy way to interact and exchange knowledge with stakeholders from different countries. Besides, online demonstration events can also be recorded and distributed after the event.

[1] https://www.who.int/emergencies/diseases/novel-coronavirus-2019

SETTING UP A DEMONSTRATION WEBINAR

The subject and objectives are the basis for the preparation and execution of the demonstration webinar. When the subject and priorities are clearly defined, roles are divided between facilitator and presenter. Each role has certain responsibilities as described in detail below. Usually, these roles are performed by two different persons. For webinars with smaller audiences (less than 20 people) a facilitator with proper content expertise can also act as a presenter. Depending on content scope, one or more presenters can be assigned.

4.1. FACILITATION

Preparation

1. ***Choose your platform.*** If you are not completely comfortable, undergo preparation, research, or practice. Be prepared to give participants fast technical guidance on all main functions of the platform during the webinar

Below are some of the most reliable and popular online facilitation platforms, ideal for organizing online demonstration events.

- **Zoom** - free webinars for up to 100 people (max 40 minutes)
  https://zoom.us/

  On the link below please find a 60-minute session covering best practices, customization, and registration for your future Zoom webinars.
  Zoom Webinar Training

- **WebEx** - free webinars for up to 100 people (max 40 minutes)
  https://www.webex.com/

- **GoToWebinar** (starts at apx $100/mo for 100 participants)
  https://www.gotomeeting.com/webinar

- **Skype**
  www.skype.com

- **Google Hangouts (free)**
  https://hangouts.google.com/

When setting up the webinar be sure to specify the required fields for participant registration, in order to have a complete **Attendee list** (full name, e-mail, occupation/sector) after the webinar.

2. ***Create a timeline, along with your presenters***. Ensure the presenter/s have enough time to arrange presentations and complete a script.
Pick a time for the webinar that is suitable and in accordance with the time zone for most of your target audience.

3. ***Formulate a draft agenda for the demonstration webinar with the presenter/s, and give them specific guidance:*** How much time they'll have, propose on a variety of slides, suggest on the length of Q&A session. Be sure to remind the presenter/s to prepare for audience engagement (live responses, questionnaires, polls).
Tip: Don't use video if the bandwidth of the participants is limited; use only audio and slides.

4. ***Announce the online demonstration event to different stakeholder groups (farmers, IT community, researchers, etc.)***. For online events with larger (100 or more people expected), the announcement should be done a **month** in advance. For the ones with smaller audiences, **a week** is enough.

- Write an invitation message that attracts attention and encourages people to get involved (**see Invitation Guidelines and the invitation template, chapter 7**). Include direct email/calendar invitations - a clickable calendar entry (.ics file) to make it easier for people to add the event to their calendar.
- If your audience includes external persons, broaden the announcement via Facebook, LinkedIn, Twitter, and other relevant networks.
- Assure that stakeholders who sign up receive participation instructions, including **any technical requirements with links to quick start guides on how to use the dedicated platform**. Encourage users who are using the platform for the first time to study the manual and test the specific platform as soon as possible.

5. ***Practice the event sessions with presenter(s)***, especially if you are new to webinars or if the content is being presented for the first time.
Try out pre-loading all the material in order to enable quick content sharing with stakeholders when needed.
Practice giving different kinds of permissions to participants and getting it back from them (for example screen sharing control). Make sure all links are functioning and practice on different communication functionalities such as muting/unmuting yourself and the participants.

Execution

6. ***Make sure you are in a place with no distractions*** (noise, crowded offices, mobile phones). Prepare and test all your equipment (PC, headset, agenda, printouts).

7. ***Start the online event early (at least 15 minutes) and see that your presenter/s do the same.***
Open the presentation(s) with the rest of webinar content, but keep it hidden from participant view – only display your first/welcome slide. It is a good idea to have a backup PC with all the necessary material and specific platform installed in case of unstable connections and hardware failure.

8. ***In case you feel it would be helpful, explain briefly the webinar platform's main features,*** particularly those that you expect the participants to use, such as the chat functionality, raise your hand feature, microphones muting / unmuting etc.

9. ***Set all microphones to muted state, except the one/s from the presenter/s.***

10. ***Make enough time for Q&A session and interaction, as outlined in the initial script.***

11. ***Close the online demonstration event.*** Let the stakeholders know what information will be distributed following the webinar, such as recordings, poll results, webinar transcripts or other materials. Formulate any next steps or follow-up activities (this can also be done by the presenter).

Switch off recording at the end of the webinar but leave the PC linked and the platform program running until the recording is processed and ready to be saved/shared.

Follow up

12. Thank the stakeholders via email and make an assessment after the webinar as soon as possible - distribute **the Questionnaire for attendees (Annex 2)** and provide links to presentations, recordings, and other relevant reference materials.

4.2. PRESENTATION

1. Understand the goals of IoF2020 online demonstration event. What are the main ideas and messages the you want to impart? What knowledge do you want participants to come away with? What steps would they take after the webinar?

2. Acknowledge the roles of the facilitator and the presenter. As presenter, within the time allocated, your job is to provide relevant content and opportunities for interaction**.** You can count on the facilitator to set up the dedicated platform and prepare the technical aspect of the webinar, publicize the event, provide technical support during the webinar, set up the polls, deal with participant requests and arrange a follow up evaluation.

3. Together with other presenters and the facilitator establish a common timeline for event preparation and dissemination (making enough time to prepare your content and draft the agenda).

4. Join the event early, ideally about 10 minutes before the scheduled start time. Load your presentation and other relevant material but keep it hidden from the rest of the participants until the right time to share it.

5. Upon completion of your presentation, turn over to the facilitator but remain online for possible Q&A and further discussion

APPROACH & METHODOLOGY

4.3. PLANNING PHASE

Team/Person responsible	Action	Associated document
WP2/WP5	Prepares Dissemination package for Online Demonstration. This includes templates for: • UC image in high-resolution • Template for invitation • Leaflet (email including agenda for advertisement and awareness creation) • Attendee list template • The latest IoF2020 pdf booklet/brochure	Folder with prepared material available on Basecamp: IoF2020 General - Doc and Files - Demonstration Activities - DAP 2020
WP2	Prepare reporting material: • Report on conducted activities • Lessons Learnt	Folder with prepared material available on Basecamp: IoF2020 General - Doc and Files - Demonstration Activities - DAP 2020
WP2	Send to UCs: • Online Demonstration Activities Plan (DAP) template	Annex 1 (DAP)
UC coordinator	To send to WP2 filled in DAP (Annex 1), once the event is scheduled and Lessons learnt report no later than one month after the event.	

4.4. EXECUTION PHASE

Team/Person responsible	Action
UC coordinator	Fully responsible for online demonstration organization
WP5	Based on DAP, be involved in attracting relevant EU/H2020 initiatives and projects to demonstration. Announces online demonstration activities on IoF2020 website https://www.iof2020.eu/latest/demo
WP2	Based on received DAP, and reporting documents, monitor, evaluate and report on the UC progress

4.5. PERFORMANCE MONITORING (CLOSING)

Team/Person responsible	Action	Associated document
UC coordinator / DA main responsible	Ensure that all attendees fill in the Feedback form, including the Attendee list	Annex 2 (Questionnaire for attendees). Attendee list to be kept in UC records while the total number of participants needs to be provided in Annex 3
UC coordinator / DA main responsible	Fill in Lessons Learnt template	Annex 3
UC coordinator / DA main responsible	Return feedback forms to WP2 and WP5 teams, latest one month after the event.	

ONLINE DEMONSTRATION ACTIVITIES PLAN TEMPLATE (DAP)

Topic: **UC:**	*Your answer*
Event overview	*Please, indicate:* • *Event title* • *Date and time* • *Platform* • *Main technologies that will be presented*
Constraints	*Are there any restrictions in the number of people that can/might be invited (if it's a closed online demonstration, open to external participants, members of some organizations, etc.)*
Planned stakeholders' groups	*Please indicate the main stakeholders groups that you intend to invite (e.g. Farmers association – XYZ; Advisory…)*
What do you want to achieve with this particular demonstration	*Inform the general public, come in the local press, represent my organization, arouse the interest of private capital bodies, …, or actually attract customers for my products*
Dissemination channels envisioned	*Please, indicate through which channels you plan to inform stakeholders about the event (e.g. newsletters of the organization; social media – please indicate accounts; local media, targeted mailing …)*
Potential collaboration with other H2020 projects	*Please indicate main components of your demonstration that can act at as a link to other H2020 projects and initiatives (e.g. Place: vineyard in Italy; Specific audience: young farmers…). We will use this information to select appropriate H2020 project/initiative and to invite representatives to attend.*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Online Demonstration Activity Main responsible – UC coordinator* • *Facilitator* • *Presenter/s* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders* *Please, have in mind that one person can be in charge for more*

	than one topic
Feedback from participants	*Please, indicate topics you would like to be covered by feedback questionnaire. E.g.:* – *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address your needs*

*In case of more than one event, please copy-paste the table as many times as events planned.

QUESTIONNAIRE FOR ATTENDEES

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear					
This product can be **useful** for the daily work					
The product **improves** the **end user's (farm) management**					
The product provides a better **decision making**.					
The product makes the **production** more **transparent**					
The product is **easy to use** and **understand** by all persons working with it					
The **design** of the solution is easy to understand					

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture				
Field walk				
Technologies				
…				

3. Replicability potential – can the suggested solution be adjusted to address your needs?

4. What is your wiliness to pay for the solution?

5. Open suggestions

6. *…additional questions to be added based on UC specific needs)*

LESSONS LEARNT REPORT

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)		
Solution presentation (how, what additional material was used, structure of demonstration, etc.)		
Communication with stakeholders		
Target audience and feedback		
Total number of participants (from all target groups):		
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)		

	Scientific	Industry	Civil Society	General Public	Policy makers	Media	Investors	Customers	Others

How will you implement feedback you have received form the participants?	
What is the general consensus on the willingness of the event attendees to pay for your IoT solution	

INVITATION GUIDELINES AND THE INVITATION TEMPLATE

- Below you will find the text that should serve as the basis of your online demonstration activity invitation. Some information has to be filled in individually, make sure to fill in all the brackets.

- Place the following picture on the top or use it under your name as part of the signature:

- Use the following subject line for your email:
  IoF2020 Online demonstration - [Insert title of demonstration]

- Fill in the demonstration information and the programme of the activity, using one of the five leaflet templates for your specific trial/sector. You will find the designed templates in the basecamp folder. Make sure to use the correct and official use case name as seen on the website or the posters. This leaflet has to be attached to every invitation email as it is our marketing tool to advertise your demonstration.

- The leaflet is supposed to give interested persons all the necessary information about the upcoming demonstration activity. It should create awareness and interest while being short and concise.

INVITATION EMAIL TEXT

To Whom it May Concern or [Insert name of recipient],

We cordially invite you to our upcoming Internet of Food & Farm 2020 use case online demonstration "[Insert title of demonstration]".

This demonstration is part of the IoF2020 project which aims to demonstrate the value of IoT solutions for the European food and farming sectors. The IoF2020 project is organized around 5 agriculture sectors: arable crops, dairy, fruits, vegetables and meat. This demonstration is part of the [Insert sector] sector.

Our use case mainly focuses on [Insert short description of your work from IoF2020 website]. The demonstration will inform you about lessons learnt, the faced challenges and the applied technologies to overcome them. We are going to showcase [Insert description of demonstration activity].

The online demonstration will take place on [Insert date]. Due to concerns about the coronavirus and in order to enable a wider audience to participate in the demonstration, we invite you to join us via webinar. For further information please see the full programme enclosed (the programme includes all necessary links to join).

Please register to join the demonstration and take part in the Q&A session.

Kind regards,

[Insert name]

Updated elements of Demonstration Activity Procedure for organizing and reporting on face-to-face events

DEMONSTRATION ACTIVITIES PLAN TEMPLATE (DAP)

Topic: **UC:**	*Your answer*
Event overview	*Please, indicate:* • *Event title* • *Date and time* • *Platform* • *Main technologies that will be presented*
Constraints	*Are there any restrictions in the number of people that can/might be invited (if it's a closed online demonstration, open to external participants, members of some organizations, etc.)*
Planned stakeholders' groups	*Please indicate the main stakeholders groups that you intend to invite (e.g. Farmers association – XYZ; Advisory…)*
What do you want to achieve with this particular demonstration	*Inform the general public, come in the local press, represent my organization, arouse the interest of private capital bodies, …, or actually attract customers for my products*
Dissemination channels envisioned	*Please, indicate through which channels you plan to inform stakeholders about the event (e.g. newsletters of the organization; social media – please indicate accounts; local media, targeted mailing …)*
Potential collaboration with other H2020 projects	*Please indicate main components of your demonstration that can act at as a link to other H2020 projects and initiatives (e.g. Place: vineyard in Italy; Specific audience: young farmers…). We will use this information to select appropriate H2020 project/initiative and to invite representatives to attend.*
Roles and responsibilities	*Please, indicate the organizational team (name and email) – contact points for following topics:* • *Online Demonstration Activity Main responsible – UC coordinator* • *Facilitator* • *Presenter/s* • *Communication responsible – for local stakeholders and EU/H2020 stakeholders*

	Please, have in mind that one person can be in charge for more than one topic
Feedback from participants	*Please, indicate topics you would like to be covered by feedback questionnaire. E.g.:* – *Usefulness of presented technologies* – *The functionalities are easy to understand.* – *Suggest solution adjustments to address your needs*

*In case of more than one event, please copy-paste the table as many times as events planned.

1. Questionnaire for collecting feedback from attendees

1. Feedback to Use Case related to demonstrated product (tick boxes)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The **additional benefit** for the farm is clear					
This product can be **useful** for the daily work					
The product **improves** the **end user's (farm) management**					
The product provides a better **decision making**.					
The product makes the **production** more **transparent**					
The product is **easy to use** and **understand** by all persons working with it					
The **design** of the solution is easy to understand					

2. Usefulness of presented technologies - How do you appreciate the various aspects of the demo event (tick boxes)

	Very useful	Useful	Neutral	Not useful
Lecture				
Field walk				
Technologies				
…				

3. Replicability potential – can the suggested solution be adjusted to address your needs?

4. What is your wiliness to pay for the solution?

5. Open suggestions

6. *…additional questions to be added based on UC specific needs)*

Lessons Learnt report

Lessons Learnt report		
DA field	**Highlights**	**Attention points**
IoT solution features – observation (based on interaction with attendees)		
Solution presentation (how, what additional material was used, structure of demonstration, etc.)		
Communication with stakeholders		
Target audience and feedback		
Total number of participants (from all target groups):		
Below, please provide a total number of participants per each target group (feel free to add any other relevant target group)		

Scientific	**Industry**	**Civil Society**	**General Public**	**Policy makers**	**Media**	**Investors**	**Customers**	**Others**

How will you implement feedback you have received form the participants?	

What is the general consensus on the willingness of the event attendees to pay for your IoT solution	

ATTENDEE LIST GUIDELINES

- The attendee list below is supposed to help you keep track of the demonstration activity participation. It further should also help IoF2020 to widen the project's ecosystem by asking for GDPR consent (the EU General Data Protection Regulation 2016/679 entered into force on May 25, 2018).
- Please make sure to have this list printed out and that all the participants fill it in as it will serve as a proof that the demonstration activity has been carried out. Before printing the attendee list please [Insert title of demonstration] on top of every table on every page.
- After the demonstration activity, scan the attendee list and send it to:

  jvlaskalin@biosense.rs; trajkovic.milica.ns@gmail.com; jarissa.maselyne@ilvo.vlaanderen.be; francois.lienard@schuttelaar-partners.com; manuel.winter@schuttelaar-partners.com; communications@iof2020.eu
- WP2 and WP5 will process the input and include them in our IoF2020 ecosystem and use it for targeted advertisement of project activities.

[Insert title of demonstration]					
	Name	**E-mail**	**Occupation / Sector**	**GDPR Consent***	**Signature**
1				☐ Yes ☐ No	
2				☐ Yes ☐ No	
3				☐ Yes ☐ No	
4				☐ Yes ☐ No	
5				☐ Yes ☐ No	
6				☐ Yes ☐ No	
7				☐ Yes ☐ No	
8				☐ Yes ☐ No	
9				☐ Yes ☐ No	
10				☐ Yes ☐ No	

INVITATION EMAIL GUIDELINES

- Below you will find the text that should serve as the basis of your demonstration activity invitation. Some information has to be filled in individually, make sure to fill in all the brackets.

- Place the following picture on the top or use it under your name as part of the signature:

- Use the following subject line for your email:
  IoF2020 Demonstration - [Insert title of demonstration]

- Fill in the demonstration information and the programme of the activity, using one of the five leaflet templates for your specific trial/sector. On page 2 of the leaflet, you can edit the text fields with the individual information about your demonstration activity. Please make sure to mention everything people need to know and keep in mind that for each text field there is a character limit. You will find the designed templates in the basecamp folder (one of them with cropmarks for printing, the other one without cropmarks for digital advertising). Make

sure to use the correct and official use case name as seen on the website or the posters. This leaflet has to be attached to every invitation email as it is our marketing tool to advertise your demonstration.

- The leaflet is supposed to give interested persons all the necessary information about the upcoming demonstration activity. It should create awareness and interest while being short and concise.

2. INVITATION EMAIL TEXT

To Whom it May Concern or [Insert name of recipient],

We cordially invite you to our upcoming Internet of Food & Farm 2020 use case demonstration “[Insert title of demonstration]”.

This demonstration is part of the IoF2020 project which aims to demonstrate the value of IoT solutions for the European food and farming sectors. The IoF2020 project is organized around 5 agriculture sectors: arable crops, dairy, fruits, vegetables and meat. This demonstration is part of the [Insert sector] sector.

Our use case mainly focuses on [Insert short description of your work from IoF2020 website]. The demonstration will inform you about lessons learnt, the faced challenges and the applied technologies to overcome them. We are going to showcase [Insert description of demonstration activity].

The demonstration will take place on [Insert date] in [Insert location]. For further information please find the leaflet, including the full programme of the demonstration activity, enclosed.

If you would like to attend, we kindly ask you to reply to this email. We are looking forward to meeting you.

Kind regards,

[Insert name]

ANNEX 2

IOF2020 BOOKLET


INTERNET OF FOOD & FARM
IoF2020
IOF2020.EU

CONTENTS

* NEW USE CASES

IoF 2020 IN A NUTSHELL

The Internet of Food and Farm 2020 (IoF2020) project aims to consolidate Europe's leading position in the Internet of Things (IoT) technology applied to the agri-food sector. We develop an ecosystem consisting of farmers, food companies, policy-makers, technology providers, research institutes and end-users. The project aims to solve the European food and farming sectors' social challenges, maintain their competitiveness and increase their sustainability.

FOR MORE INFO:
IOF2020.EU

5

LEAN MULTI-ACTOR APPROACH

IoF2020 uses a lean multi-actor approach focusing on user acceptability, stakeholder engagement and the development of sustainable business models. IoF2020 aims to increase the economic viability and market share of developed technologies, while bringing end-users' and farmers' adoption of these technological solutions to the next stage.

THE STANDARDS

With an open ecosystem and collaboration space, the project relies on existing standards, as well as security and privacy platforms, applying these to the food production chains.

TOWARDS AN ECOSYSTEM

Led by the Wageningen University and Research (WUR), the 120+ members consortium includes partners from agriculture as well as ICT sectors and uses open source technology provided by other initiatives (e.g. FIWARE). Together we build an innovation ecosystem in which technology is validated, knowledge is shared and innovative solutions are brought to market

GOVERNANCE & STRUCTURE

IoF2020 is structured in 6 Work Packages, developed to help IoF2020 deliver its results.

THE FACES BEHIND THE WORK PACKAGES
AND THEIR OBJECTIVES

GEORGE BEERS
LEADER WP 1
PROJECT MANAGEMENT

Our Work Package is in charge of the overall organisation of the project. We coordinate all activities and monitor their progress. We handle the finances and are the contact point for the European Commission. Furthermore, we ensure a smooth and well-organised project, so all Work Packages and use cases can perform optimally. Basically, we try to keep everybody happy: a challenging task!

GRIGORIS CHATZIKOSTAS
LEADER WP 2
TRIAL MANAGEMENT

We monitor and support use cases and trials (sectors). We connect the teams that work in the field with the large pool of experts within the IoF2020 ecosystem. By constantly observing all use cases from a birds-eye view, we identify common challenges, opportunities for collaboration and replicable best practices. These best practices will boost the IoF2020 impact for European farmers and consumers.

HARALD SUNDMAEKER
LEADER WP 3
IOT INTEGRATION & CAPABILITIES

We aim at identifying IoT technologies that offer solutions for the agri-food domain. We support our teams to validate these promising technologies since components used throughout all IoF2020 use cases might be reusable in other situations. Hence, we are working on technological synergies that make the development of IoT based solutions more efficient and effective.

ALEXANDER BERLIN
LEADER WP 4
BUSINESS SUPPORT

Our expert team of consultants and researchers offers individual advice to all use cases on how to monetise their products and services with innovative data-driven business models. The core objective for the business support team is to make all IoF2020 products and services commercially viable in the market and whilst also showing their economic, environmental and social value.

EDWIN HECKER
LEADER WP 5
ECOSYSTEM DEVELOPMENT

We work on a self-sustaining ecosystem that doesn't end up in a drawer but lives on after the project. Dissemination (one-way) and communication (two-way) are a major part of our work. An example is the magazine you're reading right now! Sometimes people are hard to reach and busy with daily things, hence there is a need for experts to develop creative communication materials to connect all IoF2020 partners.

SIMONE VAN DER BURG
LEADER WP 6
(DATA) ETHICS

It is our objective to support use cases in dealing with ethical questions. Moreover, we develop a perspective on responsible data sharing together with stakeholders (policy-makers, farmers, tech service providers, NGOs, researchers). The public goals of IoF2020 may not always coincide with the goals of businesses or other stakeholders. What 'success' means therefore depends on the perspective of the stakeholder that you speak to. Thus, we aim for a well-argued match.

KEY FACTS

- Funding Scheme: Horizon 2020, Industrial Leadership, IOT-01-2016
- Contribution of the European Union: €30 million
- Total costs: €35 million
- Duration: 4 years, 2017-2020
- Consortium: 120+ partners
- 5 trials: arable crops, dairy, fruits, vegetables and meat
- 33 use cases in 22 EU countries

FOR MORE INFO:
IOF2020.EU

10

11


A FLOURISHING ECOSYSTEM
5 TRIALS, 33 USE CASES
The IoF2020 project is organised around 5 agriculture sectors: arable crops, dairy, fruits, vegetables and meat. Within each trial several use cases demonstrate the value of IoT solutions for the European food and farming sectors.
FOR INTERACTIVE MAP:
IOF2020.EU/TRIALS
ARABLE
DAIRY
FRUITS
VEGETABLES
MEAT
12
13


THE INTERNET OF ARABLE FARMING
The arable trial focuses on wheat, soy bean and potato production and processing in Europe's different climate zones. It includes activities across the cropping cycle: e.g. with the help of IoT technologies data relevant to growing crops is gathered (e.g. soil condition, humidity and weather conditions). This trial also includes machine-to-machine communication. Overall, the use of IoT in arable farming can help to reduce pesticide, fertilizer and energy use, while increasing transparency and food safety.
FOR MORE INFO:
IOF2020.EU/TRIALS/ARABLE
15

- 20%
SOIL FERTILITY LOSS

+ 5%
CROP YIELD

- 70%
FIELD ANALYSIS TIME AND COST

LOCATION

SCAN
FOR MORE

1.1 WITHIN-FIELD MANAGEMENT ZONING

Arable farming faces increasing requirements and challenges when it comes to resource efficiency, environmental protection, transparency and chain optimisation.
To address this challenge, this use case seeks to:
- Develop specific IoT devices for acquisition of soil, crop and climate data in production and storage of key arable and vegetable crops;
- Showcase the benefits of the broad IoT implementation at the farm level.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
APR 2018	MAY/SEPT 2018	NOV 2018	MAY 2019
Flow prepared automatically in Apps, handwork where necessary - Planting - Soil herbicide	Feed trails - Planting - Soil herbicide - Test nitrogen module	Flow includes ordering and results platform on all products.	Flow ready for broad use - Planting - Soil herbicide - Nitrogen application

PARTNERS

ZLTO · kpn · GRIMME · WAGENINGEN

1.2 PRECISION CROP MANAGEMENT

The development of decision-making tools and services is a priority to help farmers adopt better practices and optimise input management for their fields. The elaboration of precise advice relies on accurate observations of crop status and the growing environment. Existing services use climatic data and satellite imagery that provide valuable information but have their limitations. The improvement of these services requires the highest spatial and temporal resolutions accessible, using ground- based sensors which measure nitrogen and water, the two main limiting factors impacting wheat production. In 2019, 35 systems are deployed in Ile de France and Provence regions to assess the technical and economic value of the IoT technology.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
APR 2018	OCT 2018	FEB 2019	JUN 2019
- First version of crop dashboard (growth stage) - First of decision support based on localized data	- Combination between IOT and satellite - Second version of crop dashboard	- Real time nitrogen dicision support tool - Real time irrigation dicision support tool	- final version of decision support tool

PARTNERS

ARVALIS · orange · hi-phen · BOSCH

50
MILLION EURO MARKET POTENTIAL

14
MILLION HA POTENTIAL AREA COVERED

30
STEMS DEPLOYED IN FRANCE

LOCATION

SCAN
FOR MORE

+15%
PREDICTED INCREASE IN FARMERS' REVENUE

PROFIT
IMPROVING

+5%
HIGHER PROTEIN YIELDS

LOCATION

SCAN
FOR MORE

1.3 SOYA PROTEIN MANAGEMENT

Soybeans are a major source of high-protein food and feed for livestock. Currently, the EU is highly dependent on imports from soya producing countries. Since an increasing number of farmers start to produce soybeans as protein crop in Europe, this use case addresses the lack of technological innovation in their cultivation and processing of protein plants in order to tap the huge potential in terms of improving the quantitative and qualitative outcome per hectare. IoT technology connects data and information on soil, weather, cultivation and harvest to support producers and to enable better traceability for certified value chains, thereby improving the transparency of plant and animal food products.

USE CASE TIME PLAN

DEMO	1ST MVP	2ND MVP	4TH MVP
MAY 2018	APR 2019	DEC 2019	OCT 2020
• Webbased demo with visualization of soil and meteo sensor data • Irrigation alert	• Irrigation feature • Field management • Wireless connection of meteo, soil and NIR sensors • Documentation	• API to CNHI • Variety selection feature • Improved protein maximization approach through statistically verified correlation	• Tested and improved DSS with connection to all relevant IOT devices • Documentation for quality standard: Connection of field data and quality assurance software

PARTNERS

DONAU SOJA · SOIA ITALIA

1.4 FARM MACHINE INTEROPERABILITY

Every farmer wants his equipment to work seamlessly together, designed as one integrated system that is interoperable regardless of vendor. Interoperability of IoT devices and machinery today is in its infancy. For the farmer it is a challenge to make all devices work together in the digital space, as there are different platforms using vendor specific communication.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
DEC 2017	DEC 2018	JUN 2019	JUN 2020
Off-line interoperability • First version Proprietary ADAPT Plugin • First version Proprietary ISOXML ADAPT plugin	• Interoperability in real time communication • EFDI standard being developed by AEF	• Interopable file transfers • task data in ADAPT using EFDI	• Bi-directional interopable communication

PARTNERS

CNH INDUSTRIAL · AGRO INTELLI · AGCO · WAGENINGEN

+ 5%
INCREASE IN GROSS MARGIN

+ 20%
PREDICTED INCREASE YIELD

- 10%
IN FUEL CONSUMPTION

LOCATION

SCAN
FOR MORE

+ 10%
INCREASED YIELD

- 10%
FOOD WASTE

- 10%
IN FUEL CONSUMPTION

LOCATION

SCAN
FOR MORE

1.5 POTATO DATA PROCESSING EXCHANGE

Being able to track produce back to the field regarding food security and quality, does not only support buyers and processors, it also helps farmers to identify problems and improve their yields in the following years.

As an important step towards smart digital farming, this use case:
- Collects information and opens data flows between stakeholders in the supply chain;
- Measures potato crop growth, yield prediction, caliber yield measurements on the harvester and traceability data from field location to location in the shed;
- Mounts IoT devices on the harvesting machines to gather precise location-based information;
- Facilitates data exchange with the processing industry according to the current state of the art in standardisation.

PARTNERS

HOW IT WORKS

Different data points will be collected in real time on the different machines and will be analysed, stored and exchanged with other partners in this project. The IoT platforms of Aurea & AVR will be used as gateway.

In this use case farmers (Farm Frites Poland DWA) and the processing industry are present (Farm Frites Poland). AVR (potato machine manufacturer), Aurea Imaging (drone image analysis) and Octinion (caliber yield measurement) are developing the sensors and measurement principles supported by the IoT company Delaware.

THE IMPACT

OUR OBJECTIVES
- Cover three test fields in three countries: Sweden, Poland and Belgium;
- Exchange the collected data with Farm Frites Poland, as processing industry partner in this use case;
- Focus on the standardisation of this data exchange.

ECONOMIC IMPACT
- Increase in yield (+10%);
- Reduction in fuel consumption (-10%);
- Gross margin (+5%);
- Reduce costs in processing industry;
- Give fast digital access to important information.

OTHER IMPACT
- Food waste through alignment of supply and demand (-10%);
- Improve harvested potato yield;
- Give farmers more insight in data elements for business optimisation.

STARTED 2018 NEW

- 15%
PESTICIDE USE

- 25%
WATER CONSUMPTION

- 19%
TOTAL INPUT COSTS

LOCATION

SCAN
FOR MORE

1.6 DATA-DRIVEN POTATO PRODUCTION

European potato producers are facing a series of challenges such as crop pests, diseases and climate change. Hence, this use case adopts a holistic approach based on research and a unique blend of cutting-edge technologies while offering inexpensive yet valuable advice to farmers. An innovative, market-ready smart farming solution supports irrigation, pest management and fertilisation. Leveraging a network of telemetric IoT stations combined with satellite data and scientific models tailored to the specificities of the geographic areas, helps small-scale farmers to tackle those challenges.

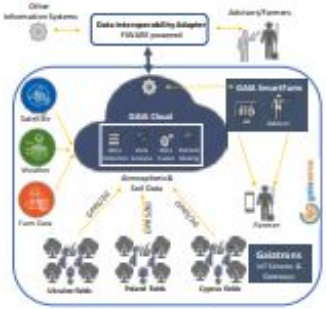
PARTNERS

NEUROPUBLIC · WAGENINGEN · Delphy

HOW IT WORKS

Data-driven potato prediction utilises the GAIA sense smart farming solution which provides innovative services, building on state-of-the-art technologies like IoT, Big Data, Earth Observation, Context-based decision support and machine learning.

The GAIA sense solution is extended with FIWARE-powered, standards based, data exchange mechanisms in support of cross-system interoperability and openness.



THE IMPACT

OUR OBJECTIVES

- Demonstrate how the use of IoT-driven smart farming solutions can help reduce the environmental footprint of agriculture;
- Facilitating farmers' compliance with a wide range of European environmental legislation, including water and soil protection;
- Improvement of nitrogen use efficiency (+15%);
- Reduction of pesticides use (-15%);
- Reduction of water consumption (-25%).

OTHER IMPACT

- Demonstrating the potential benefits derived from the use of IoT-driven solutions;
- Achieve sustainable economic growth and foster innovation;
- Reduction of inputs costs (-18,6%);
- Farmers benefited from the provided advice >500;
- Smart farming advice available up to 1500ha;
- Building on extensive business network in >50 countries.

> 95%
ROBUSTNESS

> 95%
SUCCESSFUL DETECTION

0%
CONTAMINATION RATE

LOCATION

SCAN
FOR MORE

1.7 TRACEABILITY FOR FOOD AND FEED LOGISTICS

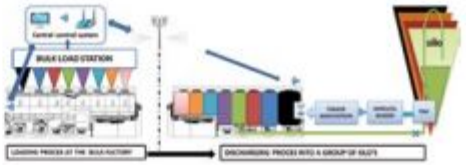
This use case deploys an innovative approach that secures and authenticates the transport of bulk-goods in the agri-food chain, both for feed and food with zero risk of contamination. There is a need to guarantee the traceability of bulk food and feed deliveries from the moment it leaves the loading station right up to when it is delivered to a farm's silo. A fully automated silo detection system, using IoT solutions, guarantees that the right bulk contents are correctly delivered, and that the specifics of that delivery are registered. This solution thus helps to prevent feed and food wastage caused by wrong deliveries.

PARTNERS

Lambrecht · KU LEUVEN · QUICKSAND · DRAMCO

HOW IT WORKS

The detection system requires the establishment of communication between the loading station and the trailer, using Wi-Fi routers. The transferred data lists which kinds of animal feed are loaded in the different compartments of the trailer.
A base station device, controller and TAG wireless reader are all installed on the bulk trailer. The moment this reader confirms the connection with the right silo, the matching compartment of the trailer can be released and unloaded.
A unique TAG identification is installed on each silo for all delivery addresses.



THE IMPACT

OUR OBJECTIVES

- Real time data delivery and localisation of all trailers;
- Secured delivery procedures;
- Establish complete traceability from factory to client;
- Detailed monitoring of the discharging procedure;
- Direct alarm in case of deviations during the deliveries;
- Data concerning preventive maintenance of the end-user's transport fleet.

ON ECONOMY

- Reduce the recovery cost due to wrong deliveries of feed or food (-90%);
- Compatibility due to system interoperability (99%);
- Increase transport efficiency through data analysis;
- Reduce the destruction cost of contaminated silo content (-90%).

OTHER IMPACT

- Reduce the waste of contaminated silo contents (-90%);
- Lower the need for additional transport (less CO2 emissions), for silo cleaning and re-delivery of new feed by (-90 %);
- Provide guidance and support for truck drivers during the delivery process;
- Increase farmers' trust in the delivery and quality of their feed;
- Improve food safety by securing the supply chain both for animal feed and human food.

STARTED 2018 NEW

1.8 SOLAR-POWERED FIELD SENSORS

2000
SMART SENSORS

- 30%
ENERGY USE

- 35%
FERTILISER INPUT

LOCATION

SCAN FOR MORE

The lack of access to affordable and scalable on-field diagnostics for small farmers is addressed through:

- Reduced design complexity to facilitate ease of use without the need for additional training;
- Integration of all farm information and devices in one farm manager;
- Development of sustainable marketing strategies to incentivise farmers to implement modern technology;
- Demonstration of sensor-based predictive analytics for diseases;
- Application of the solution on different crops.

PARTNERS

Fraunhofer SOLARVIBES ÖMKi

STARTED 2019 NEW

HOW IT WORKS

Solar-powered field sensors offers plug and play IoT devices and AI-based precision farming solutions. The software analyses the soil-crop compatibility, crop requirements and nutrient deficiencies. The solution brings a soil laboratory to the fields and allows end-users to monitor and treat their crops in real time. This directly benefits farmers as it allows them to save water, minimise operating costs and reduce the risk of crop failures.

THE IMPACT

OUR OBJECTIVES

- Calibrate and certify the devices to demonstrate the product among farmer networks of 4 institutions across 3 countries;
- Conduct micro-level market research;
- Develop a smart network of 2000 sensors to help farmers adopt sustainable farm practices;
- Improve overall agricultural efficiency;
- Build self-sustainable communities.

ECONOMIC IMPACT

- Decreased farm operation and inputs costs (-30%);
- Cost saving on energy and water consumption (-35%);
- Crop productivity increase for potato, wheat, maize (+15-30%).

OTHER IMPACT

- CO2 Emissions reduction (-20%);
- Water conservation (-35% vs previous year);
- Cut down on fertilisers Ammonium Nitrate, Superphosphate, Potassium sulphate, Dolomite, and Magnesium sulphate;
- Soil health restoration;
- Reduction of pesticides usage.

+ 5%
INCREASE IN CROP YIELD

- 20%
USE OF PESTICIDES

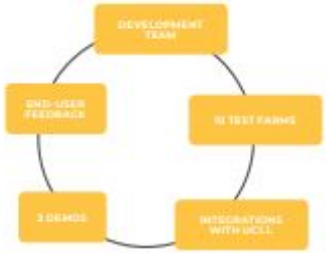
+ 15%
IN DROP QUALITY

LOCATION

SCAN
FOR MORE

1.9 WITHIN-FIELD MANAGEMENT ZONING BALTICS

Spending on fertilisers and agrochemicals represents a considerable part of farmers' overall expenditure. By developing a remote sensing solution to determine which nutritional elements and how much of them a plant is lacking at different stages of its growth, such costs can be reduced. This use case demonstrates the added value of spectral data analysis and IoT technology for precise decision-making and optimised crop management in potato and winter wheat.



PARTNERS

HOW IT WORKS

Integration of advanced hyperspectral imaging and data analysis technologies to deliver a truly innovative solution to some of the most pressing issues for farmers. It uses Artificial Intelligence technologies (Machine Learning/Neural Networks) to perform complex analyses of crop field hyperspectral images. By analysing big amounts of spectral data the system learns to recognise various indicators or patterns, and identifies the composition of nutrients in crops. The solution integrates with FMIS for mapping of micro- and macronutrients in potato and winter wheat plants.

THE IMPACT

OUR OBJECTIVES

- Fast and cost-efficient way to detect the amounts of micro- and macro-nutritional elements needed in plants;
- Automatic recommendations for agrochemical application through non-invasive, remote sensing technology;
- Display the benefits of soil, crop and yield sensors for yield prediction, arable field management and chain optimisation;
- Demonstrate the added value of hyperspectral imaging and spectral data analysis at the farm level.

ECONOMIC IMPACT

- Yield increase (+5%);
- Field analysis time and cost (-70%);
- Early detection of plant stress and its causes;
- Soil fertility increase (+20%).

OTHER IMPACT

- Fertiliser use reduction (-30%);
- Classified data increase (x8);
- Stress reduction (+20%);
- Fertiliser cost reduction 40€ / ha
- User satisfaction (+33%).

STARTED 2019 NEW


THE INTERNET OF DAIRY FARMING
The dairy trial explores the usefulness of collecting real-time sensor and GPS location data throughout the whole dairy chain–'from grass to glass', using neck collars or movement sensors for livestock. Use cases range from monitoring the outdoor grazing of cows (from 'grass') to the application of machine learning technologies and cloud-based services (to 'glass'), making it possible to ensure the quality of the dairy chain remotely.
FOR MORE INFO:
IOF2020.EU/TRIALS/DAIRY
31

104
WEEK LONG PROJECT

25
STAKEHOLDERS EVALUATED

> 1,500
FARMERS ACROSS THE EU REACHED

LOCATION

SCAN
FOR MORE

2.1 GRAZING COW MONITOR

The Grazing cow monitor digitally monitors cows' grazing time and grazing location providing an easy way to generate digital reports for farmers, legal controllers and dairy processors. This is important to verify the state and location of cattle, pasturing for ammonia emission reduction and labels of 'milk from pasture'. The system uses the STICKNTRACK low-power indoor-outdoor tracking service that combines the LPWAN SIGFOX network with BLE technology to track individual cows and measure their pasturing time. The system can also track extensively grazed livestock such as dairy cows, beef cattle, horses, sheep, and reindeer, but can also track wildlife.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
SEPT 2017	MAR 2018	JUL 2018	MAY 2019
• Cow grazing monitor of dairy cows on pasture • Application v1 available to researchers • indoor/outdoor algorithm v1	• Cow grazing monitor of dairy cows on pasture • Track some farm equipment • Webapp v2 available to farmer • indoor/outdoor algorithm v2	• .xls based reports available • dedicated cow alerts and profiles • Mobile app available to farmer	• Dedicated dashboard • Optimized collar system • Find my cow feature • Webapp v3 available to farmer

PARTNERS

ILVO · senseius · inagro

2.2 HAPPY COW

Farmers do not need more data, in fact, farmers require deeper insight into their farm activity. Hence, this use case bridges the existing technology gap for farmers who seek advice on how to increase productivity, improve efficiencies, reduce health incidents and how to better care for a more fertile and happier herd. Through a combination of advanced sensor hardware technology and state of the art deep-learning algorithms, this use case takes the next step in the advancement of farming for the future.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
COMPANY FOUNDATION	EXPANSION	IoF2020 PARTNERSHIP	DATE
• MVP • Ida on first farms • Pitching and various awards	• Product development • Use case progress • Team growth	• Happy cow • Farmer use cases • Product development	• Feature development: partner dashboard & calving insights • Team growth • International expansion

PARTNERS

Connecterra · WAGENINGEN · ZLTO · vriesfect

CALVING TIME
IN BETWEEN CALVING TIME IS DECREASED

FEED INTAKE
OPTIMISED

WORK-LIFE BALANCE
OF FARMERS IMPROVED

LOCATION

SCAN
FOR MORE

WELFARE

ANIMAL WELFARE IMPROVED

FEED

BETTER FEED OPTIMISATION

GROWTH

GROWTH OF YOUNG FARMER ENGAGEMENT

LOCATION

SCAN

FOR MORE

2.3 HERDSMAN

This use case implements, validates and showcases the use of real time data primarily derived from a neck mounted collar together with other relevant data (milk constituent and feed sensors) to create information of value to the dairy supply chain from 'grass to glass'. The impact is a more efficient use of resources and production of quality foods, combined with an enhanced animal health and environmental implementation. Through early intervention strategies stemming from warning systems and quality data that can be used for remote calibration and validation of sensors, this use case's focus is on the welfare of cows. Ultimately, it also optimises the reproduction rate through increasing herd fertility.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	FEATURE ENHANCEMENT
JUL 2018	JAN 2019	JUL 2019	JUL 2020
• Initial prediction of Mastitis only • Interrogation of disparate databases • Preliminary user presentation • Housed dairy farming • PC on-farm • Internet access preferred	• Accurate prediction of the onset of Mastitis • Interrogation of disparate databases • Alerts generated • Housed dairy farming • PC on-farm and cloud storage • Internet access	• Accurate prediction of the onset of Mastitis • Integrated database • Alerts generated • Housed dairy farming • PC on-farm and cloud storage • Internet access	• Accurate prediction of Ketosis • Addition of location • Housed/free-grazing farm systems • PC on-farm and cloud storage • Internet access

PARTNERS

University of Strathclyde Glasgow

2.4 REMOTE MILK QUALITY

This use case provides a quality assurance service of locally obtained milk and remote dairy composition analyses by using sensor appliances. Analytical instruments are monitored remotely and validated through the use of reference samples, calibration sets and software applications. This use case thus ensures:

- High safety, quality, sustainability and profitability in the dairy chain;
- Reliable results from instrumental analyses (IR) for dairy processors and local testing laboratories;
- Calibration and harmonisation expertise within an organization.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
Q3 2019	JAN 2020	Q3 2020	2021
• Plan for data communication platform to exchange data with testing device on milk collection truck • Identification of aplicable IOT, communication protocols and datamodels	• First beta version of platform and datamodel available	• First MVP available of integrated communication platform with IoT elements	• Total integration of communication platform with testing devices and info platform for dairy processors

PARTNERS

Qlip

10-15

REMOTELY MONITORED INSTRUMENTS

> 200

CALIBRATION SETS FOR INSTRUMENTS

> 1,200

REFERENCE SAMPLES

LOCATION

SCAN

FOR MORE

87%
DETECTION ACCURACY

- 15%
REQUIRED TREATMENT TIME

- 7%
MILK YIELD LOSS

LOCATION

SCAN
FOR MORE

2.5 EARLY LAMENESS DETECTION THROUGH MACHINE LEARNING

Lameness is a substantial issue in the dairy industry – it entails pain and discomfort for the cow, and results in decreasing fertility and milk yield for the farmer. Current solutions are cost-intensive and involve complex equipment. Lameness can be addressed without having to spend a high amount of resources. By employing leg mounted sensors and machine learning algorithms lame cattle can be identified at an early stage, and the data acquired can be sent directly to the farmer so that treatment of lameness can start immediately.

PARTNERS

ENGS
Herdsy
Strathclyde

HOW IT WORKS

The use case will build upon an existing trial for early lameness detection deployed on a farm in South East Ireland and extend as well as integrate this deployment into other IoF2020 use cases. The current deployment on a farm with 150 cattle utilises leg mounted sensors and uses Machine Learning for early lameness detection. The team will attach sensors from two separate vendors on cattle in dairy and beef herds in three further countries. The approach will thus be validated in different environments and scenarios.

THE IMPACT

OUR OBJECTIVES

- Integrate existing Lame Detection as a Service (LDaaS) into IoF2020 architecture;
- Extend the use case to integrate with existing third-party services;
- Expand the use case to new regions;
- Commercially validate the solution with multiple vendors.

ON ECONOMY

- Reduced animal mortality (-5%);
- Decreased milk yield loss due to lameness (-7%);
- Increased beef production (+10%).

OTHER IMPACT

- Lameness detection rate (+7%);
- Detection accuracy (87%);
- Improved reproduction efficiency index (+5%);
- Reduced usage of antibiotics (-5%).

STARTED 2019 NEW

4%
PRODUCTIVITY INCREASE

1500
COWS TRIALLED

- 10%
HEALTH-RELATED LOSSES

LOCATION

SCAN
FOR MORE

2.6 PRECISION MINERAL SUPPLEMENTATION

Dairy farming faces increasing losses related to diseases and derived mortalities of dairy cows due to the expanding use of Total Mixed Rotations (TMR) and other standardised feeding, combined with increasing productivity. This use case challenges the situation by utilising IoT for precision supplementation, which is also a cost-efficient and practical way of using advanced feed additives. Relying on cloud-based services and data integration combined with the identification of cows via electronic ear tags allows catering to each animal's individual needs. Minerals and vitamins are important for cows' immune status, and feed additives can furthermore have wide impacts on the environment and climate.

PARTNERS

HOW IT WORKS

Pitstop+ is a mineral feeder for dairy cows, to be mounted in the stable or in an outside motion area. The feeder is equipped with electronic components for the identification of the cows via their electronic ear tags which can be delivered with the feeders in case such ear tags are not already used in the herd. The herd manager decides via the user interface which cows shall have dosed mineral supplements in the feeders. Moreover, the user interface enables the supervision of individual transition cow's eating behaviour and is thus a tool for improved herd management. It is expected to prove a connection between those parameters and the cow's performance as well as health.

THE IMPACT

OUR OBJECTIVES

The use case demonstrates precision mineral supplementation over twelve months in six dairy farms in Latvia, Germany and Lithuania, involving a total of 1,500 cows. Furthermore, it aims to showcase trial interoperability, replicability and the reusability of IoF2020 results or innovations, IoT layers and data flows via the cloud.

ON ECONOMY

Precision Mineral Supplementation is an easy, safe and efficient method:

- Costs for the feeder €4;
- Mineral costs per cow per year €27;
- Increase in milk per cow per day 1.2 kg;
- Reduction of health-related losses (-10%);
- Total savings per cow per year €146.

OTHER IMPACT

The Use Case will directly avoid losses to the nature and environment of 3,977 kg N and 230 kg P as well as 959 kg N in ammonia emissions. The corresponding amount of manure nutrients for the expected market reach of 3,375 million dairy cows is 327 million tonnes of N, 18.9 million tonnes of P and 79 million tonnes of N as ammonia emission. Also, due to higher feed efficiency, less land for growing feed for dairy cows is needed.

STARTED 2019 NEW

> 10%
INSEMINATION RATE INCREASE

- 15%
VISUAL MONITORING TIME

- 10%
MEDICATION/ TREATMENT COSTS

LOCATION

SCAN FOR MORE

2.7 MULTI-SENSOR COW MONITORING

This use case aims to further develop and promulgate a precise and reliable cattle monitoring ecosystem utilising the needs of multi-country dairy and beef farmers, stemming from previous user feedback analysis. By harmonising their different breeding methods and setting novel as well as customised software features accordingly, a mobile device solution for daily operations on all farm levels is developed. The system is made up of a small rumen bolus and collar, monitoring various physiological data, and a cloud-based server application to provide accurate information for daily operations. It helps farmers to guard, track and monitor all assets with the help of reliable, affordable, low-power, wide-range network technologies and smart sensors.

PARTNERS

moonsyst

STARTED 2019 NEW

HOW IT WORKS

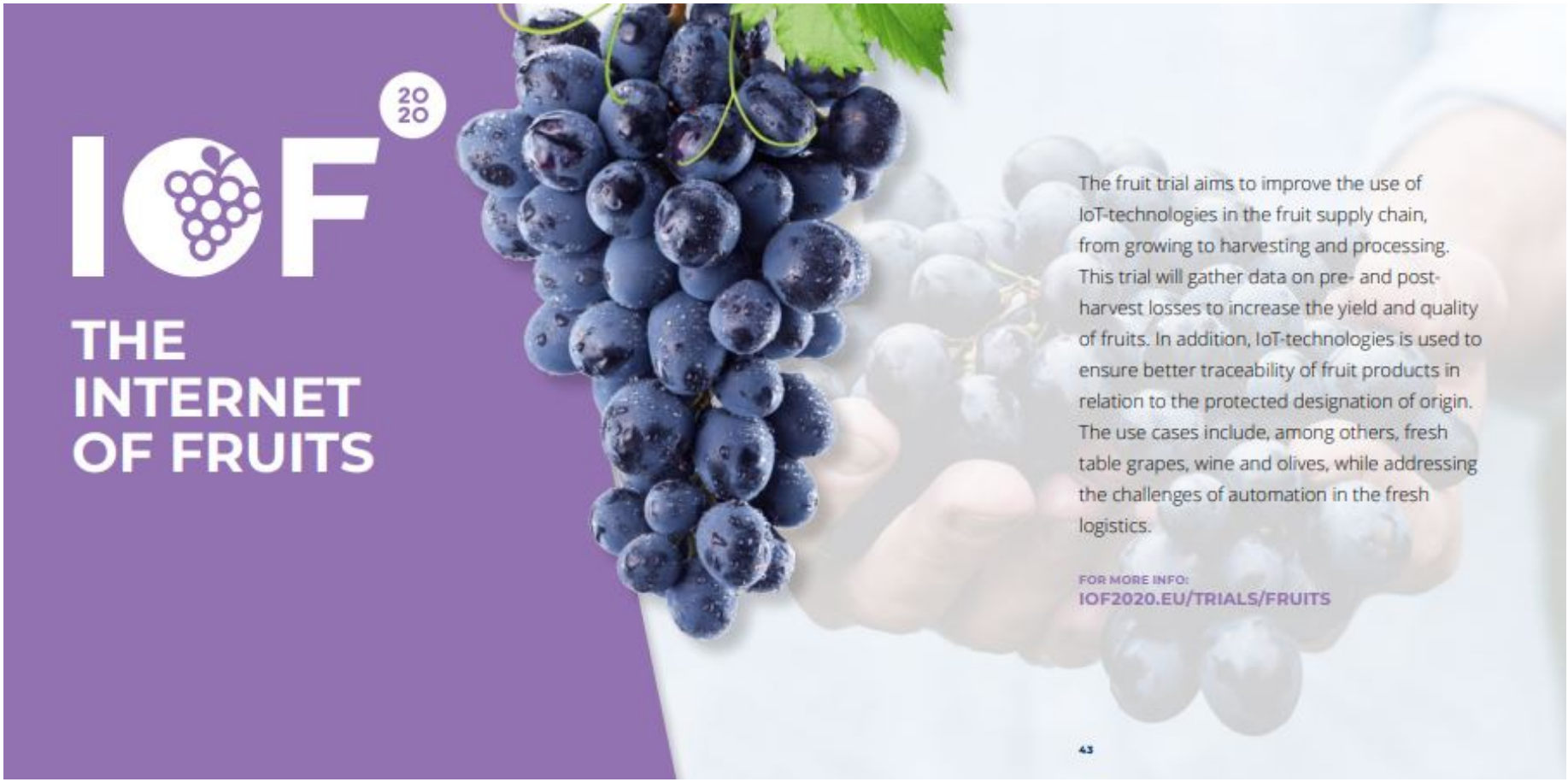
The development of the Moonsyst smart rumen bolus for cattle enables the following key functions and features:
- Accurate heat detection and calving alert
- Indoor and outdoor positioning through the latest technologies (NB-IoT or LoRa Geolocation)
- Monitoring of drinking behaviour
- Harsh environment operation (intraruminal)
- Easy deployment – no additional system devices needed (plug'n'play)
- Theft and roam protection of animals with localisation service
- Cloud-based platform
- Easy, user-friendly data visualization and interpretation
- Machine learning algorithms and Big Data solutions
- Cross platform/system data utilisation

THE IMPACT

OUR OBJECTIVES
- Improve livestock production processes, yield and quality;
- Increase reproduction rates;
- Decrease the occurrence of animal health problems (heat, stress, rumen acidosis, milk fever, etc.);
- Improve animal welfare through reduced number of veterinary interventions and antibiotics or hormone treatments.

ON ECONOMY
- Insemination rate increase >10%;
- Working time decrease >10%;
- Medication/treatment costs -10%;
- Visual monitoring time -15%.

ON ENVIRONMENT
- Enable better human resource management;
- Improve farmers' work-life balance;
- Optimise breeding selections and methods;
- Improved understanding of cattle behavior


IOF 2020
THE INTERNET OF FRUITS
The fruit trial aims to improve the use of IoT-technologies in the fruit supply chain, from growing to harvesting and processing. This trial will gather data on pre- and post-harvest losses to increase the yield and quality of fruits. In addition, IoT-technologies is used to ensure better traceability of fruit products in relation to the protected designation of origin. The use cases include, among others, fresh table grapes, wine and olives, while addressing the challenges of automation in the fresh logistics.
FOR MORE INFO:
IOF2020.EU/TRIALS/FRUITS
43

WATER

IMPROVED WATER USE EFFICIENCY

+ 15%

INCREASED YIELD

QUALITY

HIGHER QUALITY OF FRUIT

LOCATION

SCAN

FOR MORE

3.1 FRESH TABLE GRAPES CHAIN

This use case integrates IoT technologies into the – conventional as well as organic - table grapes value chain and deploys them on farms of all scales. The farmers can therefore monitor their crop growth easily, allowing them to take better field operation decisions (e.g. spraying, irrigation, harvest). At field level, the implementation of IoT sensors produces not only economic benefits, it also yields positive environmental impacts due to improved resource management in terms of water, fuel and pesticide inputs. In the transportation process, technology helps to prolong shelf life, thus reducing spoilage.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
JUL 2017	OCT 2018	JUN 2019	MAR 2020
• First divice installation • First DSS application • First blow trial	• Adaptive DSS (Blue Leaf) • Kc estimation • Blow application improvement	• Improvement of DSS • Kc estimation and calibration • Large scale development of Blow	• DSS data adapted to the whole farm • Kc automatic determination • Blow application on Apofruit products (market diffusion)

PARTNERS

3.2 BIG WINE OPTIMIZATION

Precision viticulture and remote vineyard monitoring are two promising new cultivation methods, allowing to monitor accurate weather data in real time, vine conditions (grape detection, phenological stage determination, and disease status characterisation) and key winery conditions with IoT technology. This use case therefore optimises the application of plant protection products through precise treatment identification and positioning, reducing the environmental impact and resource consumption while efficiently protecting grapes. Furthermore, selective harvesting and data analysis help facilitate decision-making to improve production, accelerate and automate the inspection time while delivering accurate results. In addition, winery monitoring avoids temperature and humidity issues causing wine evaporation especially during summer time.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
DEC 2017	DEC 2018	APR 2019	DEC 2019
• Specified applications • Database of IR spectra • Jodyn specifications	• End of application software development • FTIR spectra validation in real conditions • Jodyn prototype tested in real shipments	• Alpha Release and validation in one domain • FTIR Software developed • Jodn software developed • NET test ready	• Beta release with larger validation in the five domains • FTIR commercial product available • Jodyn/NET product on the market

PARTNERS

3.4L

TARGET PORTABLE WATER CONSUMPTION PER LITER PRODUCED

- 20%

REDUCTION IN PESTICIDES & FERTILISER COST

€ 400

PRODUCTIVITY GAINS / HA

LOCATION

SCAN

FOR MORE

CROP YIELD
INCREASED CROP PRODUCTION

COST
REDUCE CROP COST

QUALITY
INCREASED PRODUCTION QUALITY

LOCATION

SCAN
FOR MORE

3.3 AUTOMATED OLIVE CHAIN

The EU is the largest producer and consumer of olive oil in the world. However, increasing competition from other countries and the rapid decline in olive plantations caused by plant pathogens puts the olive sector under pressure. This use case thus overhauls the olive chain by realising automated field control, product segmentation, processing and commercialisation of olives and olive oil. IoT technologies allow to:

- Automatically take data from crops and postharvest machines, in order to provide inputs for DSS (Decision Support Systems) models;
- Optimise efficiency of resource consumption through monitoring and controlling of agricultural machinery as well as irrigation systems based on agronomic models;
- Measure the fat content and monitor quality during milling process to improve food safety.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
APR 2018	MAR 2019	DEC 2019	APR 2020
• Fields and crops management with IoT devices connected • IoT devices in olive mills connected	• ERP solution with IoT devices connected along the whole value chain	• Agronomic models integrated in the IT platform. • Advisory Board in fertirrigation running	• Final version

PARTNERS

3.4 INTELLIGENT FRUIT LOGISTICS

Food companies are challenged by public and private demands from different points of the supply network. However, a lot of data is collected at different stages and not well-communicated along the chain. A basic traceability is implemented, to ensure better communication. New mechanisms are required for production and transport of information to improve efficiency of the supply network.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
OCT 2017	JUN 2018	DEC 2019	2020
• Feature 1: Positioning • Feature 2: Network selection • Data intefacing • Data presentation	• Chip integrated in Tray, 100 Tracker • Rule based Event Management • Location Management Application	• Tracker: Going large scale, 1.000 Tracker • Feature 3: Temperature sensor • Temerature monitoring application	• Collecting data interpreatation

PARTNERS

> 10.000
MEASURED RENTAL TRIPS

> 1.000
TRANSPONDERS

LOCATION

SCAN
FOR MORE

EFFICIENT
RESOURCE USE

- 25%
PLANT PROTECTION PRODUCTS

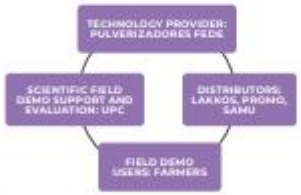
MITIGATED
ENVIRONMENTAL IMPACT

LOCATION

SCAN
FOR MORE

3.5 SMART ORCHARD SPRAY APPLICATION

Agriculture focused on speciality crops faces the challenge of improving the profitability whilst also reducing negative environmental impacts. This use case demonstrates that plant protection products can be significantly reduced through IoT enabled airblast atomising sprayers, adapting automatically to specific field zones as well as individual plant conditions. The integration of the Smart Orchard Spray Application cloud into farmers' existing processes and software solutions further increases operating efficiency.



PARTNERS

HOW IT WORKS

The Smart Orchard Spray Application enables the development of a new integrated market of specialty crops management systems:

- Connection of physical IoT devices to the SCP;
- Configuration of work orders from the SCP;
- Farmer's work based on the use of IoT enabled devices to carry out precise actions;
- Wireless connection of the tractor and the sprayer to the SCP;
- Tracking of all data gathered by the IoT devices;
- Total control of costs and work issues registered from the IoT devices connected to the SCP.

THE IMPACT

OUR OBJECTIVES

- Perform highly efficient, effective and environmentally friendly specialty crops protection in cherry, apple and almond production;
- Increase sustainability and profitability of food production;
- Monitor operations and get instant information on treatment quality;
- Provide traceability to improve the food security standards;
- Monitor costs and bridge the gap between agronomics and company accounting to increase business revenue;
- Assist in documentation tasks related to adherence to farm certification schemes like GLOBALG.A.P.

ON ECONOMY

- Fuel savings of 517€ per hectare/year;
- Savings in pesticides costs (25%);
- Efficient field tasks organisation and supervision;
- Improve revenue through better decision-making.

OTHER IMPACT

- Drift reduction (-48%);
- Reduce fuel consumption (-55%);
- Plant protection product reduction (-25%);
- Improve food-security due to pesticide treatment traceability;
- Establish cellular coverage and IoT functionalities in European rural areas.

STARTED 2019 **NEW**

< 80%
PRODUCTS DELIVERED IN GOOD CONDITION

- 60%
PRODUCTS RETURNED DUE TO DAMAGE

+ 50%
RECOVERED VALUE

LOCATION

SCAN
FOR MORE

3.6 BEVERAGE INTEGRITY TRACKING

The journey from producer to consumer is a process that can negatively affect the quality of the wine. In response to this risk, this use case has created an integrated system that monitors the whole wine and beverage distribution channel to prevent damages caused by integrity-related issues and stress factors such as humidity or shocks during shipping and storage. As a result, a direct relationship between producers and final retailers is established while a large database is created to plan safe shipments thereby allowing new and customised IoT-based insurance policies.

PARTNERS

wenda · SIVE · VINIDEAs · VINIDEA

STARTED 2019 NEW

HOW IT WORKS

DATA LOGGERS monitor and record temperature, humidity, box breaching and shocks. Data are stored on an internal memory device, and wirelessly transmitted to the platform via the mobile App.

The **CLOUD-BASED PLATFORM** stores data coming from the devices, conducts elaborate analyses, aggregates trends and delivers information for decision making on customisable interfaces.

The **MOBILE APP** is the command interface of the devices: It turns them on and off, while assigning them to a specific transportation. At any time, with the data logger near, it can read every data and spot alerts.

THE IMPACT

OUR OBJECTIVES
- Reduce product damages during distribution.
- Deliver products to consumers in the best possible condition.
- Establish a direct connection between producers and final retailers.
- Build a valuable database on worldwide beverage logistics.
- Test the IoT system in collaboration with a network of about 100 stakeholders.

ON ECONOMY
- Tracking beverage conditions during distribution allows retailers and end-users to gain knowledge on the journey which in turn facilitates:
- Reduction of shipping costs for beverages.
- Decrease of client complaints and commercial disputes.
- Insurance coverage possibilities.

OTHER IMPACT
- Creation of a direct relationship between producer and final retailer.
- Ensure the quality of wine during transport.
- Make the wine distribution process more transparent.
- Increase consumer satisfaction.
- Reduction of GHG emission related to beverage transport.

THE INTERNET OF VEGETABLES

The cultivation of vegetables can be done in different climate conditions, such as (fully) controlled indoor greenhouses with an artificial lighting system, semi-controlled greenhouses or non-regulated open-air cultivation. IoT-technologies can help to increase the efficiency of these production processes, e.g. water and nutrients consumption or the supply of artificial light. The vegetables trial aims to improve the quality and the productivity of lettuce and tomatoes in the controlled cultivation and weeding of the vegetables in organic production.

FOR MORE INFO:
IOF2020.EU/TRIALS/VEGETABLES

53

SHELF LIFE

EXCELLENT SHELF LIFE AT AN ACCEPTABLE COST

LIGHTING

EFFICIENT LIGHTING TO OPTIMIZE GROWTH

SENSORS

TO CONTROL AND STEER THE PROCESS

LOCATION

SCAN

FOR MORE

4.1 CITY FARMING LEAFY VEGETABLES

Consumers are increasingly critical about the quality, sustainability and traceability of their food. This is especially true for leafy vegetables used in convenience products such as cut lettuce and ready-to-eat salads where tolerance for dirt, insects or other unwanted ingredients is almost zero. This use case thus employs a commercial city farm to demonstrate the smooth integration of IoT technologies into the production of high-quality vegetables in a predictable and reliable manner, leveraging advantages in the production approach such as independence from seasonal influences, absence of plant diseases as well as pesticides.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
JAN 2018	JUL 2018	JAN 2019	JUL 2019
• 1st implementation of IoT data platform • Architecture of IoT sensing platform • Architecture of lighting control system • 1st implementation of growth data dashboard	• 1st implementation of sensor platform • 1st implementation lighting control system • Growth data dashboard augmented with setpoint and sensor data dashboard	• IoT sensor platform deployed in test facility • Improved version of lighting control system • Growth data dashboard augmented with camera images dashboard • Improved growth recipies	• Lighting control system functionality augmented with light recipe editor • Lighting control system ready for integration with climate control computers via agreed protocol

PARTNERS

PHILIPS, signify, SteeyFoodGroup

4.2 CHAIN-INTEGRATED GREENHOUSE PRODUCTION

The chain-integrated greenhouse production use case aims to develop a web-based Decision Support System (DSS) for the greenhouse tomato supply chain based on IoT technology. The use case helps end-users with the challenges created by climate change and arable land scarcity, and the needs for productivity growth, increasing, fresh water and resource use efficiency. Standardised information alongside the integration of diverse data sources in different time scales increases interoperability throughout the production chain, and allows for easier quality and safety management, improves product and process traceability and reduces the environmental impact.

USE CASE TIME PLAN

2ND MVP	3RD MVP	4TH MVP
FEB 2019	DEC 2019	DEC 2020
• Test in commercial greenhouses • Include data of cooperatives level • Include data of transport • 1st version of meteorological station adapted for greenhouses • 1st version of solution for transport industries	• final version of the FIWARE-based system • 1st test of the meteorological station • 1st test of the transport solution	• Final test of the meteorological station • Final test of the transport solution • Commercial version of the FIWARE-based system

PARTNERS

COEXPHAL, CATEDRA COEXPHAL

10-50

REMOTELY MONITORED INSTRUMENTS

> 200

CALIBRATION SETS FOR INSTRUMENT

> 12,000

REFERENCE SAMPLES

LOCATION

SCAN

FOR MORE

+ 5%
PRODUCTION CROP/M2

+ 10%
€/CROP

- 10%
LABOUR REDUCTION

LOCATION

SCAN
FOR MORE

4.3 ADDED VALUE WEEDING DATA

Weeding is one of the most important and frequent activities in organic vegetable farming. This use case automates the task through an intra-row weeder, detecting the crop and weeds based on machine vision. To elevate (organic) crop production to a higher level, farmers need site-specific information on their crops. Hence, data about the crop and weather are gathered to support the farmer. As the farmers need to perform multiple tasks simultaneously, the decision support regarding their crop management must be user-friendly. By using IoT devices this use case seamlessly combines multiple data sources to support the grower. Furthermore, improved crop and field monitoring results in better field management, reducing the labor required while increasing the yield.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
APR 2019	APR 2019	JUN 2019	SEP/OCT 2019
• Machine parameters and settings logged during operation	• Auto-uploaded data to FMIS (akkerweb)	• Improved algorithms for crop density, crop size and weed pressure	• Yield prediction using lettuce growth model, weather data and IC-weeder

PARTNERS

Steketee · WAGENINGEN · AGROM · NEWAYS

4.4 ENHANCED QUALITY CERTIFICATION SYSTEM

The EU quality certification system and protected designation of origin (PDO) is a powerful tool to protect the quality of EU products, especially in foreign markets. The current standardised approach, however, is subject to fraud and the bureaucratic burden hinders its implementation. This use case solves these issues with the help of IoT technology to improve quality certification systems by reducing redundancies (overlap among certification schemes) time and effort of inspections while at the same time increasing their reliability. Sensor data and online registration can further provide solutions for traceability from field to shelf, proof of origin as well as production methods.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP
FEB 2018	JUN 2018	NOV 2018
• sensor installation • Virtual Reality demo	• Augmented Reality, Virtual Reality and E-learning software released	• Vinifcation testing • Improved Virtual reality

PARTNERS

COEXPHAL · UNIVERSIDAD DE ALMERÍA · uqido

QUALITY
TRANSPARANCY IN FOOD QUALITY

- 10%
REDUCED CERTIFICATION TIME

- 50%
REDUCED USE OF PAPER

LOCATION

SCAN
FOR MORE

- 10%
IRRIGATION

+ 20%
EFFICIENCY

- 10%
PLANT PROTECTION PRODUCTS

LOCATION

SCAN
FOR MORE

4.5 DIGITAL ECOSYSTEM UTILISATION

Currently, only a fraction of the plant protection products applied successfully tackles pests or insects, while the rest unnecessarily pollutes the environment. By utilising data stemming from IoT devices in the field, cloud computing and analytics technologies, this use case timely notifies the farmer to proceed with such activities while addressing challenges related to irrigation. Synergised parameters result in a service which increases the total farm productivity, contributing to food security. By incorporating innovative traceability technology, this use case integrates information from the entire food value chain to a marketplace, offering elaborate value propositions to users. Hence, it enables stakeholders in the agri-food sector to participate in an innovative digital ecosystem.

PARTNERS

HOW IT WORKS

This use case delivers tailored information to farmers based on the data acquired by IoT devices (low-cost weather stations) regarding high farm input-costs (plant protection, irrigation water). As a result, IoT devices, cloud computing and analytics technologies translate data into services and increase the Total Farm Productivity (TFP) factor which consequently assures food security.

In addition, the use case involves track and trace services and queries incorporating the achievements within IoF2020, being the first solution that delivers on- and post-farm traceability features. Lastly, an innovative marketplace where on- and post-farm information can be published and shared with external business entities to validate food content.

THE IMPACT

OUR OBJECTIVES

- Engage agri-food partners form Cyprus, Slovenia and Greece;
- Deploy more than 25 IoT devices in regions where IoF2020 has not been present so far;
- Provide IoT-enabled irrigation and plant protection services to farmers;
- Expand and evaluate the objectives and results to other use cases in the fruits and vegetables sectors.

ON ENVIRONMENT

- Efficiency improvement – farm visits per farm (-20%);
- Reduction of pesticide use – ratio of initial kg product / kg input (-5-10%);
- Water use reduction – ratio of initial kg product / kg (m3) input (-5-10%);
- Cost reduction / kg input (10%);
- Increased total factor productivity of farms.

SOCIAL IMPACT

- Connected IoT devices (<60);
- Increased IoT uptake among end-users;
- Information provision to consumers on growth and farm supply chain conditions;
- Boosted farm sustainability;
- Strengthened data privacy and security;
- Improved consumer trust.

STARTED 2019 NEW


IOF 2020
THE INTERNET OF MEAT
The meat trial aims to improve the meat production chain's value through the application of IoT-technologies. The use cases include the management and optimization of pork production by on-farm sensors and slaughterhouse data. In addition, it will attest the role of IoT-technologies in poultry chain management, and communicate about meat transparency and traceability.
FOR MORE INFO:
IOF2020.EU/TRIALS/MEAT

> 2.000
PIG RECORDS

TAINT
REDUCE BOAR TAINT

5
FARMS

LOCATION

SCAN
FOR MORE

5.1 PIG FARM MANAGEMENT

The pork sector faces several challenges: high costs, a difficult market and increasing pressure concerning animal welfare and greenhouse gas emissions. Modern technology helps maximize work efficiency on farms, but only by combining the information gathered by individual controlling devices can precision livestock farming really be achieved. This use case's application thus combines on-farm data and slaughterhouse results in one easy tool, providing the current-day pig farmer with crucial information to effectively steer the farm management in real-time. In these regards, this use case contributes to a future where PLF and individual pig monitoring might just be standard practice to guarantee the production efficiency and health of all pigs.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
MAY 2018	MAR 2019	NOV 2019	MAY 2020
• IoT infrastructure • Individual level hardware and early warning system	• Release BI dashboard group level • Individual level dashboard	• Incl. chain level data • Incl. early warning group level data	• Full Pig Meat BI Dashboard, feat. group level, individual level & chain level data

PARTNERS

ZLTO · ILVO · Vion · Porphyrio · FSMB

5.2 POULTRY CHAIN MANAGEMENT

Three critical points define the efficiency and product quality of the poultry production chain. This use case thus improves the performance through IoT driven technologies at each different stage, while facilitating linkages between all of them.

- Farm level: Monitor and optimise growing process to achieve a uniform and precisely measured slaughter weight;
- Logistics: Monitor and optimise broiler handling and transport to reduce impacts on the poultry and increase comfort levels;
- Processing plant: Optimise slaughtering and improve profitability and product-market fit, via traceability over all stages.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP	4TH MVP
MAR 2019	JUN 2019	FEB 2020	DEC 2020
• Multimagnitude wireless sensor nodes • Environmental condition Monitoring (farm) • Poultry growth & health manager (farm)	• Manual load monitoring (transport) • Environmental condition Monitoring (transport) • Dynamic scales for weighting (farm) • Poultry chain manager	• Improved models	• Certification of devices • Final models

PARTNERS

exafan · GRUPO SADA · IK4 TEKNIKER · Porphyrio

130
MULTIMAGNITUDE SENSORS

4
FARMS

20 %
INCREASE OF CLASS A BIRDS

LOCATION

SCAN
FOR MORE

SHARE DATA
OF PORK QUALITY WITH SUPPLY CHAIN

QUALITY
HIGHER QUALITY OF PRODUCT

REDUCE WASTE
REDUCE OVERALL WASTE

LOCATION

SCAN
FOR MORE

5.3 MEAT TRANSPARENCY AND TRACEABILITY

The pork market increasingly asks for high quality products, considering important aspects such as animal welfare, sustainability and meat free of antibiotics. Through pro-active auditing, quality criteria are checked regularly in order to give constructive feedback to the farmer. This use case supports the pro-active auditing process by offering a dashboard with crucial sustainability KPIs to auditors and advisors. The solution is based on well-established GS1 standards to ensure scalability, including the EPCIS solution for transparency. This leads to less auditing time and costs, shorter control intervals and faster actions in case quality issues occur.

USE CASE TIME PLAN

1ST MVP	2ND MVP	3RD MVP
FEB 2019	FEB 2020	DEC 2020
• Transparency between farms and slaughterhouses • Data entry interface for farmers • Supports importing Excel and CSV data • Data query interface for involved partners	• Transparency among all partners • Data entry interface for all partners • Integration with FMISs • Comply with FIWARE NGSI (integrate with FIWARE-Orion) • Transparency dashboard	• Final MITS release • Final SLA established • Use of MITS beyond the Iof2020 Project partners

PARTNERS

64

6
COUNTRIES

> 1000
CONNECTED ANIMALS

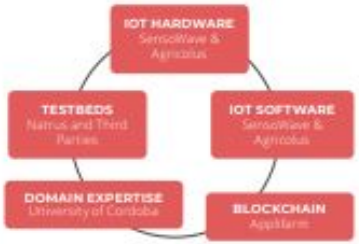
- 15%
TOTAL WORK EFFORT

LOCATION

SCAN
FOR MORE

5.4 DECISION-MAKING OPTIMISATION IN BEEF SUPPLY CHAIN

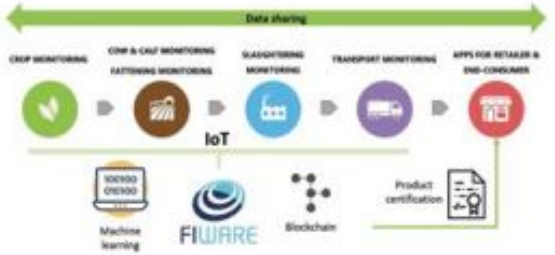
The beef supply chain is a complex system, involving crop farms, livestock farms, feedlots, transporters, slaughterhouses, retailers and consumers. Current traceability systems collect few data from every segment of the supply chain, mainly to assure food safety to consumers. Shared value systems based on integrated data allow every segment of the supply chain to improve production efficiency and product quality.



PARTNERS

HOW IT WORKS

- Data acquisition throughout the entire supply chain is carried out through:
  - IoT stations are used for environmental and soil conditions in crop fields;
  - Smart collars and IoT ear tags for beef cows' or calves' location, activity and temperature;
  - IoT scales to gather information about fattening calves' growth rate;
  - IoT multi-sensor stations for transport and slaughtering conditions - temperature, dust, noise, etc;
- A FIWARE-based platform is used for the integration of the collected supply chain data;
- Machine learning algorithms strengthen a decision support system focused on production efficiency and product quality;
- A Hyperledger Fabric blockchain service ensures data traceability and immutability.



THE IMPACT

OUR OBJECTIVES

- Bridge the gaps in data sharing across every segment of the supply chain through IoT;
- Foster a technological framework that facilitates data sharing to improve decision-making and consumer trust;
- Improve the reliability of data through blockchain technology.

ON ECONOMY

- Fertiliser and water consumption (-10%);
- Reproduction rate (>90%);
- Animal losses (<5%);
- Total work effort (-15 %);
- Selling price through certification (+10%).

OTHER IMPACT

- Resource efficiency improvement: fertiliser, water and feed;
- Average fattening days (-15%);
- Greenhouse gas reduction through optimisation;
- Certification of grass-fed beef;
- Animal welfare improvement.

STARTED 2019 NEW

IMPROVED
ANIMAL WELFARE

- 20%
SICK PIGLETS

- 10%
PIG MORTALITY

LOCATION

SCAN
FOR MORE

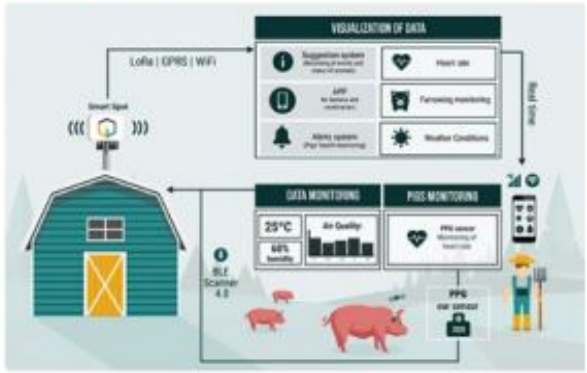
5.6 INTEROPERABLE PIG HEALTH TRACKING

Pig production's substantial advancements over the last couple of decades has resulted in considerable improvements in productivity, allowing farms to be operated at a larger scale without losing efficiency. Changes in physiological parameters of pigs are good indicators for their state of health. This use case thus relies on intensive scrutiny of each animal through IoT sensors, enabling the farmer to swiftly intervene in case health risks or diseases occur. The advantage of sensors, measuring physiological parameters, is that the animals are monitored constantly, and the collected data can further be utilized to assess production management and support decision-making.

PARTNERS

70

HOW IT WORKS



THE IMPACT

OUR OBJECTIVES
- Reduce risks of virus herd contamination;
- Enhance and optimise meat production;
- Cost-effective monitoring through non-intrusive sensors;
- Provide a data management platform for farmers & veterinarians;
- Management of piglet mortality and reduction of economic risks;
- Periodical health monitoring of the herd & follow-up of diseases.

ON ECONOMY
- Optimise pig production;
- Scalability of IoT sensor deployment in mass production;
- Reduce sick piglets (-15%);
- Replicate the deployment at international level;
- Improve traceability of livestock;
- Reduce antibiotics costs.

OTHER IMPACT
- Improved animal welfare (+50%);
- Reduced piglet mortality (-50%);
- Avoid unnecessary use of preventive antibiotics;
- Earlier detection of health issues (+15%);
- Reduced piglet diseases (-60%);

71

STARTED 2019 NEW

CONTACT

PROJECT MANAGEMENT

Dr.ir. George Beers
Wageningen University and Research
Wageningen, The Netherlands

+31 (0)70 33 58 337
george.beers@wur.nl

PROJECT COMMUNICATION

Edwin Hecker, MSc.
Schuttelaar & Partners
Brussels, Belgium

+ 32 (0)2 502 20 08
edwin.hecker@schuttelaar-partners.com

FOLLOW US ON SOCIAL MEDIA

For the latest project updates. And use **#IoF2020** to share your thoughts.

IoF2020

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

WWW.IOF2020.EU

ANNEX 3

DEMO LEAFLETS AND AGENDA

DISCOVER INNOVATIONS BEHIND FRESH CORN BREAD

About this day and use case. Tell people what to expect during your demonstration. About the challenges, goals, and innovations within the use case. Also, something about the IOF 2020 project that you are part of. Do not forget to add a line like the one below when you have to apply via e-mail. The contact info below is a placeholder. Please use your own

Apply via usecasedemo@yourcompany.eu

LOCATION

LOCATION IN ALL CAPS
ADDRESS LINE 1
ADDRESS LINE 2
REGION / CITY
WEBSITE
E-MAIL / PHONE

DATE & TIME

30 NOVEMBER
11:00 - 17:00

10 DECEMBER
11:00 - 17:00

AGENDA

What to see and do goes here. Enjoy fresh food from the smart-farm. And experience the use case activities hands-on.

11:00 - Discussion with stakeholders about the challenges within your use case.
12:00 - Workshop smart farming
Lorem ipsum amet dolor.
14:30 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University
15:00 - Workshop smart farming part two
16:00 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

DISCOVER INNOVATIONS BEHIND FRESH ARTISAN CHEESE

About this day and use case. Tell people what to expect during your demonstration. About the challenges, goals, and innovations within the use case. Also, something about the IOF 2020 project that you are part of. Do not forget to add a line like the one below when you have to apply via e-mail. The contact info below is a placeholder. Please use your own

Apply via usecasedemo@yourcompany.eu

LOCATION

LOCATION IN ALL CAPS
ADDRESS LINE 1
ADDRESS LINE 2
REGION / CITY
WEBSITE
E-MAIL / PHONE

DATE & TIME

30 NOVEMBER
11:00 - 17:00

10 DECEMBER
11:00 - 17:00

AGENDA

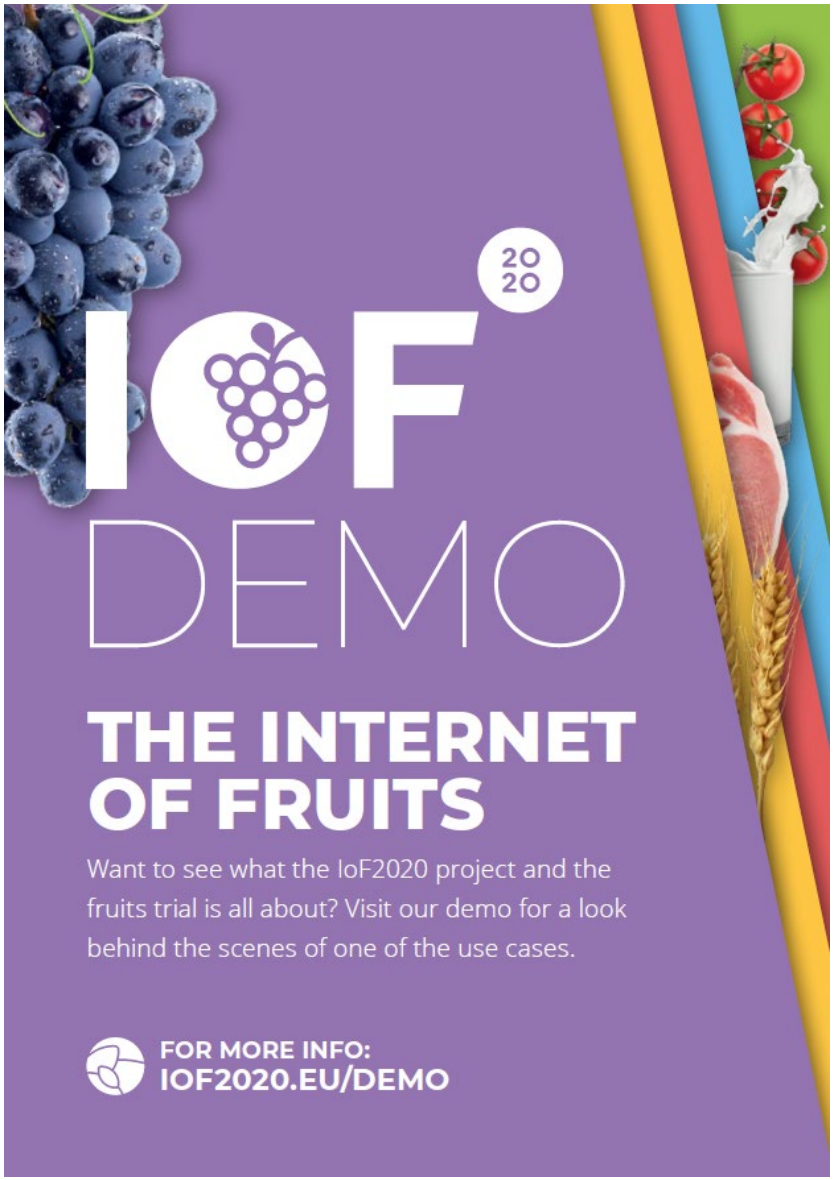
What to see and do goes here. Enjoy fresh food from the smart-farm. And experience the use case activities hands-on.

11:00 - Discussion with stakeholders about the challenges within your use case.
12:00 - Workshop smart farming Lorem ipsum amet dolor.
14:30 - Lecture from one of the experts. drs. Lorem Ipsum - Agriculture Expert Wageningen University
15:00 - Workshop smart farming part two
16:00 - Lecture from one of the experts. drs. Lorem Ipsum - Agriculture Expert Wageningen University

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

IOF 2020



DISCOVER INNOVATIONS BEHIND FRESH TABLE GRAPES

About this day and use case. Tell people what to expect during your demonstration. About the challenges, goals, and innovations within the use case. Also, something about the IOF 2020 project that you are part of. Do not forget to add a line like the one below when you have to apply via e-mail. The contact info below is a placeholder. Please use your own

Apply via usecasedemo@yourcompany.eu

LOCATION

LOCATION IN ALL CAPS
ADDRESS LINE 1
ADDRESS LINE 2
REGION / CITY
WEBSITE
E-MAIL / PHONE

DATE & TIME

30 NOVEMBER
11:00 - 17:00

10 DECEMBER
11:00 - 17:00

AGENDA

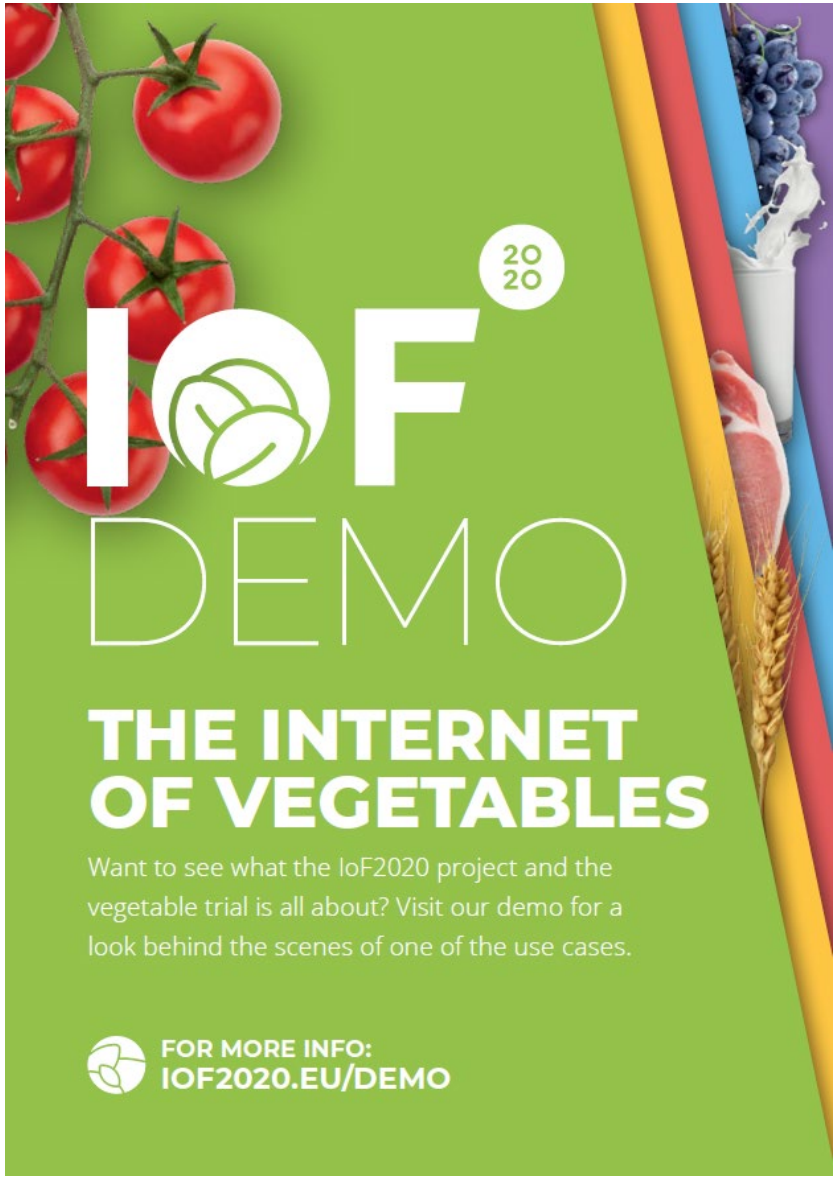
What to see and do goes here. Enjoy fresh food from the smart-farm. And experience the use case activities hands-on.

11:00 - Discussion with stakeholders about the challenges within your use case.
12:00 - Workshop smart farming
Lorem ipsum amet dolor.
14:30 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University
15:00 - Workshop smart farming part two
16:00 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

IOF 2020



DISCOVER INNOVATIONS BEHIND FRESH TOMATOES

About this day and use case. Tell people what to expect during your demonstration. About the challenges, goals, and innovations within the use case. Also, something about the IOF 2020 project that you are part of. Do not forget to add a line like the one below when you have to apply via e-mail. The contact info below is a placeholder. Please use your own

Apply via usecasedemo@yourcompany.eu

LOCATION

LOCATION IN ALL CAPS
ADDRESS LINE 1
ADDRESS LINE 2
REGION / CITY
WEBSITE
E-MAIL / PHONE

DATE & TIME

30 NOVEMBER
11:00 - 17:00

10 DECEMBER
11:00 - 17:00

AGENDA

What to see and do goes here. Enjoy fresh food from the smart-farm. And experience the use case activities hands-on.

11:00 - Discussion with stakeholders about the challenges within your use case.
12:00 - Workshop smart farming
Lorem ipsum amet dolor.
14:30 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert Wageningen University
15:00 - Workshop smart farming part two
16:00 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert Wageningen University

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

IOF 2020

DISCOVER INNOVATIONS BEHIND SUSTAINABLE PIG FARMING

About this day and use case. Tell people what to expect during your demonstration. About the challenges, goals, and innovations within the use case. Also, something about the IOF 2020 project that you are part of. Do not forget to add a line like the one below when you have to apply via e-mail. The contact info below is a placeholder. Please use your own

Apply via usecasedemo@yourcompany.eu

LOCATION

LOCATION IN ALL CAPS
ADDRESS LINE 1
ADDRESS LINE 2
REGION / CITY
WEBSITE
E-MAIL / PHONE

DATE & TIME

30 NOVEMBER
11:00 - 17:00

10 DECEMBER
11:00 - 17:00

AGENDA

What to see and do goes here. Enjoy fresh food from the smart-farm. And experience the use case activities hands-on.

11:00 - Discussion with stakeholders about the challenges within your use case.
12:00 - Workshop smart farming
Lorem ipsum amet dolor.
14:30 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University
15:00 - Workshop smart farming part two
16:00 - Lecture from one of the experts.
drs. Lorem Ipsum - Agriculture Expert
Wageningen University

IOF2020.EU

IoF2020 has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 731884

ANNEX 4

USE CASE POSTERS

1.1 WITHIN-FIELD MANAGEMENT ZONING

5/7
CURRENT TRL & TARGET TRL

- 20%
SOIL FERTILITY LOSS

+ 5%
CROP YIELD

- 70%
FIELD ANALYSIS TIME AND COST

COUNTRIES

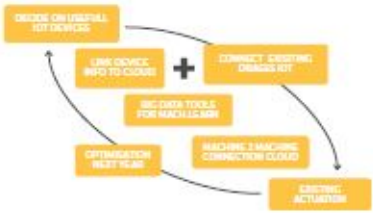
PARTNERS

Arable farming faces increasing requirements and challenges when it comes to resource efficiency, environmental protection, transparency and chain optimization.

To address this challenge, this use case seeks to:

- Develop specific IoT devices for acquisition of soil, crop and climate data in production and storage of key arable and vegetable crops,
- Showcase the benefits of the broad IoT implementation at the farm level.

HOW IT WORKS



Test, validate, integrate and valorize IoT in 4 demonstrators in commercial potato farms.

- Wireless connection of sensors to LoRa network,
- Yield prediction, compared with harvest yield sensing,
- Easy to use VRA maps from EM Soil Scan,
- Showcase state of play: tracking in bulk storage.

THE IMPACT

OUR OBJECTIVES

- Link Soil Sensor to data platforms and visualize data,
- Predict yield with Tipstar growth model, satellite data, Electro Magnetic (EM)-soil scan,
- Optimize the flow of EM-soil scan to VRA maps,
- Track and trace for bulk storage and potato quality sensing.

ON ECONOMY

KPI: successful introduction of EM Soil advice product range.

- Optimum plant density, fertilization, soil herbicide use,
- Optimum product flow: user friendly ordering to smooth actuation,
- Organization of distribution, marketing and effectuation. The products will get clear positioning in competing market.

ON ENVIRONMENT

- Yield increase: + 4%,
- Resource use efficiency: + 10%,
- Soil herbicide use: -15%,
- Potato haulm killing herbicide use: - 30%,
- Nitrogen use: - 10%,
- Fungicide use: -10%,
- Energy use: - 15%.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

1.2 PRECISION CROP MANAGEMENT

5/7
CURRENT TRL & TARGET TRL

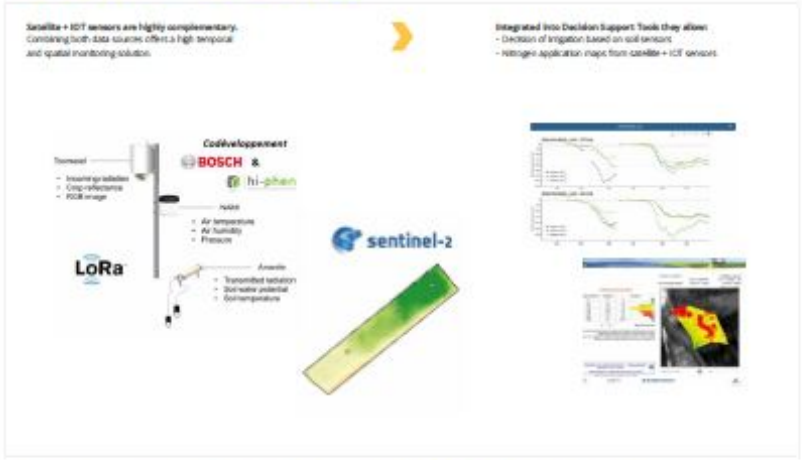
50
MILLION EURO MARKET POTENTIAL

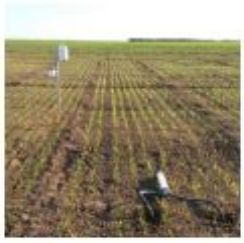
14
MILLION HA POTENTIAL AREA COVERED

30
STEMS DEPLOYED IN FRANCE

The development of decision making tools and services is a priority to help farmers adopt better practices and optimize input management of their fields. Precise advice relies on accurate observations of crop status and growing environment. Existing services use climate data and satellite imagery that provide valuable information but has limitations. Improvement of these services requires a higher spatial and temporal resolutions that are now accessible by using ground based sensors.

HOW IT WORKS





The installed systems, provided by our subcontractors HIPHEN and BOSCH, are measuring simultaneously the vegetation growing status, main meteorological variables and the soil water potential. All data are transferred and made available on Orange data platform and combined with SENTINEL 2 satellite images. Data are integrated in ARVALIS agronomic models to provide accurate advices on crop management. Two topics are currently addressed: nitrogen and water management. Other applications are planned.

COUNTRIES

PARTNERS

ARVALIS Institut du végétal
orange
hi-phen
BOSCH

THE IMPACT

OUR OBJECTIVES

Nitrogen and irrigation for wheat, in a precision crop management approach. Nitrogen and Water are the two main limiting factors impacting wheat production. 30 systems will be deployed in Ile-de-France region to assess technical and economic values of the IoT technology.

ON ECONOMY

The potential of the French market for in-field nitrogen management is estimated at €50M, with 14 million ha potentially encompassed by the DST development. Such development could also apply to the European market. Regarding irrigation, acquiring a decision tool working in real time might lead to gains up to €20-€30 / ha.

OTHER IMPACT

IoT technologies will help farmers in their labour organization (time saving) and working environment. It will directly reduce the footprint of their activities through the optimization of their practices. It will also indirectly contribute to a better perception of agriculture by the society and consumers.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.3 SOYA PROTEIN MANAGEMENT

4/5
CURRENT TRL
& TARGET TRL

15%
PREDICTED INCREASE
IN FARMERS' REVENUE

PROFIT
IMPROVING

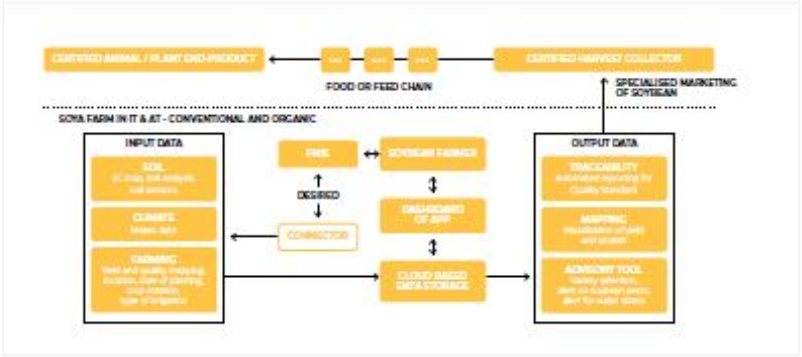
COUNTRIES

PARTNERS

Soybeans are a major source of high-protein food and feed for livestock. At the moment the EU is highly dependent on imports from foreign soya producing countries. This is now changing and an increasing number of farmers is starting to produce soybeans as protein crop.

IoT technology will connect various sources of data and information to advise producers and enable traceability for certified value-chain to improve the transparency of plant and animal food products.

HOW IT WORKS



An application which supports farmers to grow high-quality soybeans and market them. The application contains an advisory tool and a basic traceability tool. The advisory tool will combine soil, climate and farming information from sensors and from third parties, both private and public. Furthermore, we seek to explore opportunities to create a web-based platform for soybean crop where all actors of the supply chain can find information and share knowledge.

THE IMPACT

OUR OBJECTIVES

- Higher protein yields (+5%) in soybean production by using the best available genetics and by making use of environmental and agronomic IoT data,
- Increase marketing possibilities and consumer trust into certified products.

ON ECONOMY

- Improved soybeans yield and quality (+5%),
- Enhanced transparency along the value chain of plant and animal-based food products to enable farmers and industry to obtain premiums.

ON ENVIRONMENT

- Increase consumers trust in food products by improved transparency (+5%),
- Enhance irrigation water efficiency (+5%) by an integration of soil moisture sensors.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.4 FARM MACHINE INTEROPERABILITY

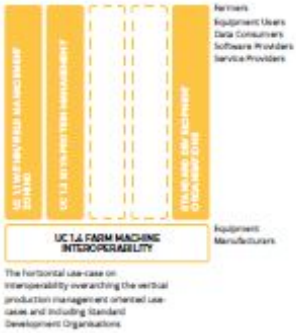
5/7
CURRENT TRL & TARGET TRL

+ 5%
INCREASE IN GROSS MARGIN

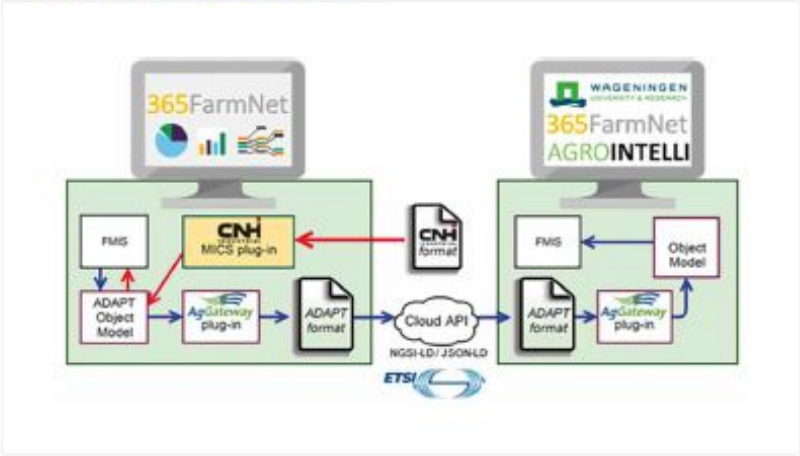
+ 20%
PREDICTED INCREASE YIELD

- 10%
IN FUEL CONSUMPTION

Every farmer wants his equipment to work seamlessly together, designed as one integrated system that is interoperable regardless of vendor. Interoperability of IoT devices and machinery today is in its infancy. For the farmer it is a challenge to make all devices work together in the digital space, as there are different platforms using vendor specific communication.



HOW IT WORKS



Applying communication standards, such as ADAPT and NGSI-LD, for effective offline and cloud communication between farm and machine and vice versa. Unified data models for easy data transfer and conversion. Service providers can add value to data based on a single API.

COUNTRIES

PARTNERS

THE IMPACT

OUR OBJECTIVES

- Implement real-time communication between FMIS cloud solutions and equipment manufacturers
- Demonstrate offline interoperability
- Test harvest logistics application complying with interoperability solutions
- Share technical solution with the Standard Development Organisations

ON ECONOMY

- Yield +10%;
- Crop produced/input resources ratio +15%;
- Gross margin +5%;
- Cost-benefit of IoMT (soil fertility) +10%;
- Yield in compaction sensitive areas +16%;
- Fuel consumption -10%;
- Machinery sale +15%;
- End-user costs of IoMT +5%.

OTHER IMPACT

- Improved farming efficiency +15-20%;
- Faster IoT uptake +15%;
- Farmer dependence on IoMT +25%.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.5 POTATO DATA PROCESSING EXCHANGE

5/7
CURRENT TRL & TARGET TRL

+ 10%
INCREASED YIELD

- 10%
FOOD WASTE

- 10%
IN FUEL CONSUMPTION

COUNTRIES

PARTNERS

Being able to track produce back to the field regarding food security and quality, does not only support buyers and processors, it also helps farmers to identify problems and improve their yields in the following years. As an important step towards smart digital farming, this use case:

- Collects information and opens data flows between stakeholders in the supply chain;
- Measures potato crop growth, yield prediction, caliber yield measurements on the harvester and traceability data from field location to location in the shed;
- Mounts IoT devices on the harvesting machines to gather precise location-based information;
- Facilitates data exchange with the processing industry according to the current state of the art in standardisation.

In this use case farmers (Farm Frites Poland DWA) and the processing industry are present (Farm Frites Poland). AVR (potato machine manufacturer), Aurea Imaging (drone image analysis) and Octinion (caliber yield measurement) are developing the sensors and measurement principles supported by the IoF company Delaware.

HOW IT WORKS

Different data points will be collected in real time on the different machines and will be analysed, stored and exchanged with other partners in this project. The IoT platforms of Aurea & AVR will be used as gateway.

THE IMPACT

OUR OBJECTIVES

- Cover three test fields in three countries: Sweden, Poland and Belgium;
- Exchange the collected data with Farm Frites Poland, as processing industry partner in this use case;
- Focus on the standardisation of this data exchange.

ECONOMIC IMPACT

- Increase in yield (+10%);
- Reduction in fuel consumption (-10%);
- Gross margin (+5%);
- Reduce costs in processing industry;
- Give fast digital access to important information.

OTHER IMPACT

- Food waste through alignment of supply and demand (-10%);
- Improve harvested potato yield;
- Give farmers more insight in data elements for business optimisation.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.6 DATA-DRIVEN POTATO PRODUCTION

6/8
CURRENT TRL
& TARGET TRL

- 15%
PESTICIDE USE

- 25%
WATER CONSUMPTION

- 19%
TOTAL INPUT COSTS

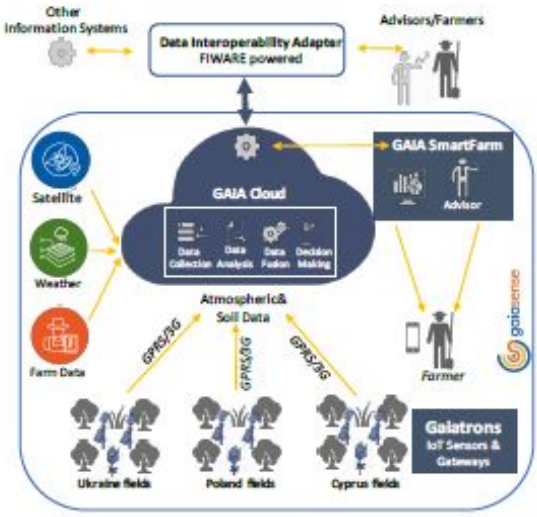
European potato producers are facing a series of challenges such as crop pests, diseases and climate change. Hence, this use case adopts a holistic approach based on research and a unique blend of cutting-edge technologies while offering inexpensive yet valuable advice to farmers. An innovative, market-ready smart farming solution supports irrigation, pest management and fertilisation. Leveraging a network of telemetric IoT stations combined with satellite data and scientific models tailored to the specificities of the geographic areas, helps small-scale farmers to tackle those challenges.

PARTNERS:
- IoT and smart farming services: NEUROPUBLIC
- Pilot farms and producers:
  Poland - PPO,
  Cyprus - AR,
  Ukraine - AgroUV
- Food producing company: PPO
- Agronomists/Advisors: Delphy, AgroUV
- Expert in Earth Observation: WR

COUNTRIES

PARTNERS

TECHNICAL SOLUTION



Data-driven potato prediction utilises the GAIA sense smart farming solution which provides innovative services, building on state-of-the-art technologies like IoT, Big Data, Earth Observation, Context-based decision support and machine learning.

The GAIA sense solution is extended with FIWARE-powered, standards based, data exchange mechanisms in support of cross-system interoperability and openness.

THE IMPACT

OUR OBJECTIVES

- Demonstrate how the use of IoT-driven smart farming solutions can help reduce the environmental footprint of agriculture;
- Facilitating farmers' compliance with a wide range of European environmental legislation, including water and soil protection;
- Improvement of nitrogen use efficiency (+15%);
- Reduction of pesticides use (-15%);
- Reduction of water consumption (-25%).

OTHER IMPACT

- Demonstrate how the use of IoT-driven smart farming solutions can help reduce the environmental footprint of agriculture;
- Facilitating farmers' compliance with a wide range of European environmental legislation, including water and soil protection;
- Improvement of nitrogen use efficiency (+15%);
- Reduction of pesticides use (-15%);
- Reduction of water consumption (-25%).

OTHER IMPACT

- Demonstrating the potential benefits derived from the use of IoT-driven solutions;
- Achieve sustainable economic growth and foster innovation;
- Reduction of inputs costs (-18,6%);
- Farmers benefited from the provided advice >500;
- Smart farming advice available up to 1500ha;
- Building on extensive business network in >50 countries.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

1.7 TRACEABILITY FOR FOOD AND FEED LOGISTICS

6/8
CURRENT TRL & TARGET TRL

> 95%
ROBUSTNESS

> 95%
SUCCESSFUL DETECTION

0%
CONTAMINATION RATE

COUNTRIES

PARTNERS

Lambrecht

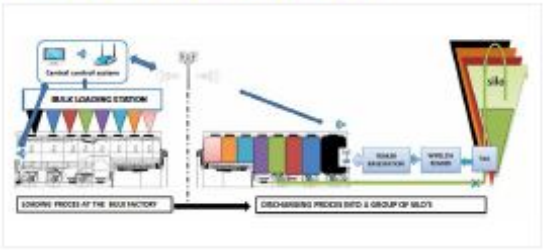
KU LEUVEN

QUICKSAND

DRAMCO

This use case deploys an innovative approach that secures and authenticates the transport of bulk-goods in the agri-food chain, both for feed and food with zero risk of contamination. There is a need to guarantee the traceability of bulk food and feed deliveries from the moment it leaves the loading station right up to when it is delivered to a farm's silo. A fully automated silo detection system, using IoT solutions, guarantees that the right bulk contents are correctly delivered, and that the specifics of that delivery are registered. This solution thus helps to prevent feed and food wastage caused by wrong deliveries.

HOW IT WORKS



The detection system requires the establishment of communication between the loading station and the trailer, using Wi-Fi routers. The transferred data tells which kinds of animal feed are loaded in the different compartments of the trailer.

A base station device, controller and TAG wireless reader are all installed on the bulk trailer. The moment this reader confirms the connection with the right silo, the matching compartment of the trailer can be released and unloaded.

A unique TAG identification is installed on each silo for all delivery addresses.

THE IMPACT

OUR OBJECTIVES

- Real time data delivery and localisation of all trailers;
- Secured delivery procedures;
- Establish complete traceability from factory to client;
- Detailed monitoring of the discharging procedure;
- Direct alarm in case of deviations during the deliveries;
- Data concerning preventive maintenance of the end-user's transport fleet.

ON ECONOMY

- Reduce the recovery cost due to wrong deliveries of feed or food (-90%);
- Compatibility due to system interoperability (99%);
- Increase transport efficiency through data analysis;
- Reduce the destruction cost of contaminated silo content (-90%).

OTHER IMPACT

- Reduce the waste of contaminated silo contents (-90%);
- Lower the need for additional transport (less CO2 emissions), for silo cleaning and re-delivery of new feed by (-90 %);
- Provide guidance and support for truck drivers during the delivery process;
- Increase farmers' trust in the delivery and quality of their feed;
- Improve food safety by securing the supply chain both for animal feed and human food.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.8 SOLAR-POWERED FIELD SENSORS

6/9
CURRENT TRL & TARGET TRL

2000
SMART SENSORS

- 30%
ENERGY USE

- 35%
FERTILISER INPUT

The lack of access to affordable and scalable on-field diagnostics for small farmers is addressed through:

- Reduced design complexity to facilitate ease of use without the need for additional training;
- Integration of all farm information and devices in one farm manager;
- Development of sustainable marketing strategies to incentivise farmers to implement modern technology;
- Demonstration of sensor-based predictive analytics for diseases;
- Application of the solution on different crops.

TECHNICAL CONSORTIUM PARTNERS
- Solarvibes
- Fraunhofer IZM

RESEARCH CONSORTIUM PARTNERS
- University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca (USAMV)
- Hungarian Research Institute of Organic Agriculture (FIBL)

ECOSYSTEM PARTNERS
- Partners' farm community in Hungary, Romania and Germany
- BIOLAND, Germany
- Agricultural Sciences and Veterinary Medicine of Banat Timisoara, Romania
- GOMA business school GmbH
- Mr. Friedrich Ottmer (Digital marketing)

COUNTRIES

PARTNERS

Fraunhofer
SOLARVIBES
ÖMKi

HOW IT WORKS

Solar-powered field sensors offers plug and play IoT devices and AI-based precision farming solutions. The software analyses the soil-crop compatibility, crop requirements and nutrient deficiencies. The solution brings a soil laboratory to the fields and allows end-users to monitor and treat their crops in real time. This directly benefits farmers as it allows them to save water, minimise operating costs and reduce the risk of crop failures.

THE IMPACT

OUR OBJECTIVES

- Calibrate and certify the devices to demonstrate the product among farmer networks of 4 institutions across 3 countries;
- Conduct micro-level market research;
- Develop a smart network of 2000 sensors to help farmers adopt sustainable farm practices;
- Improve overall agricultural efficiency;
- Build self-sustainable communities.

ECONOMIC IMPACT

- Decreased farm operation and inputs costs (-30%);
- Cost saving on energy and water consumption (-35%);
- Crop productivity increase for potato, wheat, maize (+15-30%).

OTHER IMPACT

- CO2 Emissions reduction (-20%);
- Water conservation (-35% vs previous year);
- Cut down on fertilisers Ammonium Nitrate, Superphosphate, Potassium sulphate, Dolomite, and Magnesium sulphate;
- Soil health restoration;
- Reduction of pesticides usage.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

1.9 WITHIN-FIELD MANAGEMENT ZONING BALTICS

6/7
CURRENT TRL & TARGET TRL

+ 5%
INCREASE IN CROP YIELD

- 20%
USE OF PESTICIDES

+ 15%
IN DROP QUALITY

Spending on fertilisers and agrochemicals represents a considerable part of farmers' overall expenditure. By developing a remote sensing solution to determine which nutritional elements and how much of them a plant is lacking at different stages of its growth, such costs can be reduced. This use case demonstrates the added value of spectral data analysis and IoT technology for precise decision-making and optimised crop management in potato and winter wheat.

AIRTEL LTD, VILNIUS, LITHUANIA
- Provide hyperspectral imaging sensors
- Perform data processing
- Manage data storage
- Provide laboratory for reference plant/soil analysis

LITHUANIA, KAUNAS, LITHUANIA (DUE)
- Organise test trial deployments in Baltic States (also responsible for test area selection)
- Provide data processing, analysis services

NATURE RESEARCH CENTRE, VILNIUS, LITHUANIA
- Provide plant and soil laboratory analysis services
- Data analysis model validation services

UC1.1 PARTNERS
- Implementation of primary UC1.1 test trials in Baltic States

TECHNICAL SOLUTION

Integration of advanced hyperspectral imaging and data analysis technologies to deliver a truly innovative solution to some of the most pressing issues for farmers. It uses Artificial Intelligence technologies (Machine Learning/Neural Networks) to perform complex analyses of crop field hyperspectral images. By analysing big amounts of spectral data the system learns to recognise various indicators or patterns, and identifies the composition of nutrients in crops. The solution integrates with FMIS for mapping of micro- and macronutrients in potato and winter wheat plants.

COUNTRIES

PARTNERS

THE IMPACT

OUR OBJECTIVES

- Fast and cost-efficient way to detect the amounts of micro- and macro-nutritional elements needed in plants;
- Automatic recommendations for agrochemical application through non-invasive, remote sensing technology;
- Display the benefits of soil, crop and yield sensors for yield prediction, arable field management and chain optimisation;
- Demonstrate the added value of hyperspectral imaging and spectral data analysis at the farm level.

ECONOMIC IMPACT

- Yield increase (+5%);
- Field analysis time and cost (-70%);
- Early detection of plant stress and its causes;
- Soil fertility increase (+20%).

OTHER IMPACT

- Fertiliser use reduction (-30%);
- Classified data increase (x8);
- Stress reduction (+20%);
- Fertiliser cost reduction 40€ / ha
- User satisfaction (+33%).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

2.1 GRAZING COW MONITOR

6/8
CURRENT TRL & TARGET TRL

104
WEEK LONG PROJECT

25
STAKEHOLDERS EVALUATED

> 1,500
FARMERS ACROSS THE EU REACHED

COUNTRIES

PARTNERS

ILVO

sensolus

inagro

The Grazing cow monitor digitally monitors cows' grazing time and grazing location providing an easy way to generate digital reports for farmers, legal controllers and dairy processors. This is important to verify the state and location of cattle, pasturing for ammonia emission reduction and labels of 'milk from pasture'.

The system uses the STICKNTRACK low-power indoor-outdoor tracking service that combines the LPWAN SIGFOX network with BLE technology to track individual cows and measure their pasturing time. The system can also track extensively grazed livestock such as dairy cows, beef cattle, horses, sheep, and reindeer, but can also track wildlife.

HOW IT WORKS

- A STICKNTRACK GPS-tracker is attached to the collar of each tracked animal
- Bluetooth Low Energy beacons are placed inside the dairy barn
- Clear insights and digital reports on the location of every animal will be available in the management platform

THE IMPACT

OUR OBJECTIVES
The grazing monitor will be tested at two dairy farms (100 dairy cows each) and demonstrated at five dairy farms in Belgium and the Netherlands.

ON ECONOMY
Eliminating manual record keeping will reduce farmer labor time by at least 10 %. Dairy processors can rely on digital reports, eliminating costly on-farm audits.

OTHER IMPACT
The technology will have 85 % accurate classification of inside/outside animal presence. Trough dissemination activities over 1500 farmers and stakeholders will be reached EU-wide.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

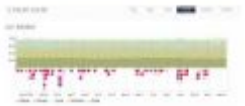
2.2 HAPPY COW

6/8
CURRENT TRL & TARGET TRL

CALVING TIME
IN BETWEEN CALVING TIME IS DECREASED

FEED INTAKE
OPTIMISED

WORK-LIFE BALANCE
OF FARMERS IMPROVED



COUNTRIES

PARTNERS

Connecterra

WAGENINGEN UNIVERSITY & RESEARCH

ZLTO

veteffect

A modern dairy farm is a dynamic and complex business. With increasing demands on animal health, environmental impact and margins being under pressure, improving farm management is vital for dairy farmers to stay in business.

Therefore, the Happy Cow project aims to use state-of-the-art technology and artificial intelligence to provide farmers with insights on the fertility and health of their cows. Besides these goals, IDA (the Intelligent Dairy Farmers Assistant) will also self-learn and give insights on calving and feed efficiency.

HOW IT WORKS

Cows wear a sensor that tracks their movements in 3 dimensions. From the data, a smart algorithm determines what behaviour the cow has expressed. All data is uploaded to "the cloud" where artificial intelligence is used to translate the data into insights. The insights are transmitted to the farmer via an app on his smartphone, offering suggestions on how to optimize the output of the farm.

THE IMPACT

OUR OBJECTIVES

To demonstrate that the approach of cloud computing and artificial intelligence works on farms.

IDA system is istalled on two farms where on each, 50 cows are equipped with sensors. Two additional farms are to follow in 2018.

ON ECONOMY

- A shorter calving interval; hence, higher milk production,
- Quicker treatment and severe disease prevention,
- Mitigation of milk yield losses and decrease of antibiotics use.

KPIs:

- Calving interval,
- 305-day milk production,
- Average number of days treated with antibiotics.

OTHER IMPACT

A lower usage of antibiotics reduces environmental impact and benefits the prevention of antimicrobial resistance.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

2.3 HERDSMAN

5/8
CURRENT TRL & TARGET TRL

ANIMAL WELFARE
IMPROVED

FEED
BETTER FEED OPTIMISATION

GROWTH
GROWTH OF YOUNG FARMER ENGAGEMENT

COUNTRY

PARTNERS

University of Strathclyde Glasgow

This Use Case aims to implement, validate and showcase the use of real-time data primarily derived from a neck mounted collar together with other relevant data to create information of value to the dairy supply chain from 'grass to glass'. The impact will be more efficient use of resources and production of quality foods, combined with an enhanced animal health, welfare and environment implementation. The focus is on welfare and reproduction of cows through early warning systems and quality data that can be used for remote calibration and validation of sensors.

The platform has the potential to bring impact throughout the value chain. Integrated measurements of activity, feeding and rumination combined with other e.g. milk analysis gives a clear welfare indication. Information can be disseminated through the most appropriate channels to stakeholders providing services from on-farm to consumers; farming + processing + logistics + consumers. The information can also be used to optimise on-farm operations and provides consumers with provenance data on the products being purchased.

HOW IT WORKS

- Multiple log-in capability so that members of the supply chain can remotely access to the information e.g. vets, fertility and health service,
- Visualisation of the key conditions of individual animals,
- Data accumulation either at an on-farm PC or the Cloud,
- Sensor fusion to enhance outputs,
- Low power wireless connectivity.

Clockwise from top left:
Milking robot providing production, quality and health indicators, feed monitoring, collar sensors for monitoring behavior and health, view main barn at test site MVH.

THE IMPACT

OUR OBJECTIVES

The integration and analysis of data from a number of measurement sources such as neck mounted accelerometer sensors, milk constituent sensors and feed to monitor animals and the production environment in order to generate actionable information and feedback that optimises welfare/production.

ON ECONOMY

- Increased production efficiency (herd fertility),
- Improved animal welfare, early intervention on illness (automated intervention),
- Increased adoption of IoT in dairy,
- Growth of young farmer engagement.

OTHER IMPACT

- Environmental benefits through reduced production losses,
- Reduced greenhouse gas output per unit of product,
- Reduced use of veterinary intervention/medication.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

2.4 REMOTE MILK QUALITY

6/9
CURRENT TRL & TARGET TRL

10-15
REMOTELY MONITORED INSTRUMENTS

> 2000
CALIBRATION SETS FOR INSTRUMENTS

>1,200
REFERENCE SAMPLES

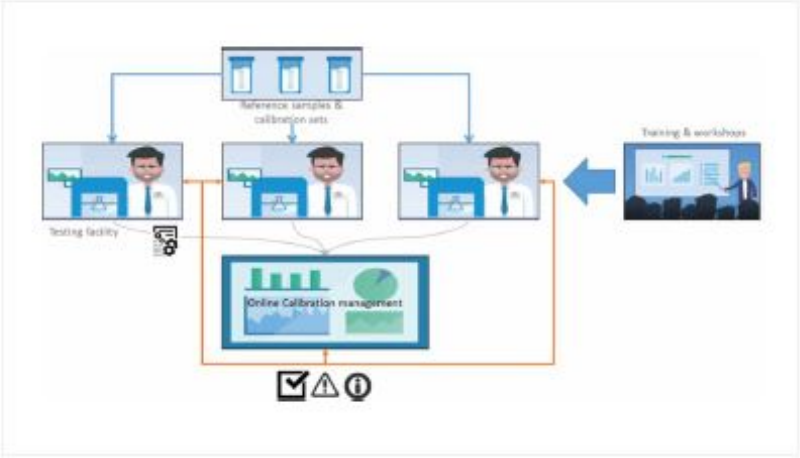
COUNTRIES

PARTNERS

This Use Case has the following challenges:

- Maintain high safety, quality, sustainability and profitability in the dairy chain,
- Maintain reliable results from instrumental analyses (IR) for dairy processors and local testing laboratories,
- Maintain calibration and harmonization expertise within an organisation.

HOW IT WORKS



- Training and workshops,
- Customized reference samples and calibration sets,
- Online Monitoring of calibration management, visualisation and alerts,
- Online and on-site maintenance services.

THE IMPACT

OUR OBJECTIVES

- High safety, quality and profitability in the dairy chain,
- Reliable instrumental analysis (IR) for dairy processors and local testing laboratories,
- Excellent maintenance, calibration and harmonization of test facilities within an organization,
- Qualified operators or QA/QC officers for maintenance and calibration tasks of advanced analytical instruments.

ON ECONOMY

Product quality, safety and processing efficiency. Financial gain is substantial when result of analysis are reliable and accurate. I.e. improvement of standardization of cheese milk can result in €100K profit per processing facility.

OTHER IMPACT

- Improved processing efficiency has direct positive impact on the environment,
- More product less waste,
- Higher quality dairy products at lower costs.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

2.5 EARLY LAMENESS DETECTION THROUGH MACHINE LEARNING

7/8
CURRENT TRL & TARGET TRL

87%
DETECTION ACCURACY

- 15%
REQUIRED TREATMENT TIME

- 7%
MILK YIELD LOSS

Lameness is a substantial issue in the dairy industry – it entails pain and discomfort for the cow, and results in decreasing fertility and milk yield for the farmer. Current solutions are cost-intensive and involve complex equipment. Lameness can be addressed without having to spend a high amount of resources. By employing leg mounted sensors and machine learning algorithms lame cattle can be identified at an early stage, and the data acquired can be sent directly to the farmer so that treatment of lameness can start immediately.

COUNTRIES

PARTNERS

ENGS

Herdsy

University of Strathclyde Glasgow

HOW IT WORKS

The use case will build upon an existing trial for early lameness detection deployed on a farm in South East Ireland and extend as well as integrate this deployment into other IoF2020 use cases. The current deployment on a farm with 150 cattle utilises leg mounted sensors and uses Machine Learning for early lameness detection. The team will attach sensors from two separate vendors on cattle in dairy and beef herds in three further countries. The approach will thus be validated in different environments and scenarios.

THE IMPACT

OUR OBJECTIVES

- Integrate existing Lame Detection as a Service (LDaaS) into IoF2020 architecture;
- Extend the use case to integrate with existing third-party services;
- Expand the use case to new regions;
- Commercially validate the solution with multiple vendors.

ON ECONOMY

- Reduced animal mortality (-5%);
- Decreased milk yield loss due to lameness (-7%);
- Increased beef production (+10%).

OTHER IMPACT

- Lameness detection rate (+7%);
- Detection accuracy (87%);
- Improved reproduction efficiency index (+5%);
- Reduced usage of antibiotics (-5%).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

2.6 PRECISION MINERAL SUPPLEMENTATION

7/9
CURRENT TRL & TARGET TRL

4%
PRODUCTIVITY INCREASE

1500
COWS TRIALLED

- 10%
HEALTH-RELATED LOSSES

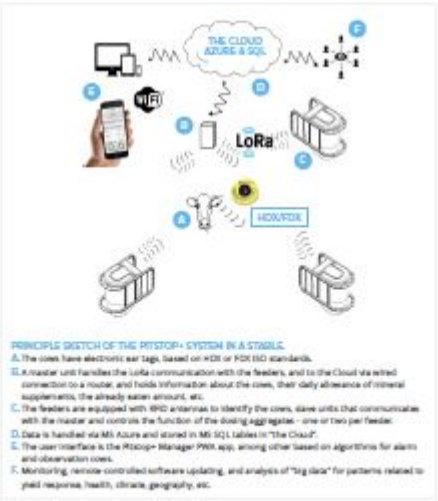
COUNTRIES

PARTNERS

Dairy farming faces increasing losses related to diseases and derived mortalities of dairy cows due to the expanding use of Total Mixed Rotations (TMR) and other standardised feeding, combined with increasing productivity. This use case challenges the situation by utilising IoT for precision supplementation, which is also a cost-efficient and practical way of using advanced feed additives. Relying on cloud-based services and data integration combined with the identification of cows via electronic ear tags allows catering to each animal's individual needs. Minerals and vitamins are important for cows' immune status, and feed additives can furthermore have wide impacts on the environment and climate.

HOW IT WORKS

Pitstop+ is a mineral feeder for dairy cows, to be mounted in the stable or in an outside motion area. The feeder is equipped with electronic components for the identification of the cows via their electronic ear tags which can be delivered with the feeders in case such ear tags are not already used in the herd. The herd manager decides via the user interface which cows shall have dosed mineral supplements in the feeders. Moreover, the user interface enables the supervision of individual transition cow's eating behaviour and is thus a tool for improved herd management. It is expected to prove a connection between those parameters and the cow's performance as well as health.



PRINCIPLE SKETCH OF THE PITSTOP+ SYSTEM IN A STABLE.
A. The cows have electronic ear tags, based on HDX or FDX ISO standards.
B. A master unit handles the LoRa communication with the feeders, and to the Cloud via wired connection to a router, and holds information about the cows, their daily allowance of mineral supplements, the already eaten amount, etc.
C. The feeders are equipped with RFID antennas to identify the cows, slave units that communicates with the master and controls the function of the dosing aggregates - one or two per feeder.
D. Data is handled via MS Azure and stored in MS SQL tables in "the Cloud".
E. The user interface is the Pitstop+ Manager PWA app, among other based on algorithms for alarm and observation cows.
F. Monitoring, remote-controlled software updating, and analysis of "big data" for patterns related to yield response, health, climate, geography, etc.

THE IMPACT

OUR OBJECTIVES

The use case demonstrates precision mineral supplementation over twelve months in six dairy farms in Latvia, Germany and Lithuania, involving a total of 1,500 cows. Furthermore, it aims to showcase trial interoperability, replicability and the reusability of IoF2020 results or innovations, IoT layers and data flows via the cloud.

ON ECONOMY

Precision Mineral Supplementation is an easy, safe and efficient method:

- Costs for the feeder €4;
- Mineral costs per cow per year €27;
- Increase in milk per cow per day 1.2 kg;
- Reduction of health-related losses (-10%);
- Total savings per cow per year €146.

OTHER IMPACT

The Use Case will directly avoid losses to the nature and environment of 3,977 kg N and 230 kg P as well as 959 kg N in ammonia emissions.
The corresponding amount of manure nutrients for the expected market reach of 3,375 million dairy cows is 327 million tonnes of N, 18.9 million tonnes of P and 79 million tonnes of N as ammonia emission. Also, due to higher feed efficiency, less land for growing feed for dairy cows is needed.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

2.7 MULTI-SENSOR COW MONITORING

6/8
CURRENT TRL & TARGET TRL

> 10%
INSEMINATION RATE INCREASE

- 15%
VISUAL MONITORING TIME

- 10%
MEDICATION/ TREATMENT COSTS

This Use Case aims to further develop and promulgate a precise and reliable cattle monitoring ecosystem utilising the needs of multi-country dairy and beef farmers, stemming from previous user feedback analysis. By harmonising their different breeding methods and setting novel as well as customised software features accordingly, a mobile device solution for daily operations on all farm levels is developed. The system is made up of a small rumen bolus and collar, monitoring various physiological data, and a cloud-based server application to provide accurate information for daily operations. It helps farmers to guard, track and monitor all assets with the help of reliable, affordable, low-power, wide-range network technologies and smart sensors.

COUNTRIES

PARTNERS

HOW IT WORKS

The development of the Moonsyst smart rumen bolus for cattle enables the following key functions and features:

- Accurate heat detection and calving alert.
- Indoor and outdoor positioning through the latest technologies (NB-IoT or LoRa Geolocation).
- Monitoring of drinking behaviour.
- Harsh environment operation (intraruminal).
- Easy deployment – no additional system devices needed (plug'n'play).
- Theft and roam protection of animals with localisation service.
- Cloud-based platform.
- Easy, user-friendly data visualization and interpretation.
- Machine learning algorithms and Big Data solutions.
- Cross platform/system data utilisation.

THE IMPACT

OUR OBJECTIVES

- Improve livestock production processes, yield and product quality.
- Increase reproduction rates.
- Decrease the occurrence of animal health problems (heat, stress, rumen acidosis, milk fever, etc.).
- Improve animal welfare through reduced number of veterinary interventions and antibiotics or hormone treatments.

ON ECONOMY

- Insemination rate increase >10%.
- Working time decrease >10%.
- Medication/treatment costs -10%.
- Visual monitoring time -15%.

OTHER IMPACT

- Enable better human resource management.
- Improve farmers' work-life balance.
- Optimise breeding selections and methods.
- Improved understanding of cattle behavior.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

3.1 FRESH TABLE GRAPES CHAIN

6/9
CURRENT TRL & TARGET TRL

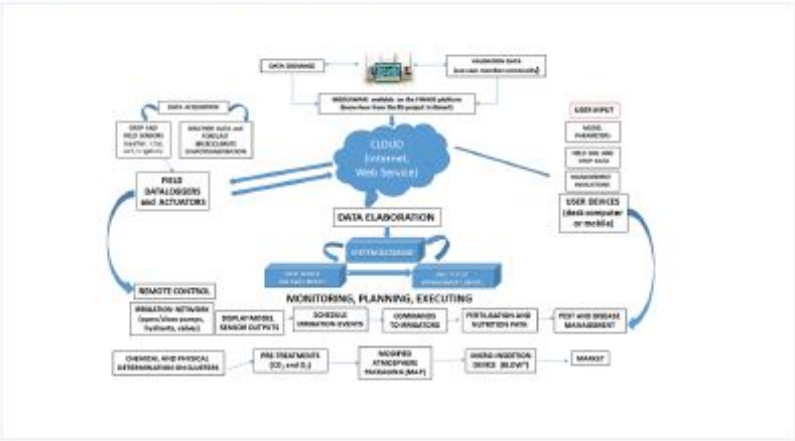
WATER
IMPROVED WATER USE EFFICIENCY

+ 15%
INCREASED YIELD

QUALITY
HIGHER QUALITY OF FRUIT

The challenge is to integrate existing technologies in table grapes (conventional and organic) value chain and deploy them from small scale to a larger scale. The implementation of IoT will produce economic benefits and positive environmental impacts due to better resource management (water, fuel and pesticide inputs).

HOW IT WORKS



The solution provides detailed information on the major critical points of fresh table grape production:

- Irrigation,
- Table grapes managing,
- Pest management,
- Post-harvest.

Installations are covering 10 ha in Italy and 5 ha in Greece, with more than 40 sensors installed in both countries and involving post-harvest techniques and two packing houses.

COUNTRIES

PARTNERS

CIHEAM
CIPOFRUIT
SysMan
Pegasus
SYNELIXIS

THE IMPACT

OUR OBJECTIVES

The goal of the Fresh Table Grapes is to test, develop and disseminate architectures, methodologies and strategies, for integrating heterogeneous IoT and Remote Sensing technologies on production and chain level into a coherent system, for a sustainable Fruit Sector.

ON ECONOMY

Developing innovative business models for IOT managing of fresh table grapes "from fark to fork", more in specific:

- Reduction in irrigation costs,
- Reduction labor costs,
- Increased perceived quality,
- Increased price per unit,
- Increased shelf life duration.

OTHER IMPACT

Creation of an innovative ecosystem able to link farm activities with post-harvest quality with positive impact on the environment and on consumer's trust.
Sensor introduction all along the value chain will improve the management and the quality of the finished product.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

3.2 BIG WINE OPTIMIZATION

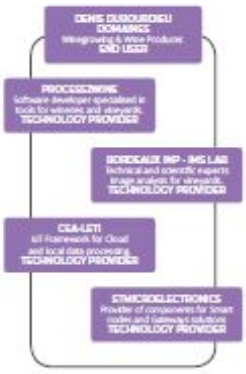
6/9
CURRENT TRL & TARGET TRL

3.4L
TARGET PORTABLE WATER CONSUMPTION PER LITER PRODUCED

- 20%
REDUCTION IN PESTICIDES & FERTILISER COST

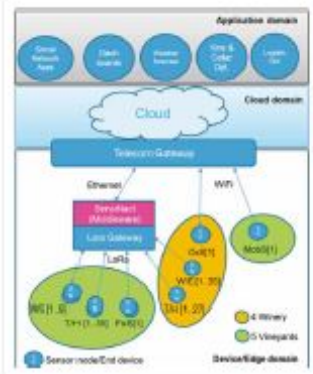
€ 400.-
PRODUCTIVITY GAINS / HA

- Optimize the use of chemicals for plant protection through a precise identification of the moment and the product, as well as the exact needs for treatment in order to reduce environmental impacts, resource use and efficiently protect grape.
- Perform selective harvesting to reduce the inspection time and have accurate results,
- Avoid temperature and humidity issues thanks to winery monitoring, as they cause wine evaporation during summer times,
- Handle huge amount of data coming from 5 domains.



IoT technology allows to monitor weather, vine and key winery conditions in real time.

HOW IT WORKS



IoT System based on a LoRa private network allowing:
- Data gathering in real time from both the vineyard (weather conditions, vine phenological stages) and the wineries (Temperature, Humidity, water and electricity consumption),
- Big data analysis,
- Decision-making at anytime and anywhere through specialized wine production applications running on mobile devices.

THE IMPACT

OUR OBJECTIVES
- Deploy 150 sensor nodes to gather data from 5 vineyards, covering 150 hectares and 4 cellars,
- Perform data analysis and facilitate decision making,
- Improve vine yield and wine production.

ON ECONOMY
- Reduced pesticides costs - 20%,
- Reduced fertilizers costs - 20%,
- Productivity gains (salaries and social charges),
- Increased annual savings due to accident prevention.

OTHER IMPACT
- Treatment frequency index,
- Cost reduction in phytosanitary measures and fertilizer use,
- Potable water use reduction in processing stage,
- Energy use reduction in processing stage,
- Reduction of GHG 600.

COUNTRIES

PARTNERS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

3.3 AUTOMATED OLIVE CHAIN

7/9
CURRENT TRL
& TARGET TRL

CROP YIELD
INCREASED CROP PRODUCTION

COST
REDUCE CROP COST

QUALITY
INCREASED PRODUCTION QUALITY

IoT technologies allow:

1. Automatically taking data from crops and post-harvest machines, in order to provide inputs for DSS (Decision Support Systems) models.
2. Optimizing resource consumption through the monitoring and controlling agricultural machinery.
3. Improving energy and water efficiency through the monitoring and controlling irrigation systems.
4. Calculating the water needs using agronomic models for optimized irrigation.
5. IoT-powered DSS that integrate crop monitoring, water needs calculation, automatic irrigation systems and agricultural machinery.

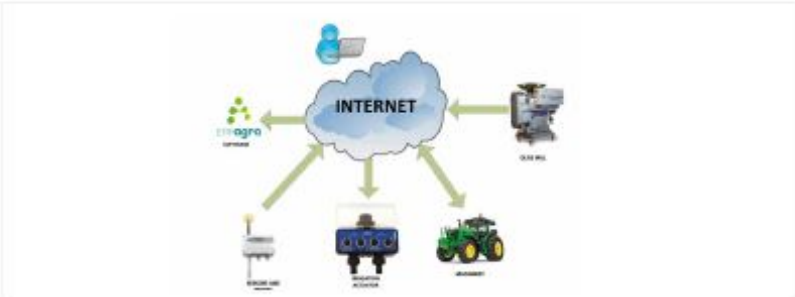
FARMERS
End-users managing their crops using the IoT based systems (Dcoop from Spain and Mbass from Greece).

IOT SOLUTION PROVIDERS:
Providers of technology which deploy IoT based systems allowing farmers to improve their management. (Hispatec from Spain and Synelixis from Greece).

RESEARCH ORGANIZATION:
Organizations that provide agricultural knowledge based on which the deployed systems support decisions and KPIs. These organizations will perform research activities in order to define those parameters. (Tecnova from Spain and AUA from Greece).

CROP MODELLING, DSS FOR IRRIGATION OPTIMIZATION
DSS experts with knowledge in agronomic labors and crop modelling in order to develop and deploy, in IT platform, the algorithms for calculating the water needs and the irrigation planning.

HOW IT WORKS



Deployment of:

- Sensors and probes/supporting agronomic decisions,
- Remote actuators/irrigation process,
- Agricultural machinery/monitoring and controlling,
- Sensors in oil mills/monitoring and controlling key data,
- ERP Agro/data management from IoT platform,
- Agronomic models and algorithms for water needs and irrigation planning calculation.

COUNTRIES

PARTNERS

THE IMPACT

OUR OBJECTIVES

- IoT boxes: soil sensors, probes, air and plants sensors (50 ha/ IoT box),
- Embedded ISOBUS data capture in harvesters and tractors,
- Fat and quality control using NIR sensors in olive mill,
- ERP solution for managing the process and the DSS,
- DSS modelling and algorithms for water needs and irrigation planning calculation.

ON ECONOMY

- Increase crop production,
- Reduce crop cost,
- Increase production quality,
- Crop per drop,
- Crop economic value per drop,
- Cost per drop.

OTHER IMPACT

- Lower residue levels in irrigation water,
- Lower residue levels in crop soil,
- Improved traceability.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

3.4 INTELLIGENT FRUIT LOGISTICS

5/9
CURRENT TRL & TARGET TRL

> 10.000
MEASURED RENTAL TRIPS

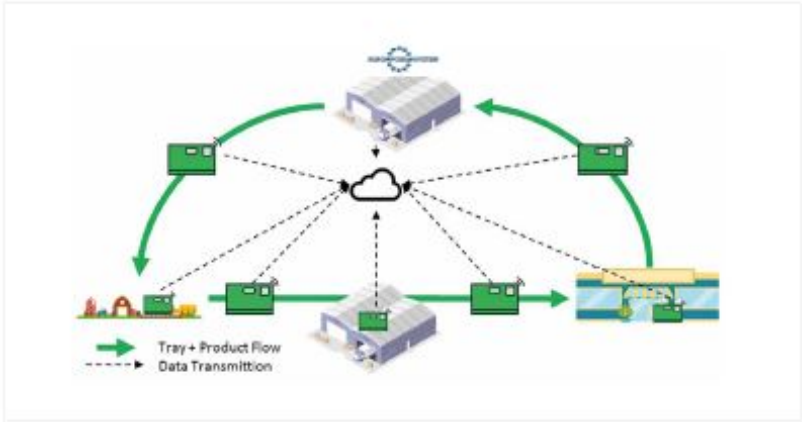
> 1.000
TRANSPONDERS

COUNTRIES

PARTNERS

Food companies are challenged by public and private demands from different points of the supply network. However, a lot of data is collected at different stages and not well-communicated along the chain. A basic traceability is implemented, to ensure better communication. New mechanisms are required for production and transport of information to improve efficiency of the supply network.

HOW IT WORKS



With this use case, we want to digitalize the tray by adding environmental sensors and communication technology to it. Data will be collected from the trays over the entire supply chain and stored on a cloud platform. With the help of a Smartphone Application, every member of the supply chain will have access to this cloud and data collected.

THE IMPACT

OUR OBJECTIVES

> 10.000 measured rental trips (with over) > 1.000 transponders including environmental sensors.

ON ECONOMY

- Optimized supply of pooling members with RTIs,
- Increased pool efficiency,
- Seamless tracking and tracing,
- Higher efficiency in quality management,
- Support in cases of theft or misuse.

OTHER IMPACT

- Reduction of food waste / better food quality,
- Reduction of CO_2 by better chain coordination,
- Possibilities for automation,
- Increased food safety,
- End-to-End visibility.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

3.5 SMART ORCHARD SPRAY APPLICATION

7/9
CURRENT TRL
& TARGET TRL

EFFICIENT
RESOURCE USE

- 25%
PLANT PROTECTION
PRODUCTS

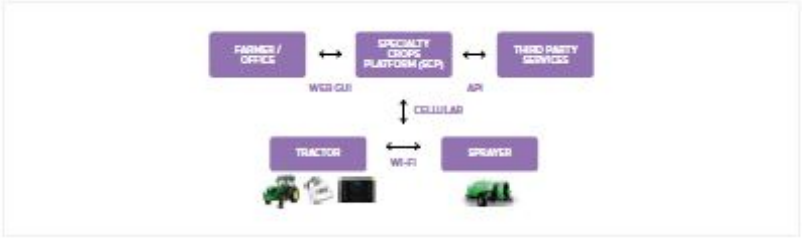
MITIGATED
ENVIRONMENTAL IMPACT

Agriculture focused on speciality crops faces the challenge of improving the profitability whilst also reducing negative environmental impacts. This use case demonstrates that plant protection products can be significantly reduced through IoT enabled airblast atomising sprayers, adapting automatically to specific field zones as well as individual plant conditions. The integration of the Smart Orchard Spray Application cloud into farmers' existing processes and software solutions further increases operating efficiency.

COUNTRIES

PARTNERS

HOW IT WORKS



The Smart Orchard Spray Application enables the development of a new integrated market of specialty crops management systems:

- Connection of physical IoT devices to the SCP;
- Configuration of work orders from the SCP;
- Farmer's work based on the use of IoT enabled devices to carry out precise actions;
- Wireless connection of the tractor and the sprayer to the SCP;
- Tracking of all data gathered by the IoT devices;
- Total control of costs and work issues registered from the IoT devices connected to the SCP.

THE IMPACT

OUR OBJECTIVES

- Perform highly efficient, effective and environmentally friendly specialty crops protection in cherry, apple and almond production;
- Increase sustainability and profitability of food production;
- Monitor operations and get instant information on treatment quality;
- Provide traceability to improve the food security standards;
- Monitor costs and bridge the gap between agronomics and company accounting to increase business revenue;
- Assist in documentation tasks related to adherence to farm certification schemes like GLOBALG.A.P.

ON ECONOMY

- Fuel savings of 517€ per hectare/year;
- Savings in pesticides costs (25%);
- Efficient field tasks organisation and supervision;
- Improve revenue through better decision-making.

OTHER IMPACT

- Drift reduction (-48%);
- Reduce fuel consumption (-55%);
- Plant protection product reduction (-25%);
- Improve food-security due to pesticide treatment traceability;
- Establish cellular coverage and IoT functionalities in European rural areas.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

3.6 BEVERAGE INTEGRITY TRACKING

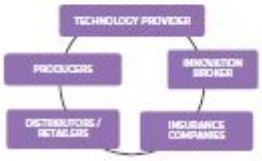
5/8
CURRENT TRL & TARGET TRL

< 80%
PRODUCTS DELIVERED IN GOOD CONDITION

- 60%
PRODUCTS RETURNED DUE TO DAMAGE

+ 50%
RECOVERED VALUE

The journey from producer to consumer is a process that can negatively affect the quality of the wine. In response to this risk, this use case has created an integrated system that monitors the whole wine and beverage distribution channel to prevent damages caused by integrity-related issues and stress factors such as humidity or shocks during shipping and storage. As a result, a direct relationship between producers and final retailers is established while a large database is created to plan safe shipments thereby allowing new and customised IoT-based insurance policies.



HOW IT WORKS

DATA LOGGERS monitor and record temperature, humidity, box breaching and shocks. Data are stored on an internal memory device, and wirelessly transmitted to the platform via the mobile App.

The **CLOUD-BASED PLATFORM** stores data coming from the devices, conducts elaborate analyses, aggregates trends and delivers information for decision making on customisable interfaces.

The **MOBILE APP** is the command interface of the devices: it turns them on and off, while assigning them to a specific transportation. At any time, with the data logger near, it can read every data and spot alerts.

COUNTRIES

PARTNERS

THE IMPACT

OUR OBJECTIVES
- Reduce product damages during distribution.
- Deliver products to consumers in the best possible condition.
- Establish a direct connection between producers and final retailers.
- Build a valuable database on worldwide beverage logistics.
- Test the IoT system in collaboration with a network of about 100 stakeholders.

ON ECONOMY
Tracking beverage conditions during distribution allows retailers and end-users to gain knowledge on the journey which in turn facilitates:
- Reduction of shipping costs for beverages.
- Decrease of client complaints and commercial disputes.
- Insurance coverage possibilities.

OTHER IMPACT
- Creation of a direct relationship between producer and final retailer.
- Ensure the quality of wine during transport.
- Make the wine distribution process more transparent.
- Increase consumer satisfaction.
- Reduction of GHG emission related to beverage transport.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

4.1 CITY FARMING LEAFY VEGETABLES

7/7
CURRENT TRL
& TARGET TRL

SHELF LIFE
EXCELLENT SHELF LIFE AT AN ACCEPTABLE COST

LIGHTING
EFFICIENT LIGHTING TO OPTIMIZE GROWTH

SENSORS
TO CONTROL AND STEER THE PROCESS

Growing sufficient food of high quality for a growing population is becoming a challenge. There is a lack of arable land and a shortage of qualified growers. New and sustainable methods for producing food of high quality in a controlled environment with limited human intervention are required.City farming (a.k.a. vertical farming) growing indoors under LED lighting without use of daylight is such a method that is gaining momentum.

City farming is an innovation in food production that benefits all actors in the value chain.

HOW IT WORKS

- A data platform that enables storage and retrieval of data via web APIs and a client library.
- Sensors that measure relevant plant properties.
- A system for dynamically controlling the lighting (level and spectrum) for optimum plant growth.
- Cloud applications such as dashboards and tools (e.g. for commissioning sensors)

COUNTRIES

PARTNERS

signify
Former Philips Lighting

StaayFoodGroup

THE IMPACT

OUR OBJECTIVES
It is an aim of this use-case to develop an IOT sensing and control solution for city farms to be able to continuously monitor, automate, and improve their operations. This solution includes:
- The development of a lighting control system,
- The deployment of suitable sensors to measure plant growth parameters (typically 100 sensors per 1000 m² of growing area),
- The development of a data platform.

ON ECONOMY
The outcome of this use case will be an improvement of the city farms' efficiency, as well as its adoption rate. Relevant KPIs in this respect are the production yield (kg/m²/year) and shelf life and nutrional value of the produce (with lettuce as key crop).

ENVIRONMENTAL IMPACT
Compared to crop growth in open field and in greenhouses, city farms use far less water and crop waste. Moreover, no pesticides need to be used.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

4.2 CHAIN-INTEGRATED GREENHOUSE PRODUCTION

6/9
CURRENT TRL & TARGET TRL

10-50
REMOTELY MONITORED INSTRUMENTS

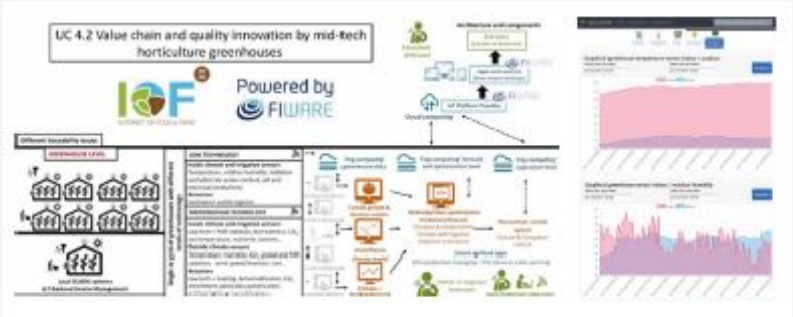
> 200
CALIBRATION SETS FOR INSTRUMENT

> 12,000
REFERENCE SAMPLES

The main challenge is to integrate an IoT solution for DSS in the value chain of greenhouse tomato-crops to ensure vegetable quality. That will happen through:

- Obtaining optimum ambient conditions during the whole chain, reducing inputs and increasing energy efficiency and avoiding/reducing the use of pesticides,
- Using technology and data sharing as essential tools in each of the phases based on transparency and process information.

HOW IT WORKS



This IoT web-based DSS, developed using FIWARE, integrates information from sensors, field notebook, lab analysis and models. Information on production and management in the whole supply chain is available to end-users to help them taking decisions and to provide value added information related to crop growth and climate and irrigation setpoints to fulfill quality, sustainability and traceability objectives.

COUNTRIES

PARTNERS

COEXPHAL

UNIVERSITY OF ALMERÍA

CÁTEDRA COEXPHAL

VALORITALIA

THE IMPACT

OUR OBJECTIVES

An IoT web-based Decision Support System (DSS) platform for greenhouse tomato supply chain focusing on water, energy and other inputs to achieve efficiency, transparency and safety.

ON ECONOMY

Greenhouse vegetable economic efficiencies based on:

- Increased production,
- Reduced costs and inputs,
- Reduced volatility of market and
- Added value of the product.

OTHER IMPACT

- Increasing system sustainability through water and energy efficiency, and through reducing the use of pesticides and underground water contamination,
- Providing transparency about food quality and process information to consumers.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No731884. Visit IOF2020.eu for more information about the project.

4.3 ADDED VALUE WEEDING DATA

6/8
CURRENT TRL & TARGET TRL

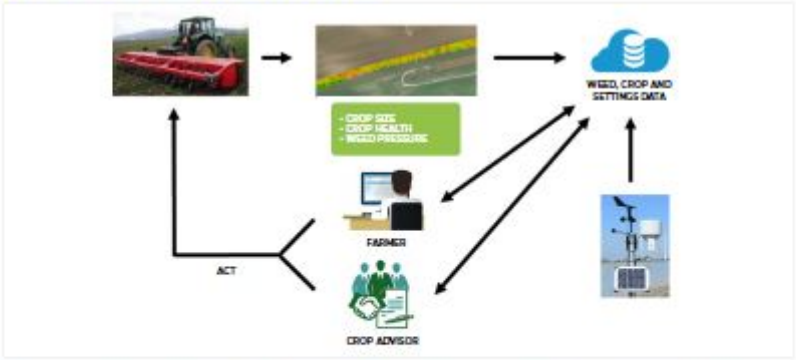
+ 5%
PRODUCTION CROP/M²

+ 10%
€/CROP

- 10%
LABOUR REDUCTION

Weeding is one of the most important and frequent activities in organic vegetable farming. This use case automates the task through an intra-row weeder, detecting the crop and weeds based on machine vision. To elevate (organic) crop production to a higher level, farmers need site-specific information on their crops. Hence, data about the crop and weather are gathered to support the farmer. As the farmers need to perform multiple tasks simultaneously, the decision support regarding their crop management must be user-friendly. By using IoT devices this use case seamlessly combines multiple data sources to support the grower. Furthermore, improved crop and field monitoring results in better field management, reducing the labor required while increasing the yield.

HOW IT WORKS



With the Steketee IC-weeder, images of the crop are acquired and processed on board. The valuable crop parameters are sent to an online database, supplemented with yield and field data, and subsequently presented in a user-friendly way. Based on the insights, the farmers or crop advisors can improve the management of the crops.

COUNTRIES

PARTNERS

Steketee
WAGENINGEN UNIVERSITY & RESEARCH
AGROM
NEWAYS Technologies

THE IMPACT

OUR OBJECTIVES

Through improved crop and field monitoring, resulting in better crop and field management decisions, the required labour is reduced while yield is improved. For Steketee, the machine builder, added value is created through the gathered data which improves machine learning.

ON ECONOMY

- Crop yield (+5%);
- Efficiency in weed removal (+5%);
- Sales turnover (+5%);
- Fuel efficiency (+5%).

OTHER IMPACT

- Labour time for weeding in the field (-5%);
- Fatigue reduction and decreased labour intensity through data insights;
- Prediction uncertainty (-10%);
- Track historical field performance (+25%).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

4.4 ENHANCED QUALITY CERTIFICATION SYSTEM

5/9
CURRENT TRL
& TARGET TRL

QUALITY
HUMAN ERROR

COST & INPUT
REDUCED

To offer quality certification system improvement that will:

- Lead to a reduction of inspection/ certification time/efforts and increased reliability,
- Limit redundancies (overlapping among certification schemes).

HOW IT WORKS

- The auditor reaches the winery location thanks to GPS data and knows where the wine is located in the cellar,
- The producer can couple his expertise in chemical data analysis with data from sensors for better control over the fermentation and aging processes,
- Wine enthusiasts and specialists can discover the production process and access real time data by using virtual reality.

COUNTRIES

PARTNERS

VALORITALIA
COEXPHAL
UNIVERSITY OF ALMERÍA
uqido

THE IMPACT

OUR OBJECTIVES

Implement the enhanced certification system in at least 2 wineries using augmented reality and virtual reality.

ON ECONOMY

- Certification time (-5%),
- Certification cost (-5%),
- Travel and consumable cost (-10%),
- Brand value (+10%).

OTHER IMPACT

- Human error (-90%),
- Auditor satisfaction (+10%),
- Producer satisfaction (+10%),
- Use of paper (-50%),
- Trust in quality products (+50%),
- Auditor performance (+15%).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

4.5 DIGITAL ECOSYSTEM UTILISATION

5/8
CURRENT TRL & TARGET TRL

- 10%
IRRIGATION

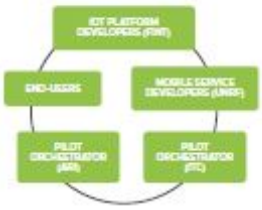
+ 20%
EFFICIENCY

- 10%
PLANT PROTECTION PRODUCTS

COUNTRIES

PARTNERS

Currently, only a fraction of the plant protection products applied successfully tackles pests or insects, while the rest unnecessarily pollutes the environment. By utilising data stemming from IoT devices in the field, cloud computing and analytics technologies, this use case timely notifies the farmer to proceed with such activities while addressing challenges related to irrigation. Synergised parameters result in a service which increases the total farm productivity, contributing to food security. By incorporating innovative traceability technology, this use case integrates information from the entire food value chain to a marketplace, offering elaborate value propositions to users. Hence, it enables stakeholders in the agri-food sector to participate in an innovative digital ecosystem.



PARTNERS
- Future Intelligence Ltd (FINT)
- ITC / Digital Innovation Hub AgriFood (administration of >10 pilots and Communication Leader)
- University of Nicosia Research Foundation (UNRF)
- Agriculture Research Institute (ARI), Republic of Cyprus (administration of >5 pilots and Agronomical Leader)

HOW IT WORKS

This use case delivers tailored information to farmers based on the data acquired by IoT devices (low-cost weather stations) regarding high farm input costs (plant protection, irrigation water). As a result, IoT devices, cloud computing and analytics technologies translate data into services and increase the Total Farm Productivity (TFP) factor which consequently assures food security.

In addition, the use case involves track and trace services and queries incorporating the achievements within IoF2020, being the first solution that delivers on- and post-farm traceability features. Lastly, an innovative marketplace where on- and post-farm information can be published and shared with external business entities to validate food content.

THE IMPACT

OUR OBJECTIVES

Engage agri-food partners form Cyprus, Slovenia and Greece;
Deploy more than 25 IoT devices in regions where IoF2020 has not been present so far;
Provide IoT-enabled irrigation and plant protection services to farmers;
Expand and evaluate the objectives and results to other use cases in the fruits and vegetables sectors.

ON ENVIRONMENT

- Efficiency improvement – farm visits per farm (-20%);
- Reduction of pesticide use – ratio of initial kg product / kg input (-5-10%);
- Water use reduction – ratio of initial kg product / kg (m3) input (-5-10%);
- Cost reduction / kg input (10%);
- Increased total factor productivity of farms.

SOCIAL IMPACT

- Connected IoT devices (+60);
- Increased IoT uptake among end-users;
- Information provision to consumers on growth and farm supply chain conditions;
- Boosted farm sustainability;
- Strengthened data privacy and security;
- Improved consumer trust.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

5.1 PIG FARM MANAGEMENT

5/7
CURRENT TRL & TARGET TRL

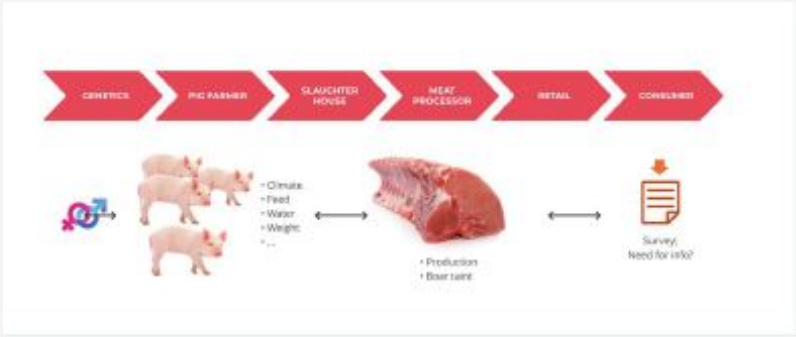
> 2.000
PIG RECORDS

TAINT
REDUCE BOAR TAINT

5
FARMS

The pig sector is facing challenges of high costs, difficult economic situation and increasing pressure concerning welfare and greenhouse gas emissions. This use-case will work on combining data across the value chain in order to provide the pig farmers with crucial information to effectively steer their management to reduce health problems and boar taint, increase productivity, etc. This information is currently lacking, fragmented or collected only post-hoc.

HOW IT WORKS



- Dashboard with analytics, early warnings and predictions based on on-farm sensors and chain level data,
- State-of-the-art sensors and warning systems for individual pig monitoring,
- IoT data platform and adaptors for several devices at the pilot sites,
- Compatibility with UC 5.3 Meat transparency and traceability.

COUNTRIES

PARTNERS

ZLTO

ILVO

Vion

Porphyrio

LINKS

THE IMPACT

OUR OBJECTIVES
- 5 farms (incl. 1 organic),
- heterogeneous data streams,
- over 2000 pig records,
- IoT data platform,
- early warning systems,
- boar taint presence reports,
- chain, group and individual level data.

ON ECONOMY
- Decrease health problems -10%,
- Reduce boar taint -20%,
- Increase average daily gain + 50g/day,
- Increased feed efficiency +10%.

OTHER IMPACT
- Reduce pig mortality -10%,
- 500 Consumers participating in survey,
- 5 Farmers attached to system,
- 5 Technology/data providers attached.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

5.2 POULTRY CHAIN MANAGEMENT

5/9
CURRENT TRL & TARGET TRL

130
MULTIMAGNITUDE SENSORS

4
FARMS

6 MILION
€ SAVINGS PER YEAR

COUNTRIES

PARTNERS

exafan

GRUPO SADA

Tekniker

Porphyrio®

Three critical points define the efficiency and product quality of the poultry meat, starting from the broiler farm to the processing plant. In each step, IoT technology brings value, and moreover, linkage between these steps adds a second level of value.

- Farm level: Monitor and optimize growing process to achieve a uniform and precisely measured slaughter weight,
- Logistics: Monitor and optimize broiler handling and transport to reduce impacts on the poultry and increase comfort levels,
- Processing plant: Optimize slaughtering and improve rendability and product-market fit, with information from all stages.

HOW IT WORKS

The data sources provide inputs for both Farm and Chain securized cloud-based Platforms (mainly in FIWARE components) leading to Early Warning System, Birds Manipulation Assistant, Environmental Assistant, Production Management DSS and Data Visualization to assist poultry meat production chain.

THE IMPACT

OUR OBJECTIVES

- 4 farms: 80 environmental and weight sensors,
- 5 environmental sensors for trucks,
- 5 smart watches: monitor bird manipulation on load and unload,
- Farm and Chain Platforms.

ON ECONOMY

- Flock's average weight and uniformity improvement: +10%,
- Death reduction in production and transport: - 10%,
- Class A birds increase: 20%,
- Savings per year: 6 M€.

OTHER IMPACT

- Decrease feed waste: 10%,
- Decrease antibiotics use: 15%,
- Improve animal welfare (improve physical conditions and decrease birds' death): 15% less treatments.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°731884. Visit IOF2020.eu for more information about the project.

5.3 MEAT TRANSPARENCY AND TRACEABILITY

5/7
CURRENT TRL & TARGET TRL

SHARE
DATA OF PORK QUALITY WITH SUPPLY CHAIN

HIGHER
QUALITY OF PRODUCT

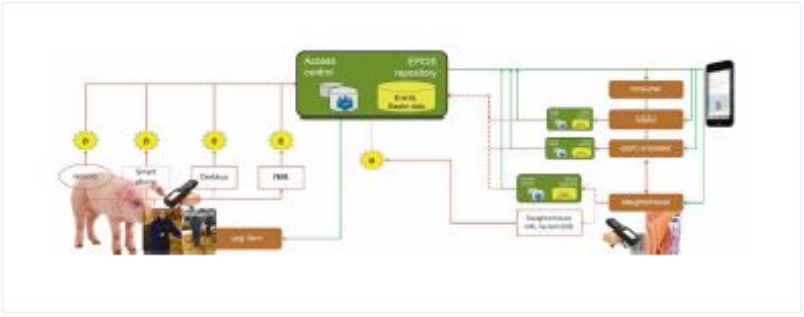
WASTE
REDUCE OVERALL WASTE

COUNTRIES

PARTNERS

The production chain around meat is complex: data about the quality and provenance of meat products must be made available securely to different stakeholders, with different levels of granularity. The main challenge is how to enhance transparency and traceability of meat taking the diverse needs of stakeholders into account.

HOW IT WORKS



The EMTT infrastructure consists of several parts. First, one or more EPCIS repositories should be realized. On top of the EPCIS repositories, several apps, developed in Fispace's MIP trial, add functionality to the infrastructure. A connector will be developed to transform farm events into EPCIS. The other events will be captured directly from the ERP. Key aspects of the architecture for the EMTT infrastructure are the use of the global standard for event information exchange, i.e. EPCIS (EPC Information Services), the use of global identification standards such as GTIN, SGTIN and GLN and the use of the Core Business Vocabulary.

THE IMPACT

OUR OBJECTIVES

The use-case aims to demonstrate its value by:

- Supporting the antibiotics-free certification scheme of KDV,
- Enabling the use of real-time information for inspection, thereby increasing the quality of inspections, whilst reducing inspection costs and increasing transparency on animal welfare.

ON ECONOMY

Significantly reduce inspection costs by at least -50%.

OTHER IMPACT

Significantly increase inspection quality and transparency about animal welfare and the use of antibiotics.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

6/8

CURRENT TRL & TARGET TRL

6

COUNTRIES

> 1000

CONNECTED ANIMALS

- 15%

TOTAL WORK EFFORT

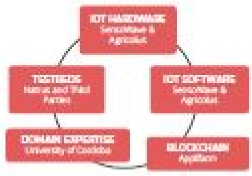
COUNTRIES

PARTNERS

PARTNERS

5.4 DECISION-MAKING OPTIMISATION IN BEEF SUPPLY CHAIN

The beef supply chain is a complex system, involving crop farms, livestock farms, feedlots, transporters, slaughterhouses, retailers and consumers. Current traceability systems collect few data from every segment of the supply chain, mainly to assure food safety to consumers. Shared value systems based on integrated data allow every segment of the supply chain to improve production efficiency and product quality.



PARTNERS
SensoWave, Agricolus, Applifarm, University of Cordoba and Natrus

THIRD PARTIES
FIWARE, COVAP, Azienda Agraria Luchetti Basilio & Claudio, and livestock farmers (from Bulgaria, Croatia, Ireland and Portugal)

HOW IT WORKS

- Data acquisition throughout the entire supply chain is carried out through:
  - IoT stations are used for environmental and soil conditions in crop fields;
  - Smart collars and IoT ear tags for beef cows' or calves' location, activity and temperature;
  - IoT scales to gather information about fattening calves' growth rate;
  - IoT multi-sensor stations for transport and slaughtering conditions - temperature, dust, noise, etc;
- A FIWARE-based platform is used for the integration of the collected supply chain data;
- Machine learning algorithms strengthen a decision support system focused on production efficiency and product quality;
- A Hyperledger Fabric blockchain service ensures data traceability and immutability.

THE IMPACT

OUR OBJECTIVES

- Bridge the gaps in data sharing across every segment of the supply chain through IoT;
- Foster a technological framework that facilitates data sharing to improve decision-making and consumer trust;
- Improve the reliability of data through blockchain technology.

ON ECONOMY

- Fertiliser and water consumption (-10%);
- Reproduction rate (>90%);
- Animal losses (<5%);
- Total work effort (-15 %);
- Selling price through certification (+10%).

OTHER IMPACT

- Resource efficiency improvement: fertiliser, water and feed;
- Average fattening days (-15%);
- Greenhouse gas reduction through optimisation;
- Certification of grass-fed beef;
- Animal welfare improvement.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

5.5 FEED SUPPLY CHAIN MANAGEMENT

7/9
CURRENT TRL & TARGET TRL

325
SILO SENSORS

- 15%
CO2 EMISSIONS

- 10%
COSTS

COUNTRIES

PARTNERS

The animal feed industry, mainly represented by feed suppliers and livestock farmers, currently faces great inefficiencies due to outdated supply chain management. Stakeholders struggle with the timing and quantity evaluation when restocking their feed silos, significantly affecting cost and labour efficiency. This use case thus develops an integral feedstock management system to optimise the entire supply chain.

HOW IT WORKS

Feed Supply Chain Management makes use of an IoT enabled, smart volumetric sensor, to obtain an accurate measure of the silos' stock levels.

The INSYLO technology, consists of a 3D sensor with embedded algorithms that scans the inner silo and calculates the content's volume.

The device is fully independent of the resources available on the farm as it is powered by solar energy and has embedded cloud connectivity systems. The cloud platform collects data from the silos along with relevant production information from livestock farmers and feed suppliers. In combination with Big Data and AI, it enables the optimisation of refilling orders, production batches, shipping routes and raw materials purchases.

The app platform also provides web services to facilitate the transactions between feed suppliers and livestock farmers, allowing stakeholders easier data access. Ultimately, feed suppliers can automatically generate the refilling orders based on cost criteria and send them to the farmers who can accept or reject them with a simple click.

THE IMPACT

OUR OBJECTIVES

- Deploy and test three IoT-based Feed Supply Chain testbeds (2 small-scale + 1 large-scale);
- Demonstrate proposed solution's technological and economic viability;
- Validate exploitation and scalability of the project results.

ON ECONOMY

By translating silo stock level information into management information, farm efficiency gains are made as farmers and feed suppliers can optimise the supply chain.

- Reduction of feed supplier's logistic costs (-10%);
- Annual savings per silo 250-500€;
- ROI per silo per year 150€;
- Farmer worktime efficiency savings -22 days per year.

OTHER IMPACT

- Reduction of CO2 Emissions (-10 to -15%);
- Logistics optimisation;
- Supplier inventory levels and production lots reduction;
- Decreased feed waste.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.

5.6 INTEROPERABLE PIG HEALTH TRACKING

6/8
CURRENT TRL & TARGET TRL

IMPROVED
ANIMAL WELFARE

- 20%
SICK PIGLETS

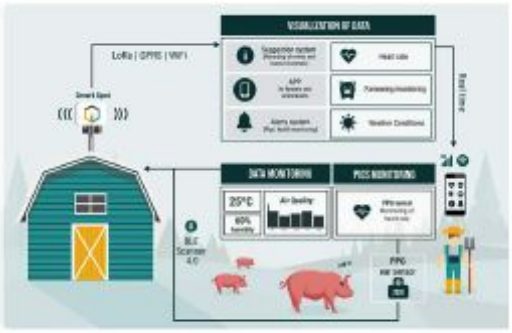
- 10%
PIG MORTALITY

COUNTRIES

PARTNERS

Pig production's substantial advancements over the last couple of decades has resulted in considerable improvements in productivity, allowing farms to be operated at a larger scale without losing efficiency. Changes in physiological parameters of pigs are good indicators for their state of health. This use case thus relies on intensive scrutiny of each animal through IoT sensors, enabling the farmer to swiftly intervene in case health risks or diseases occur. The advantage of sensors, measuring physiological parameters, is that the animals are monitored constantly, and the collected data can further be utilized to assess production management and support decision-making.

HOW IT WORKS



THE IMPACT

OUR OBJECTIVES
- Reduce risks of virus herd contamination;
- Enhance and optimise meat production;
- Cost-effective monitoring through non-intrusive sensors;
- Provide a data management platform for farmers & veterinarians;
- Management of piglet mortality and reduction of economic risks;
- Periodical health monitoring of the herd & follow-up of diseases.

ON ECONOMY
- Optimise pig production;
- Scalability of IoT sensor deployment in mass production;
- Reduce sick piglets (-15%);
- Replicate the deployment at international level;
- Improve traceability of livestock;
- Reduce antibiotics costs.

OTHER IMPACT
- Improved animal welfare (+50%);
- Reduced piglet mortality (-50%);
- Avoid unnecessary use of preventive antibiotics;
- Earlier detection of health issues (+15%);
- Reduced piglet diseases (-60%);

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement №731884. Visit IOF2020.eu for more information about the project.