REINWASTE

WP3

DELIVERABLE 3.2.4

OPEN INNOVATION LABS

Introduction

This document provides the consolidated findings of the Open Innovation Labs organized by the REINWASTE partners concerned jointly at national level in Italy (FEDSERV, CONFAGRI and ARTER), Spain (AGAPA, IFAPA and FIAB) and in France (ANIA, CRITT PACA and CRAPACA). For each event a short report is provided as well as relevant proceedings are provided in the annexes.

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SUMMARY OF THE OPEN INNOVATION LABS ORGANISED

Italy

DATE	VENUE	ORGANISERS	ATTENDEES
30/9/2019	Reggio Emilia	Fedserv, Confagri and Art-Er	31

France

DATE	VENUE	ORGANISERS	ATTENDEES
27/1/2020	Paris	Ania, Critt-Paca and CraPaca	139

Spain

DATE	VENUE	ORGANISERS	ATTENDEES
23/5/2019	Almeria	Ifapa and Agapa	30
14/11/2019	Almeria	Fiab and Ifapa	30

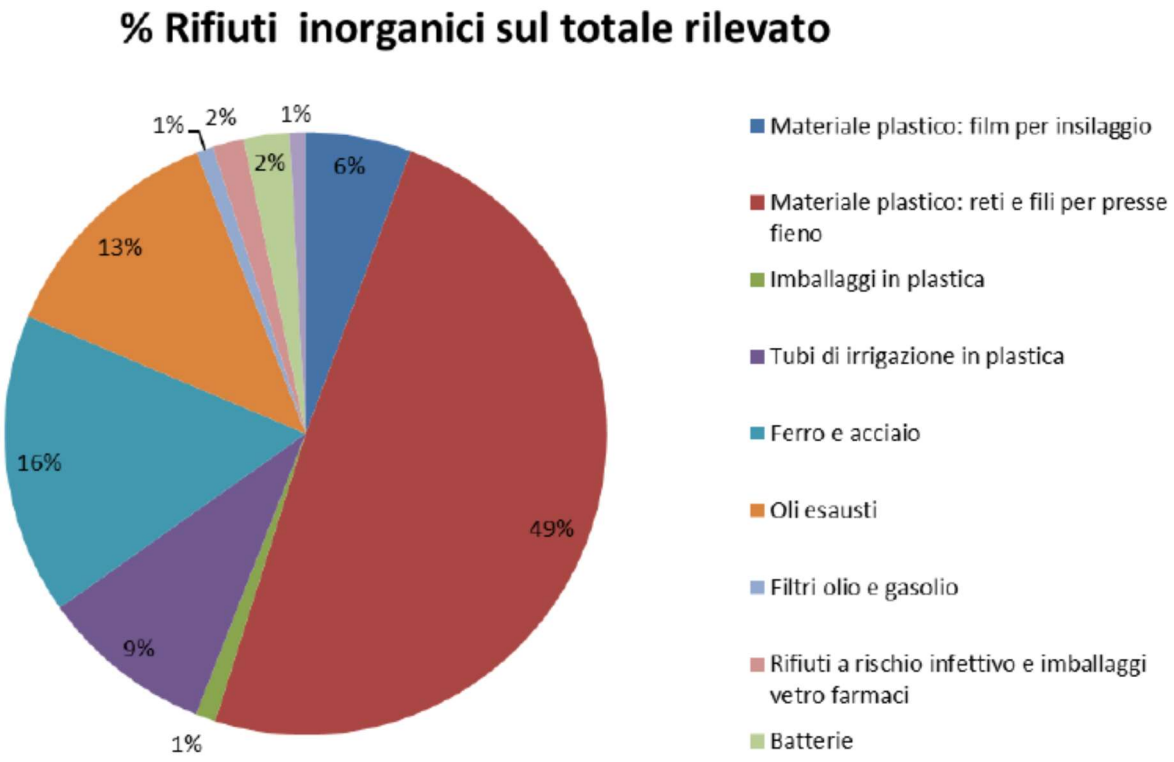
OPEN INNOVATION LAB of the REINWASTE project ON THE REDUCTION OF INORGANIC WASTE IN THE DAIRY SECTOR of EMILIA ROMAGNA

30 SEPTEMBER 2019 at the Reggio Emilia Technopole

Minutes from the SUB working group "Agriculture"

The opening of the work of the agricultural phase working group, which was attended by representatives of the farms involved in the project and sector experts, was introduced by the analysis of the results of the experimentation carried out by the CRPA (Animal Production Research Center) '' SABAR waste collection and processing company for disposal or recycling, operating in Emilia Romagna.

The analysis carried out by the CRPA shows that the main source of non-organic waste on farms are silage films and nets and wires for hay presses.



It also appears that the innovative solutions currently available to reduce the production of the various types of non-organic waste, have focused on process changes, such as the use of detergents with returnable vacuum or on-call refilling of fixed containers in the company, of eco-design solutions, such as reducing the thickness of the covering films for silage or packaging. Added to this are the use of good practices, such as the use of LED lighting systems to reduce energy consumption, reducing maintenance of the lighting system and the production of hazardous waste (mercury, argon).

The research carried out shows that for the dairy sector, unlike the fruit and vegetable sector, there are no innovations that make it possible to replace plastic materials with biodegradable materials or the few researches and experiments carried out, such as those on plastic covering films for silage, do not show still a technology applicable to such use. There is no European technical standard on the biodegradability and compostability characteristics of silage covering plastic films or nets for round bales.

SABAR, a waste collection and treatment company operating in the lower Reggio area, highlighted the difficulty of being able to recycle some types of waste, such as nets for round bales or plastic covering films for silage, due to residual material (eg. hay, straw, earth) which does not allow recycling at advantageous prices due to the difficulties in cleaning agricultural waste.

It is also highlighted how the material recycling process can be improved by making specific precautions in the management of temporary storage by agricultural operators, for example with greater protection of this waste from atmospheric agents.

The discussions addressed by the participants (agricultural companies, sector experts) highlighted the need to improve communication between the agricultural company and the companies that manage agricultural waste, in order to identify good practices that allow to improve the management of the deposit. temporary in the company, increasing the amount of waste to be used for recovery operations.

There was a need to activate institutional tables between the competent administration, the representatives of the companies producing the products used in the company (for example the nets for round bales and silage film), the representatives of the farms and the managers of the collection and treatment of waste, in order to:

- define the viable solutions for each of the subjects of this supply chain, useful for improving the recovery process of this type of waste;
- verify what incentives can be put in place to support agricultural businesses;

- assess the need to strengthen the infrastructures for the recycling of materials present in the area;
- promote more in-depth research on the use of biodegradable materials or, at least, greater innovation in eco-design to reduce the use of plastic materials or to facilitate the removal of residual material to allow for recycling.

However, the need to have a diversification of the applicable solutions for reducing the use of plastics and inorganic materials in the primary sector of the dairy sector seems clear, given the differences in size, level of innovation and production system aimed at obtaining of a product often linked to different production regulations with respect to the DOP circuit to which it belongs that characterizes the companies in the sector.

Minutes from the SUB working group "dairy industry"

The topics covered ranged from the prospects for innovation in terms of replacement / modification of current plastic packaging in the agri-food sector.

There are two hypothesized trajectories: material replacement and eco-design.

For the replacement of the material, the focus was on the prospects offered by bio-based materials. At the moment, given the state of the art, there is no univocal position on the qualities and perspectives offered by bio-based materials both in terms of performance and functionality (hygienic-sanitary) and cost (also understood as availability of the raw material on the market). Undoubtedly, the bio-based issue should be considered only if in view of a totally biodegradable / compostable material, also in anticipation of the European strategy on plastics (so-called plastic free). Furthermore, it has advantages in terms of reducing climate-altering emissions, being based no longer on fossil resources but on renewables. Few solutions are available that complete the picture of functional and environmental performance (for example PLA and PHA). For example, the recycling chain of these materials is still totally absent and the disposal itself is more expensive, without considering the low stage of innovation development on end-of-life transformation processes.

In terms of eco-design, the focus has been on reducing thickness, on the introduction of single-material packaging and on non-destructive quality tests.

As transversal themes that of training at all levels, both small and medium-sized enterprises and large, with different degrees of depth; and the LCA. The request for LCA checks at the process and product level has exploded in recent times, to respond to the continuous demands of the market on sustainability: Through the LCA you can have a broader vision and surgically clarify where to intervene. An example of all is the impact of the packaging impact on that of the product.

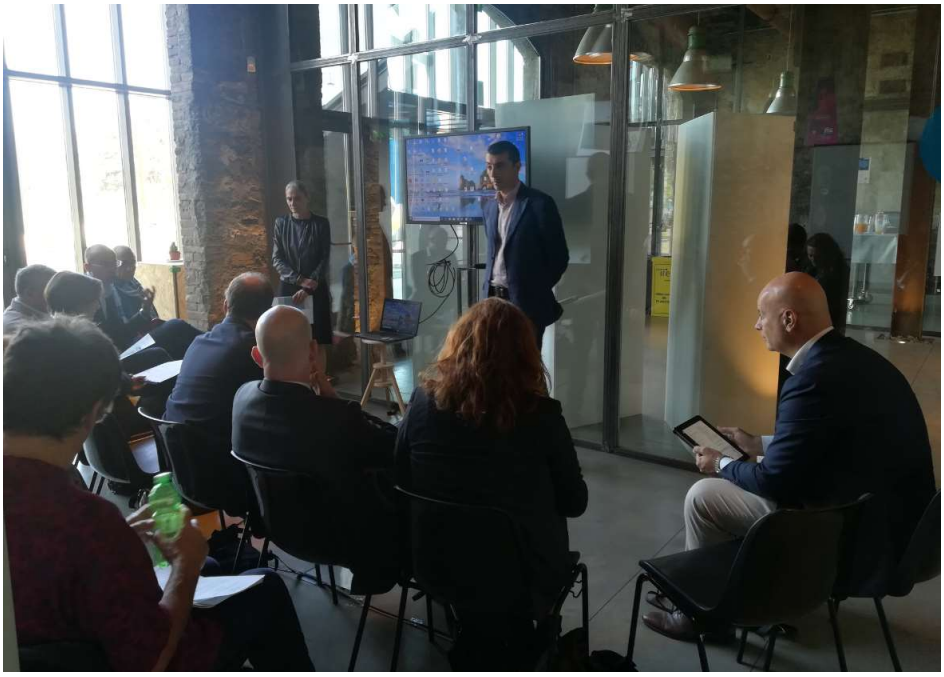
Only a few cases (fashion and cosmetics sector) today see the investment in terms of image more economically important than on the actual technological solution available. Focusing on consumer communication is even more vital than the proposed solution (green washing). Public opinion is diverted towards emotional states created by environmental waves that are sometimes not always supported by objective data.

Finally, the role of policy makers in identifying long-term strategies that allow companies to make long-term investments should not be overlooked.

Conclusions from the plenary discussion

- Need to clean the nets to facilitate their recycling, also because how to apply the bulk hay that would revolutionize a production process (collection, distribution, etc.)
- Difficulty in having a product is easy to use and without problems that the product is damaged.
- Improvement of communication for the correct separation of waste. How do they clean non-woven fabric in Spain. Pesticide container etc.
- Need to know the products to separate them. Plastic film to cover the silage can be cleaned ... a real problem is the cleaning of the bales, which is perhaps impossible. Biodegradable for cloths and irrigation pipes. Adequate spaces in the company with separate containers to be able to distinguish the products.
- Problem of product traceability especially in the management of sanitary ware and hazardous substances. Pay attention to the timing of waste disposal. Hence, bureaucratic problems of restrictive rules.
- Major problem on nets due to dried fodder. Designing a net that is easily cleanable, hence new designs. Recommendation on designing for a circular economy.
- Problems in waste collection and also in cleaning containers. Farm Handbook for how to facilitate disposal. Technical data sheet such as that of the phytosanitary and therefore indicate it in the products.
- Batteries, oils and medicine are no problems, while on the networks the problem they tried to solve with the big baller.
- Differences in the organization of waste, but still have collection systems, but the difficulty is more in the knowledge of waste and facilitate disposal such as the design of the material to be able to clean.
- On round bale nets, for example, the fact of using a biodegradable product is not always an advantage because it depends on the quantity that will be produced. Therefore, to change the nets, today in reality with little production of plastic, to change it with a much heavier bioplastic (example of Trentino).

- Control of disinfectants and surfactants, remediation of these should be envisaged to facilitate recycling. Therefore, encourage this consultation with the collection and recycling structures.
- Associates not trained on waste. Manage waste by applying colours to products for disposal (difficulties with different managers and different collection systems). Take professional courses to improve the collection. Training courses also for foreigners who have
- Agreements with managers to improve product differentiation.
- The possibility of investing in innovation and bioplastics for products such as networks.
- The need to have more facilities for the recovery and use of waste.
- Non-existent technologies to replace networks, but can be eliminated. In the field of big ballers, they have a very good quality. The problem, on the other hand, is on the action of atmospheric agents, which have less action on the bales and on the investment for the machine. The use of the rope wire (socket) is also useful to eliminate plastic, but it is more expensive.
- In agriculture it is more complicated to find solutions because there are many variables and modifiable.
- There are technologies that can be used to eliminate the use of plastics. There is not only one way, but also the one that best suits the livestock farm among the various solutions available.



OPEN INNOVATION LAB FRANCE

Date of event	*27 January 2020*		
Location	***Paris – France*** ***AG2R LA MONDIALE – AUDITORIUM VIVACITY*** ***151-155 RUE DE BERCY – 75012 PARIS***		
Number of participants	139		
Target audience	**Type of stakeholder**	**Number**	**Any comment?**
	Food and packaging Industries	119	
	Policymakers	4	High placed members of the French Ministries
	Solutions providers	12	
	others	4	Universities, Reinwaste Partners

MINUTES

ANIA organized the French Open Innovation Lab on the 27th of January 2020. The event began at 9AM and ended at 5PM. It attracted many stakeholders, policymakers and industrials, and allowed experts of packaging issues to discuss new waste management solutions and to share their innovations and needs. The event was also a networking platform, as many industrials met potential partners, similarly interested with innovative and sustainable solutions for the industry.

This day was an opportunity to recall the strong commitment of companies to a more circular economy, to highlight the innovative actions implemented by the entire sector in terms of eco-design, collection and recycling and to allow a constructive dialogue to lead to shared solutions.

Baptiste Perrin-Fabert, Director of the Cabinet of Brune Poirson, Secretary of State to the Minister of Ecological and Solidarity Transition, introduced the day and stressed the need to innovate and work collectively to invent new ways of designing and managing end-of-life packaging. "The law must not give in to plastic bashing, but go towards innovation". Beyond the Circular Economy Law, Baptiste Perrin-Fabert recalled the signature of a European Pact on plastic packaging on March 6, 2020 and the application of the Single Use Plastic Directive, whose set of measures will quickly impact the sector.

Richard Girardot, President of the ANIA, recalled the commitment of companies, with their partners and their will to produce better to consume better "The objectives set will bring new solutions, new innovations that all food companies, whatever their size, will have to carry, there is urgency but the will is there".

Patrick Lesueur, Director of Research & Development at BONDUELLE and Chairman of the ANIA "Packaging" working group, also emphasised the importance of the collective in his closing speech: "If we don't all work together, we will all fail. We must go faster and prioritize better».

Finally, Françoise Gorga, R&I Director at ANIA, presented the REINWASTE project, which aims to find solutions for the agri-food sector in order to achieve zero inorganic waste.

PRESENTATIONS

- Which support solutions for companies, especially SMEs?
- How can we support food companies, especially SMEs, in their packaging initiatives?
- Whether it is a question of design, use, collection, recycling or research, solutions exist, as well as support tools.

The Packaging Day organised by ANIA enabled Julien Dubourg, Director of Customer Relations & Marketing at CITEO, to present the support solutions his company offers to companies. A wide range of adaptable solutions and accessible tools, such as the Packaging Recyclability Test (TREE), a module dedicated to the end-of-life of packaging developed by CITEO and Adelphe as part of the Packaging Environmental Assessment (BEE), or the FEEL tool, which enables companies to reduce the environmental impact of their products in a free, simple and adapted way. CITEO also offers, among other things, webinars for companies on multiple subjects and customizable support.

For Julien Dubourg, the approach is a collective one: "It is important to set up joint and effective actions: involve the internal teams of companies, take stock of the current situation by setting monitoring indicators and challenge your specifications by comparing solutions. "And this vision is appreciated by companies: CITEO's work was praised by the speakers throughout the day. More information is available on CITEO's website.

Secondly, Michel Daigney, Chemicals - Environment Sector Manager at BPI France, presented the innovation financing mechanisms created for SMEs and start-ups, such as the organisation of the INNOV competition and the awarding of a French Tech Grant. BPI France has also been offering accelerators for a number of years now, which bring together companies to discuss a variety of issues. These accelerators offer two 10-day advisory sessions and seminars to company managers over a period of 12 to 24 months: "In 2020, we are supporting 20 SME managers and in June we will be launching an accelerator for 48 companies on waste from the circular economy».

Michel Daigney also reassured the speakers about the potential administrative difficulties linked to these schemes, and invited interested SMEs and start-ups to contact BPI France and the regional branches of the organisation, which have excellent control over regional and local funding.

Several participants in the event who benefited from the support of CITEO or BPI France (VirginBioPack, Federation of the Plastics and Composites Industry) gave their testimonials and were on the whole satisfied with the services provided by the two organisations. CITEO and BPI France reaffirmed their desire to bring together SMEs and large groups and to support small structures.

ROUND TABLE – Which future for the new recycling sectors?

During this round table, the speakers presented concrete solutions developed within their industry to meet the challenges of packaging recyclability. These testimonials provided food for thought and highlighted the dynamics and issues common to all. Among these, we would like to highlight the following:

- the need for dialogue between all the players in the packaging value chain and the pooling of resources, as well as the complementarity between downstream management (collection, end-of-life) and access to the resource;

- the need not to pit materials against each other and to take into account all the issues at stake (life cycle analysis, proportionate choice, impact of the material on the product, etc.).

- the issue of local waste treatment in Overseas France Carbios, a pioneer in its field, came to present its recycling process for PET, PS and textile fibre packaging. Through the industrial use of an enzyme existing in nature, this process allows the degradation of the material in order to recycle it. The main difficulty for Carbios today is that of access to the material through availability in deposit. For Anne-Cécile Colin, Business Development Director at Carbios, "Plastic can be recycled ad infinitum. The first CARBIOS bottles are planned for 2025".

Clémence Nutini, Sustainable Development Manager at Nespresso, came to present the Metal Project, initiated in 2014 in partnership with ADEME, Citeo and voluntary sorting centres. The aim of this project was to enable the collection and recycling of small aluminium packaging which, due to its size and lack of suitable structure, was not recycled at the time. The optimization of sorting centre equipment and the simplification of sorting instructions to residents made it possible to build this recycling system from scratch. "Nespresso was the leader in its market and is therefore responsible for creating solutions. What is interesting about the metal project is that this issue goes far beyond Nespresso, communication on small metals helps to improve metal recycling in the broadest sense. Companies are part of the solution».

François Daniel, Director of Earthwake, came to present his process developed in 2018 that transforms plastic into fuel, a new outlet for this waste that is currently without a solution. "After a trip to Africa, we found a low-tech solution: a pyrolysis machine that heats the plastic to 450 degrees, breaks down its molecules and distils them into fuel. Our machine is affordable and self-sufficient. No need to go outside to get energy.

EARTHWAKE's plus is to make diesel out of untreated waste and reduce its energy consumption. This could be very useful for farmers, who consume diesel and have a lot of waste. It is important that the food industry supports us to go faster, to create new pilots».

ROUND TABLE - Eco-design issues and solutions

The objective of this round table was to take stock of eco-design solutions and issues for the agri-food industry by giving the floor to experts. In this context, the issues related to the incorporation of recycled plastic, the use of bioplastics and biodegradable materials and the fight against food waste were addressed.

Emmanuel Guichard, General Delegate of Elipso, recalled that the way in which plastic packaging had been designed up to now needed to be reviewed: "we will no longer make plastic packaging as we did before. To achieve a circular economy of plastics, the central role

is packaging design. "In this context, the incorporation of recycled plastic has become a major issue, as shown by the sharp increase in demand and use. The objective is to achieve an incorporation of 470,000 tonnes of recycled material by 2025 through voluntary commitments by companies.

For Marc Madec, Sustainable Development Director of the Federation of Plastics and Composites, the 3400-4000 plastics companies are currently in a pivotal and complex period. This is why the Federation of Plastics and Composites, in partnership with the IPC technical centre, the ministries and ADEME (French Environment and Energy Management Agency) has organised the Recycled Plastics Workshops in 2019 in order to bring together marketers and packaging producers. "How to meet the expectations of customers who have many questions and want offers other than plastic. The industrial technical centre is essential to answer this question».

Valérie Guillard, Professor UMR IATE in Montpellier came to present the Glopack project, an innovative process that designs biodegradable packaging on a human scale and intelligent to reduce waste and food wastage. This packaging is made from microbial polymers which are themselves synthesized from food waste. "To develop this type of packaging, there is a real eco-design approach with the need to preserve the food as well as possible to reduce food waste as much as possible as a central element».

Link to the project site

Frédéric Merle, Development Manager then intervened to explain the solutions presented by Euramaterials. This competitiveness cluster brings together a network of partners: laboratories, technical centres and industrial players. It participates in scientific projects and offers consulting missions for the eco-design of packaging. The missions carried out by Euramaterials are the setting up of a project and the support in the design of a new packaging, through the elaboration of a specification, the definition of its characteristics, and finally the choice of processes and materials. The importance of communication on the eco-design of the product was underlined, as well as the growing interest in this subject. "Today the demands of companies are oriented towards the notion of end of life. This implies a review of priorities in the different stages of design and a change in communication towards the consumer, particularly on sorting instructions, recycling logos, etc."».

More information on the accompanying solutions

For Patrice Dole, Scientific Director of the CTCPA (Technical Centre for the Conservation of Agricultural Products) and representative of the RMT Propack Food network, it is important

to refocus the debate on the product and the functional nature of packaging, particularly in the context of the fight against food waste. The share of packaging in the environmental impact of food products, calculated over its entire life cycle, is also relatively low for most of the time (around 15%). It is necessary to rethink the distribution and conservation of products to make packaging more functional and to fight effectively against food waste, firstly by deconstructing preconceived ideas (e.g. a long shelf life will allow better conservation of the product) and secondly by allowing a better relationship between marketers and distributors. We must rethink the quality of preservation of products up to the point of distribution: today secondary packaging has a mechanical quality, but does not allow the products to be preserved».

SUCCESS STORIES – Alternative and innovative solutions

After a day of rich interventions and many issues raised, the last round of presentations of the event focused on the success stories, which are numerous in the food industry. In a first step, (RE)SET was presented. It is a 3.0 consulting company that enables companies to combine economy and ecology, and accompanies them in circular economy approaches. Initiated with Carrefour and U, RESET has created the first circular open innovation program in 12 months, built on 4 main axes: Diagnosis, Innovation Sourcing, Bootcamp and Demo Day. For Géraldine Poivert, President and co-founder, the collective is essential to the evolution of companies, and the (RE)SET programme is based on this observation to achieve rapid results that can be applied in companies. The participants in the event were particularly interested in the diagnostic phase proposed by (RE)SET, which focuses on the issue of industrial costs and the study of the barrier properties of materials from a cost equation perspective.

Several questions were also asked about the (RE)SET Bootcamp: the final phase of the program brings together sponsors and innovators (researchers, startups...) for two weeks and allows the creation of prototype solutions. At the end of this Bootcamp, thirty pilots test innovations on various products. This offer of support from A to Z interested several participants. Agnès Jacquot, CSR Director Sources Alma Cristaline then came to testify about the creation of the recyclable solidarity cap. This presentation allowed the participants to reflect on the need for an environmental vision coming from the top of an organization, from its decision-makers. Indeed, Cristaline's recyclable solidarity cap is based on an environmental statement made by its President: 99% of plastic bottles are collected in France but only 57% of bottles are recycled. In addition, many corks are found in nature, and can be

dangerous for animals. To respond to this urgent problem, Cristaline has worked to implement a marketable solution - within 18 months. Agnès Jacquot spoke about the company's values and their link with innovation: for her, they are inseparable. In addition, she returned to the need to unite the enthusiastic employees - and to the difficulty of convincing the consumer in a plastics-bashing context. This positive testimony, focused on perseverance and the values of the food industry, was much appreciated by the event's participants. Mathilde de Bortoli, Partnership Manager at Jean Bouteille, then presented her company. Jean Bouteille is a manufacturer and integrator of dispensing machines for bulk liquid products for the trade. The objective: eliminate packaging waste, reuse the container and develop reuse rather than recycling. A few more pitfalls: the legal and regulatory vagueness surrounding bulk, and a mentality that needs to be changed among distributors and consumers alike. However, there is good news for bulk: "consumers are sensitive to more naturalness and food waste".

Finally, the last presentation was made by Arnaud Jouvance, Development Director France at Paptic. Paptic is a Finnish company that has developed a new material, called Paptic, to replace plastic in many flexible packaging applications. PAPTIC is created from wood fibres from sustainably managed forests. A good example of a disruptive solution that has already convinced major Parisian retailers. "Paptic started from the observation that there was no material capable of replacing plastic in terms of physical properties, while at the same time offering attractive ecological and environmental properties. Unlike plastic, Paptic is at the same time biosourced, biodegradable and recyclable. There are many outlets in the packaging sector (shop bags, envelopes, bags, etc.). In a context where the question of price is essential for the consumer and where more virtuous solutions are more expensive, we have a real challenge to take up: to reconcile the end of the month and the end of life". Overall, the Open Innovation Lab was a success, and reunited both important policymakers and interested SMEs and industrials.

The French Open Innovation Lab was entirely filmed and transmitted directly on Twitter. All exchanges can be found on these links:

https://twitter.com/ANIA_FRANCE/status/1221707157860732928

https://twitter.com/ANIA_FRANCE/status/1221730380488892416

https://twitter.com/ANIA_FRANCE/status/1221772944159989760

https://twitter.com/ANIA_FRANCE/status/1221800076701507586

Numerous elements of the event were posted on social media: some of them can be found on the captions below, but other elements can be found on the Twitter pages of ANIA, CRITT PACA, REINWASTE... The event and its conclusions were also massively relayed on LinkedIn, where the minutes of the event can also be found:


CRITTAgroalimentaire @crittiaapaca · 27 janv.
Table ronde: Témoignages de solutions alternatives et innovantes.
"Le surcoût des alternatives est un enjeu, mais nous sommes face à un mur, et il y a une prise de conscience collective à laquelle les industriels de l'alimentaire doivent répondre."
@JeanBouteille @theresetcompany
ania
2
6


ANIA (Association Nationale des Industries Alimentaires)
INVITATION
Des solutions innovantes pour les emballages alimentaires
ania


ReInWaste Project a retweeté
GORGA Françoise @FrancoiseGorga · 27 janv.
The french open innovation lab of the @Reinwaste
us on twitter
ANIA @ANIA_FRANCE · 27 janv.
[EMBALLAGES] @ANIA_FRANCE accompagne le changement à travers le projet #REINWASTE : des solutions innovantes pour réduire les déchets inorganiques
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3

OPEN INNOVATION LABS SPAIN (1)

Goal

A proposal of innovative solutions for horticultural greenhouses will be discussed in a one morning event, among sector companies of phase 1 pilot actions, technological experts, PPs and project experts, focused on inorganic waste reduction and/or prevention.

The objective of this event is to share the identified challenges and difficulties of the horticultural production sector, confronted with BAT/KET with the aim to obtain the most appropriate solutions and detect new ones with this working group.

A feedback evaluating positive and negative aspects and the applicability/feasibility of the proposed solutions by the assistants is expected.

Date and Location

Infoagro Exhibition Fair in Almería, on 23th of May 2019.

Participants

The technical profile of the participants is essential.

5 types of participants are defined for the OiL, counting a total of 30 people:

Organizers (Project Partners: AGAPA&IFAPA): 9

Sector Companies and Producers: 4

Experts: 4. Expert-teams recruited for pilot actions + others strategic experts.

Innovative Solution Providers: 6

I+D& Research Centers: 2

Public Entities and Policymakers: 5

Schedule

Jan-Feb 2019 → Organizational tasks

Feb-May 2019 → Participants recruitment; Event content definition.

May 2019→ Face to face meeting: INFOAGRO EXHIBITION (F&V sector fair. ALMERIA, 22-24May), consisting of 5 thematic working groups focused on specific innovative solutions.

July 2019 → Final conclusions

Date	Task Title	Responsible Partner	Task Contents
Jan-Feb	Organizational tasks & Lab Definition	AGAPA + IFAPA	- Goal setting - Participants proposal - f2f meeting: Content definition
Feb-May	Participants recruitment	IFAPA	IFAPA, AGAPA & Project experts will jointly propose and select most appropriate experts and companies to take part of the OiL.
Date	**Task Title**	**Responsible Partner**	**Task Contents**
f2f meeting: INFOAGRO EXHIBITION (Almeria)			
Mar-May	Preparation of support documents	AGAPA, IFAPA & EXPERTS	- Support document: based on Intervention Plan (Pilots phase 1). - Preparatory works to moderate group activities
Feb-Mar	Logistical management	IFAPA	- Room reservation at the fair - Breakfast reservation
Feb-Apr	Innovative products, technologies and techniques guided stand visits on the fair with the group	IFAPA	- Visit will follow the f2f meeting - Content definition of the guided stand visits: Nr. of stops; Innovative solutions selection; etc. - Logistical organization

23 May	Group moderation during f2f working session (max. 3 hours)	IFAPA & AGAPA	Tentative content: a- Brief project introduction: current inorganic waste situation in F&V sector and OiL goals b- 1st session: 5 thematic working groups discussions, guided by project experts and partners, divided according the best sector preselected innovative solutions c- Breakfast d- 2nd session: Round table with all participants. Discussion and Conclusions.
23 May	Support and technical assistance during guided stands visits	IFAPA	e- 1 hour technical visits at fair stands to view the best technological solutions in situ
May-July	1st Meeting Results Document Preparation	AGAPA, IFAPA& Experts	This document will be sent to all participants for their validation

OIL Conclusions

thematic working groups were organized focused on BAT&KETs identified for the horticultural sector:

5.1. Summary of Thematic Round table 1: "Alternatives to the conventionaluse of raffia and clips: replacement, reuse, separation and correct disposal"

Members of the Round table:

- José Luis Racero (CAJAMAR Las Palmerillas).
- Jesús Rincón (Farmer).
- Telesforo Garrido (REYENVAS).
- Antonio Moreno (Farmer).
- Mª Milagros Fernández (IFAPA. Chairperson).

Objective:

Analysing the best alternatives to polypropylene raffia and clips:

A) Reusing polypropylene raffia

B) Biodegradable raffia

C) Compostable raffia.

Discussion:

Reusing polypropylene raffia and clips:

In general, the proposal concerning the reuse of polypropylene raffia seems to be interesting as the main requirement is the training needed by workers. This alternative has important economic benefits due to the savings associated with the reuse of both components, as well as environmental benefits as it reduces the amount of raffia used by 66-80%.

Biodegradable raffia:

With regard to the use of biodegradable raffia, experience and opinions of participants are lukewarm.In fact, several drawbacks highlight: degradability problems, elasticity of materials, lack of mechanicalresistance, refuge for insects, moisture absorption leading to fungal diseases in the aerial part of the plant, etc. Finally, the price of this raffia is around 5 times more than the conventional polypropylene raffia.

Compostable raffia:

Currently, using compostable raffia was the option which, a priori, can be more interesting. A problem arisen concerning the use of this material is when performing home composting. In this process there is no effective shredding of the raffia thus making the production of the desired compost difficult.
Clips are used together with raffia. In their case, there are alternatives made from PLA on the market.

Conclusions:

- ✓ The promotion of the use of raffia and clips as an alternative to propylene should be accompanied by an improvement of the agri-environmental support or including a specific one for them in the aid granted to the Organisations of Vegetables Producers, in such a way that their cost can be competitive compared to the polypropylene raffia. In addition, it would be possible toestablish a lower cost for the management of crops with biodegradable or compostable raffia in management plants so as to offset the higher price paid by them compared to those of polypropylene. Finally, establishing appropriate eco-taxes for plastic that will encourage the use of these alternatives will be also advisable. In any case, clips should be included in the current aidgranted.
- ✓ Two alternatives are proposed as the most suitable ones: in the first place, reusing polypropyleneraffia and clips, which just requires training workers and, secondly, the replacement of the conventional raffia and clips by compostable materials made from PLA, already available in the market. In this case, their cost should be adjusted in order to be competitive. Both options can be implemented simultaneously in the sector, thus producing important environmental improvements.
- ✓ Finally, it is necessary to take into account the real cost of non-using sustainable alternatives to the current plant training systems, thus burdening farmers with a real environmental cost that will take into account the appropriate management of waste.

5.2. Summary of Thematic Round table 2: "Fine mulch film: alternative solutions".

Members of the Round table:

- Ana Salvador (Regional Ministry for Agriculture, Fisheries, Livestock Production and SustainableDevelopment of Andalusia).
- José Manuel Torres (Ecogestiona).
- Antonio Fernández (REYENVAS).
- Antonia Cobacho (AGAPA).
- Salvador Parra (IFAPA, Chairperson)

Objective:

Assessing different alternatives to the fine film used in protected horticulture.

Discussion:

There are 3 types of fine film: mulch, solarisation and double roofs films (insulation thermalblankets).

Mulch film:

It is used both to prevent weeds and to keep the moisture in the soil. Its use in Almería can reach 10-15% of farms.

Solarisation film:

There are no compostable solarisation films in the market, but they do not pose technology problems. The difficulty lies in the fact that this type of film is quite thin and during solarisation, it is subjected to extreme conditions. They currently have a serious problem when they are brought to management plants because they are very dirty.

Double roof film:

Obtaining a compostable/biodegradable plastic seems complicated right now. Its advantage is that it is a plastic that doesn't get dirty and is susceptible for reuse.

Conclusions:

- The current viability of compostable mulch film on the market is confirmed.
- More R&D on solarisation and double roof films is needed compared to mulch film.
- Implementing a traceability system to prevent illegal discharges seems to be necessary.
- Farmers need more information. This would be done through information campaigns toexplain the real costs of the different options.

5.3. Summary of Thematic Round table 3: "Options for the recovery of fineplastic and non-returnable containers".

Members of the Round table:

- Pablo Mata (Morera y Vallejo).
- Fernando Estrada (Hintes Oil).
- Elena Sola (Regional Ministry for Agriculture, Fisheries, Livestock Production and SustainableDevelopment of Andalusia).
- Fátima Rojas (IFAPA).
- Mariana Lorbach (AGAPA. Chairperson).

Objectives:

Identifying and assessing the best sustainable options for the management of the **waste difficult tomanage in protected horticultural production:**

- Fine film (<100 gauges) for mulch and solarisation films.
- Non-returnable packaging for fertilising, natural enemies and other products.
- Polypropylene raffia (PP).
- Other: hives, chromotropic traps, etc.

Discussion:

Current situation of fine films:

Concerning fine films, mostly used for mulching and solarisation in greenhouses horticultural crops,difficulties are encountered for their sale.
The main drawback for recycling lies in its low weight, which makes the logistics and recovery costs more expensive. In addition, there are also technical difficulties, such as the presence of dirtiness and moisture, which cause the rejection by management plants.

Options for the management of fine films:

The following alternatives have been assessed:

1. **Recycling:** To consider a recycling treatment, plastics should have a thickness exceeding 100 gauges. The cost should be globally valued, taking into account the possible return obtained from recycling.

Prevention through its replacement with compostable and biodegradable films:

A. **Biodegradable films of low thickness (<100 gauges):** Product sold by Morera and Vallejo, obtainedfrom starch and composed of polylactic acid.

B. **On floor compostable films of low thickness with scheduled enzymatic degradation:** This avoids the need for their withdrawal, transport, temporary storage and final transfer to the composting plant for processing.

Comprehensive option for inorganic waste which is difficult to manage:

For all the waste which is difficult to manage, its **recovery through a process of pyrolysis** submitted by Hintes Oil is analysed. Despite the fact that this solution is positioned at the bottom of the pyramidof the waste hierarchy, it is positively assessed as it gives a possible answer to the management of thewaste difficult to eliminate.

Conclusions:

- ✓ Promoting the EPR (Extended Producer Responsibility) seems to be necessary, in line with a management of national agricultural residues, involving all actors in the value chain.
- ✓ For the waste which is difficult to manage, the pyrolysis process is considered to be the best option in the short term, being technically feasible, but still having to redefine the profitability and organisation of the previous management of waste by farmers.
- ✓ In addition, the pyrolysis process presents an additional differentiating advantage if incorporatedinto a process of circular economy, both within the sector itself, such as taking advantage of the diesel fuel obtained for the heating of greenhouses, and also in auxiliary sectors, such as recycling new plastic containers, using it as an energy source. However, as noted above, the viability of the process at environmental level is pending confirmation.
- ✓ For fine plastics, companies are mainly focused on the development of biodegradable films adapted to the productive conditions of greenhouses, which are at a very advanced stage,although the cost is still not competitive compared to the conventional option.
- ✓ Recycling is the best destination for those plastics with a thickness greater than 200

gauges, such as covers, being technically feasible because their deterioration is smaller, and it is a residue with an important economic value.

5.4. Summary of Thematic Round table 4: "Traceability documentary systems from the farm to the waste management plant."

Members of the Round table:

- María Márquez (AIMPLAS).
- Antonio Escobar (El Ejido City Council).
- Carlos Parra (IFAPA).
- Rosana García (AGAPA).
- Antonio Ufarte (Ecogestiona. Chairperson).

Objectives:

Validating the proposal of a traceability system for inorganic waste, by assessing its feasibility and impact in the short and medium term, as well as the alternatives to such solution. The objective of implementing this system is to facilitate the inspection and control carried out by the competent Administrations on the management of inorganic waste of the agricultural sector, with the aim of avoiding its abandonment and controlling its correct collection and management.

Discussion:

The solution proposed wants to respond to the lack of inspection and control in the current management of inorganic waste, taking into account management contracts and identification documents. The disadvantages encountered have been the production of documents and the use of transfer operators as intermediate figures in the management. The expected results are focused on establishing a traceability physical documentary system in the short term and develop Collective Systems of Extended Producer Responsibility (EPR) in the medium term .

Conclusions:

In the **short term**, it is necessary to control the processes developed for the management of inorganic waste through the implementation of a traceability documentary system, using as reference those documents established by Royal Decree 180/2015 concerning the transfer of waste within the Spanish territory.

In the **medium term,** the following needs have been identified to be established in the sector:

- ✓ A system under the same computerized tool available for the different environmental authoritiesin order to reduce the time to generate and transmit documents, control management and logistics costs and share real-time information with producers, transporters and managers.
- ✓ Registering the management of inorganic waste through the completion of the field notebook according to the official model established by Royal Decree 1311/2012.
- ✓ Opting for specific Collective Systems of Extended Producer Responsibility (EPR), thus maintainingthe principle of 'polluters pay' .
- ✓ Finally, having real in/out sheets for inorganic materials in places where they are generated, for decision-making.

5.5. Summary of Thematic Round table 5: "Creation of a waste managementmodel at associative level".

Members of the Round table:

- Clara Arco (Regional Ministry for Agriculture, Fisheries, Livestock Production and SustainableDevelopment of Andalusia).
- Gervasio Tapias (Costa de Níjar).
- Carmen Rodríguez (IFAPA).
- Rosa García (Coexphal).
- Francisco Páez (Coexphal. Chairperson).

Objectives:

- Assessing different management models at associative level.
- Collecting information about its implementation feasibility.

Discussion:

Assessing the different waste management models at associative level:

The following **classification** for the organizational level of associative entities in waste managementin the protected horticultural sector is proposed:

Level 0: Little or no participation in waste management. In some cases, just a SIGFITO point.
Level 1: Existence of an agreement with an authorized transports company responsible for the collection at farm level, transport and delivery of the waste generated by each producer to the wastemanagement plant.
Level 2: Agreements with managing plants. This will allow farmers to deposit their inorganic waste in the premises of these companies or in agreed collecting points.
Level 3: Implementing a system coordinated by the cooperative and executed by a

manager to encourage partners to bring their waste to a collecting place owned by the cooperative, where they would be separated by type.
Level 4: Organising the logistics for the collection of the waste difficult to manage and sending it to a waste management plant for recovery. With regards to the management of non-returnable packaging, the company responsible for the management should be registered as a manager of hazardous waste.
Level 5: Cooperatives are converted into inorganic waste managers (cooperatives or association of cooperatives).

Conclusions:

- ✓ The feasibility of model level 2 is possible because there are currently cooperatives that already have it. In fact, their goal is to increase the number of cooperatives with establish agreements with managing plants, together with the management of non-returnable containers (managers ofhazardous waste).
- ✓ Raising the level of commitment to level 3, consisting on logistics organization, is considered as a good option.
- ✓ Level 4 is highly assessed in the event it is technically feasible.
- ✓ The option that contemplates the possibility of cooperatives becoming waste managers (level 5), presents the advantage of eliminating the dependence on private management firms which, in the case of closing, could seriously jeopardise the productive system.
- ✓ The development of a technical, economic and regulatory assessment for all organization models(levels) of waste management identified, is suggested. In the context of the project REINWASTE, this proposal will result in one of the pilot experiments to be carried out in one of the companies of the sector who are participating in the project. This evaluation will serve as a model for other organizations in the sector, thus facilitating decision making when implementing their own associative management system.

5.6. Summary of the round table discussion.

Round table chaired by Samir Sayadi.

There are currently numerous innovative solutions that are being developed to respond to the needs of the sector in terms of reduction or replacement of inputs of inorganic origin.

On the other hand, the main problem identified in the sector related to the management of inorganicwaste is the lack of a management system for non-returnable packaging and a lack of awareness of farmers concerning their responsibility in

management.

It is concluded that in order to assess the feasibility of possible innovative solutions to be implemented in the horticultural sector, it will be necessary to conduct a multi-approach analysis, which will take into account the technological, economic, environmental and social aptitudes together with their technical applicability to the horticultural productive system.

Another conclusive point concerning the problem focuses on the lack of qualitative and quantitative information about the input and output streams of different types of waste generated along the value chain, and a substantial improvement of traceability documentary management.

6. Publications and Social Networks

Hereunder publications regarding IFAPA and AGAPA´s OIL are shown:

1. - Title*: "IFAPA organiza un Laboratorio de Innovación Abierta"*

- Date of publication: May 19th 2019.
- Source: https://www.lavozdealmeria.com/agricultura2000/noticia/8/agricultura/172790/ifapa-organiza-un-laboratorio-de-innovacion-abierta.
- Type pf publication: Electronic newspaper

2. – Titl**e***: IFAPA organiza un Open Innovation Lab en el marco de INFOAGRO EXHIBITION*

- Date of publication: May 28th 2019.
- Source: https://ifapa.junta-andalucia.es/agriculturaypesca/ifapa/web/noticias/ifapa-organiza-un- open-innovation-lab-en-el-marco-de-infoagro-exhibition
- Type pf publication: web page news

3. – Title: *La Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible organiza unLaboratorio de Innovación abierta en Infoagro Exhibition*

- Date of publication: May 27th 2019.
- Source: http://www.agapa.junta-andalucia.es/portal/web/principal/contenidos/-/contenidos/detalle/la-consejeria-de-agricultura-ganaderia-pesca-y-desarrollo-sonstenible-organiza-un-laboratorio-de-1
- Type pf publication: web page news

4. – Title: *Open innovation Lab in the framework of the Infoagro Exhibition*

- Date of publication: June 10th 2019.
- Source: https://reinwaste.interreg-med.eu/news-events/news/detail/actualites/open-innovation- lab-in-the-framework-of-the-infoagro-exhibition.
- Type pf publication: web page news

5. – Title: *IFAPA participará a partir de mañana en INFOAGRO Exhibition (Almería) para tratar temas sobre recursos hídrico, agricultura ecológica y gestión de residuos en cultivos hortícolas.*

- Date of publication: May 21st 2019.
- Source: https://twitter.com/IfapaJunta/status/1130830910511886336
- Type pf publication: TWITTER IFAPA

6. - Title: *IFAPA organizó en INFOAGRO un Open Innovation Lab en el marco del proyecto InterregREINWASTE cuya misión es conseguir cero residuos inorgánicos en el sector agrícola*

- Date of publication: May 28th 2019

- Source: https://twitter.com/IfapaJunta/status/1133357355301842944

- Type of publication: TWITTER IFAPA

7. - Title: *IFAPA organizó en INFOAGRO un Open Innovation Lab en el marco del proyecto InterregREINWASTE cuya misión es conseguir cero residuos inorgánicos en el sector agrícola*

- Date of publication: May 21st 2019.
- Source:https://www.facebook.com/IfapaJunta/photos/a.145185865636885/1363468937141899/
  ?type=3&theater
- Type pf publication: FACEBOOK IFAPA

8. - Title: *No title. Another publication in Facebook of the OIL IFAPA*

- Date of publication: May 21st 2019.
- Source:https://www.facebook.com/IfapaJunta/photos/pcb.1369096843245775/1369096769912 449/?type=3&theater
- Type pf publication: FACEBOOK IFAPA

7. Event Photos

OPEN INNOVATION LABS SPAIN (2)

Date of event	*14th November 2019*		
Location	***Almería - Andalusia*** *Hotel NH Ciudad de Almería* *Jardín de Medina, s/n* *04006 Almería*		
Number of participants	30		
Target audience	**Type of stakeholder**	**Number**	**Any comment?**
	Horticulture companies	8	
	Policymakers	4	
	Partners	7	
	Experts	4	
	Solutions providers	4	
	Universities	1	
	others	2	

Minutes from the OIL held in Almeria on 14/11/2019

On November 14th, 2019, FIAB organized a conference, Open Innovation Lab, in collaboration with IFAPA, which took place in Almeria in the framework of the REINWASTE project.

The Open Innovation Lab was a workshop aimed at all companies in the Andalusian primary and industrial horticultural sector, in which the work carried out in the 5 horticultural companies has been announced both at industrial and primary level in terms of identification of inorganic waste and the innovations identified for the reduction or elimination of this waste.

During the OIL experts and companies discussed the applications and research carried out within the framework of the project, focused on the use of new technologies, new packaging materials and best available practices;

all based on the studies carried out in the companies participating in the project.

The day started with the welcome by FIAB, responsible for the studies carried out in the industrial sector, also announcing the Spanish Food and Drink Federation's commitment to the Circular Economy Strategy and the Sustainable Development Goals and its participation in the work groups for the transposition of the Waste Framework Directive, the Packaging and Packaging Waste Directive and the Single-Use Plastics Directive.

A representative of the Territorial Delegation of Agriculture, Livestock, Fisheries and Sustainable Development of Almeria announced in his presentation the Andalusian strategy of Circular Bioeconomy 2030, explaining the situation of the bioeconomy at national and European level and Andalusia's commitment to the bioeconomy Circular 2030 explaining its working groups, the strategic lines and its 4 Instrumental Programs: Communication, R + D + I + F, Financing and Coordination.

After the institutional presentations, the day continued with the presentation of the AINIA Technological Centre, experts in charge of the work in the 5 companies of the Andalusian fruit and vegetable industry. The objective of the work is to help the sector move towards zero inorganic waste. The initial prospective is presented:

▪ Available packaging materials;

▪ Plastic packaging materials:

▪ Recycled materials and recyclable packaging: Eco-design tools.

▪ Biomaterials: bio based plastics and biodegradable plastics.

▪ European Innovation Projects related to the reduction of packaging waste, exemplification of innovation opportunities.

A SWOT is presented as a result of the 15 reports prepared for the companies involved in the project initially and finally the particular cases of the sector with the work in the 5 companies finally studied by the project. In the industrial fruit and vegetable sector, works focus on packaging, following the strategies towards zero waste, working on both primary, secondary or tertiary packaging:

- Secondary and tertiary packaging. Logistic optimization has environmental and economic implications.

- Primary packaging. Innovation thanks to eco design tools plays a fundamental role.

Trends in packaging sustainability in the horticulture sector

- Change of materials: bio based, recycled, biodegradable (including cardboard)

- Change of formats: Trays + (flow pack or meshes or banners or cardboard closures)

- Avoid almost all packaging: Meshes, banners.

Conclusions:

- Sustainability must be based on 3 pillars: social, economic and

environmental.

- The trends in packaging are aimed at changing materials, formats and avoiding packaging, if applicable.

AINIA says it is participating in a strategic prospective project for plastic packaging and circular economy.

The following presentations were done by IFAPA, presenting the progress of the work carried out in the Andalusian primary fruit and vegetable sector.

Works in primary sector focused on the following actions:

- Alternatives to conventional materials for staking elements

- Improvement of documentary traceability of waste from the farm to the treatment plant

- Alternatives to conventional materials for quilting films

- Waste management options difficult to manage

- Establishment of a waste management model at the associative level

IFAPA explained in more detail the use of raffia for stacking with the following objectives:

- Increase air circulation between foliage.

- Raise the plant preventing the flowers and fruits from being in contact with the moist soil, which decreases the incidence of fungal diseases.

- Prevent the fruit from growing stains.

- Prevents damage from trampling during labour.

- Increase crop quality and production.

In its last intervention, IFAPA presented the impact on the market and the environment and recommendations. Preliminary results of the sustainability analysis in Almeria horticultural production.

After the presentations, a round table was held with all the participants, encouraged by FIAB and IFAPA, in which the experts in charge of the work in the companies, in which the identified innovations are implemented, answered the doubts of the companies and others stakeholders attending this Open Innovation Lab.

The result of this round table was very fruitful as they were even presented by companies providing solutions, new materials to consider in the project.

ROUND TABLE

- AGROECOLOGY: A papermaking company has designed a biodegradable padding cover, which has been on the market for a few months. The material comes from pine and 100% compostable. The cost is not excessive (1,000-1,200% / ha, twice as conventional). The product adds a nutritional contribution to the soil when integrated into it. It has a water resistance layer, with a proven durability of 3 months, although they must still wait to finish the campaign to assess the weight of 70g / kg they are testing.

- AINIA: IFAPA asks if it is legal to identify the type of material and the recyclability of the container. It is answered that there is no specific legislation to regulate it.

- AINIA: UAL (University of Almeria) wonders if the migration of materials in the new packaging has been taken into account. The answer is affirmative, adding that in any case in FyH material migrations are not relevant.

- AINIA: AGAPA asks which are the main tools of eco-design. It is answered that, depending on the type of packaging, weight of the material and relative weight of the same, the design is oriented to lighten it in thickness, shape and type of material.

- IFAPA: They are asked if the RW project plans outdoor horticulture. It is answered that in the beginning no, because it generates less plastic waste than the protected one, but that it is not discarded.

- AINIA+ IFAPA: The cost of alternative materials is considered, taking into account a forecast of a reduction in the price of conventional plastic. AINIA answered that the European demand has not yet defined the format and type of packaging to which the FyH sector will change because it is not yet known whether they will assume the extra cost. However, it should be borne in mind that, in case of lightening the container, this would be reflected in the cost of the same. The IFAPA responds that the project does not contemplate the demand in order to assume a possible extra cost for a change from conventional plastic to other materials. Therefore, it is necessary to treat it. However, the project will contemplate the economic, social and environmental cost overrun.

- FIAB+COEXPHAL: Agroecology asks if subsidies for bioplastics are contemplated. From FIAB the companies of the sector are raised, the capitalization of the solutions identified through operational groups. COEXPHAL responds that the PPOO proposes the subsidy of recyclable / compostable packaging and materials, which could be included in them, provided that the corresponding technical reports are attached.

- AYUNTAMIENTO DE EL EJIDO: It is stated that regarding the pilot of the cooperative waste management model, adherence to it depends on the voluntary nature of the companies (Law 22/2011). As for the raffia, it is said that the problem of the implantation of biodegradable or compostable raffia is that the cost of its management is not accounted for, which composting plants are currently assuming. It would be desirable if the separation of

conventional raffia or the use of biodegradable raffia were mandatory. On the other hand, the law contemplates the SCRAP as a volunteer, but it should be mandatory for conventional plastics

manufacturers, who should be responsible for its manufacture. PLASTIMER answered that Spanish manufacturers plan to carry out the SCRAP based on the French SCRAP, because Spanish regulations do not contemplate it. From May 2020, it is anticipated that it will be implemented, with an agreement between the Spanish manufacturers, pending being signed by the Ministry.

- CAPARRÓS NATURE: They said that the focus of the change from conventional plastics to other more sustainable materials should be in the consumer. In this line they express themselves from HINTES OIL, which holds consumers responsible for plastic waste, lacking awareness and education from the farmer to the consumer. The problem is not the plastic itself, in his opinion, but its correct management, there are many available systems that are not used.

The session closed with a lunch in which all the participants were able to network and in which the main theme was the commitment on the part of everyone with environmental sustainability, with the reduction of plastics and the circular economy strategy.

Social media visibility

FIAB http://fiab.es/fiab-organiza-su-primera-jornada-open-innovation-lab-sobre-reduccion-de-residuos-inorganicos-en-el-marco-del-proyecto-reinwaste/Oct.2019

IFAPA https://www.juntadeandalucia.es/agriculturaypesca/ifapa/web/noticias/14-de-noviembre-open-innovation-lab-del-proyecto-europeo-reinwaste

DIARIO DE ALMERÍA https://www.diariodealmeria.es/finanzasyagricultura/Almeria-referente-ID-inorganicos-horticultura_0_1409859436.html

REINWASTE https://futurenviro.es/proyecto-reinwaste-sobre-la-reduccion-de-los-residuos-inorganicos-en-la-industria-agroalimentaria/Nov.2019

FUTURENVIRO - https://futurenviro.es/proyecto-reinwaste-sobre-la-reduccion-de-los-residuos-inorganicos-en-la-industria-agroalimentaria/#


ReinWaste Project
Great participation yesterday in #OpenInnovationLab @esFIAB @IfapaJunta celebrated in #Almeria and fruitful #brainstorming #networking #innovation #Sustainability #waste


Retwitteaste
FIAB @esFIAB · 11 nov.
Si perteneces al sector hortofrutícola andaluz puedes estar interesado en el Open Innovation Lab @Reinwaste pretende dar cuenta de las posibles prácticas en gestión de residuos inorgánicos que pueden hacerse en estas empresas.
14 de noviembre


Concha Ávila @ConchaAvila · 4 nov.
El próximo 14 de noviembre celebramos en #Almeria @esFIAB #OpenInnovationLab del proyecto @Reinwaste trabajando hacia el residuo inórganico cero en la Industria #hortofrutícola andaluza, inscríbite shorturl.at/dtyGI para conocer toda la #innovación aplicada en #envases
16
25


IFAPA @IfapaJunta · 15 nov.
El Open Innovation Lab reúne a los participantes del proyecto REINWASTE para dar a conocer los últimos avances
@Reinwaste @aleatecnologia @Coexphal @esFIAB
Almería, referente en I+D para reducir los residuos inorgánicos en la ho...
La capital, sede de la presentación de los últimos resultados del proyecto europeo Reinwaste


Salvador Parra @sparraIFAPA · 14 nov.
Open Innovation Lab del Proyecto @Reinwaste en Almería. Samir Sayadi de @IfapaJunta habla sobre los proyectos pilotos de reducción de residuos en empresas hortofrutícolas de Almería #plastico #sostenibilidad #agricultura #newmaterials @cienciaIm @esFIAB


Retwitteó ReinWaste Project
Diario de Almería @DiarioDAlmeria · 14 nov.
Arranca el Open Innovation Lab en Almería para dar cuenta de la evolución del proyecto #Reinwaste
Tú y 6 más


Concha Ávila @ConchaAvila · 15 nov.
Estupenda participación ayer en el #openinnovationlab @esFIAB @IfapaJunta @Reinwaste celebrado en #Almeria #brainstorming #innovacion #reduccionresiduos #industria #hortofruticola #interregMed
MED Green Growth y 6 más