



Project co-financed by the European Regional Development Fund

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REINWASTE

REmanufacture the food supply chain by testing INnovative solutions for zero inorganic WASTE



Countries:

France, Italy, Spain, Bosnia-Herzegovina

Target Groups:

Agrifood companies, agriculture clusters, research, regional governments and innovative institutes

Themes:

Waste management

Key Words:

Waste prevention, innovative solutions, agrifood supply chain

Starting and Ending Dates:

February 2018 - January 2021

Inorganic materials (plastic film, nylon, greenhouse coverings, agrochemical packaging, food packaging, amongst others) are poorly recycled and occasionally abandoned in natural areas, damaging local ecosystems. To face this prob-

lem, **REINWASTE** brought together a group of SMEs from the agrifood sector (farms and industries), public agencies, and technology and innovation centres to identify solutions for the management of inorganic waste in the agrifood sector.

Objectives

The project has the following objectives:

- Contribute to inorganic waste reduction at source, favouring the adoption of greener innovative concepts by agriculture and food industry.
- Run a feasible testing and experimentation on site.

Innovating to prevent waste disposal in the agrifood chain: a responsible investment for a more sustainable future

Solutions

- Redesigning products and processes based on preventive solutions: promoting the reuse of materials, rethinking unnecessary packaging and logistics optimisation, enhancing the use of recycled & recyclable materials such as mono-material instead of multilayer
- Using biomaterials (i.g. biodegradable or compostable) in the production process (e.g. to substitute plastics used in greenhouse horticultural production) or that can be used in eco-design by developing innovative packaging.
- Managing waste through separation, appropriate conditioning, waste traceability systems and associative waste management models, amongst others.

REINWASTE Pilot Studies



Solutions tested

Dairy sector (farm+industry)

- Replacement of silage film and plastic ballast bags
- Replacement of plastic baling nets and wires
- Light-weighting of plastic films to wrap cheeses
- Replacement of conventional packaging (cheese trays and yogourt pots) with compostable/biodegradable materials
- Replacement of composite materials with new nanomaterials to improve packaging recycling
- Adoption of non-destructive infra-red technology to prevent disruptive controls on packaging in the processing line

Meat sector (farm+industry)

- Single packaging for whole ham ensuring both functions (cooking and final packaging, instead of two different packages)
- Replace complex packaging of pre-cooked meals by recyclable materials (e.g. mono PP)
- Trays for sliced product packaging made of single-material or separable materials, made up entirely or partly of recycled material
- Use of no skeleton technology for sliced product packaging (reducing the quantity of material)
- Replacement of plastic films for live-stock fodder
- Replacement of plastic bale netting and wires

Horticulture sector (farm+industry)

- The use of biodegradable and compostable staking elements in horticultural greenhouses allow a better management of waste as no separation from organic crop waste is needed
- Compostable and biodegradable mulching films are technically feasible for short and long cycle crops offering a more environmentally friendly alternative
- Energy recovery of difficult-to-manage waste (thin plastics such as mulching, solarisation or thermal blankets) through gasification is technically feasible needing 15,000 and 20,000 t/year to guarantee the feasibility of the installation of a gasification plant
- Traceability systems from exploitation area to waste treatment facilities
- Establishment of a waste management system model at a cooperative level
- Implementation of the use of trays made from recycled and recyclable material (R-PET)
- Logistics optimisation (secondary packaging)
- Identification of biodegradable primary packaging options
- Eco-design of cardboard packaging for stop cups from falling
- Using of tie-type grouping elements instead of plastic trays and flowpack.

Lessons learnt and recommendations

There is a lack of knowledge about affordable alternatives to inorganic waste across the agrifood sector, which is an important barrier to address. In this sense, **REINWASTE** project contributes to raising awareness among stakeholders and

transferring knowledge about the best innovative solutions. At a legal and political level, the project recommends creating incentives for adopting innovative solutions to reduce inorganic waste and improve waste management.

Partners:



The InterregMED Green Growth Community

Green Growth is a thematic community that promotes sustainable development in the Mediterranean within the framework of the Interreg Med Programme. It supports the sound management of natural resources by enhancing cross-sectoral innovation practices through an integrated, territorially-based cooperation approach.

The community supports its projects in communicating and capitalising on their results to increase their impact at the policy level and ensure their potential transfer into other territories.

Visit our website:
green-growth.interreg-med.eu

Join the Green Growth Capitalisation Platform:
interregmedgreengrowth.eu

Further Information:

REINWASTE Website:
reinwaste.interreg-med.eu
 REINWASTE Deliverables Database

Contact:

M^a Antonia Cobacho Vargas
 e: relac.internac.agapa@juntadeandalucia.es
 @juntadeandalucia.es
 tel: +34 958 025 277
 +34 670 945 944

Social Media Channels:





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REINWASTE

Type of the result:

Model

Language(s) in which the result is developed:

English, Spanish, French and Italian

What is the most appropriate level for its use/ implementation?

Local, regional, national and international

DESCRIPTION OF THE RESULTS

The results of the pilot's actions, equally distributed on primary sector and food industry, carried out over 3 supply chains (meat, dairy, horticulture), have inspired the Regional Action Plans. These documents provide recommendations to policy makers and sector operators to continue the actions started within **REINWASTE**, aimed at reducing inorganic wastes, addressing the next steps to be adopted in each regional context to foster a more circular economy.

The main propositions to minimize the inorganic waste and EU Funds for 2021-2027 are listed below:

R&D and innovation projects to reach further solutions and new materials for farmers and industries. There is margin to study further biodegradable or compostable materials, reducing their costs, also for recycled & recyclable materials such as mono-material instead of multilayer, packaging optimization (reducing thickness, avoid unnecessary packaging) and Public-private partnerships to transfer solutions to commercial phase.

Is it also important to promote actors involved in the reduction of inorganic waste: farmers, agro-industries, waste managers, institutions, by extending the support for the use of new materials and improve waste management through associative models, EPRS (Extended Producer Responsibility Systems), traceability, valorisation plants, collection points, infrastructures for correct management of new materials.

In order to improve empowerment and abilities around waste management, different actions can be done: mentorship and consultancy for farmers and agro-industries to reduce inorganic waste, when possible, having a new teams members specialized on waste and, reinforce networking between actors to create new collaborations.

PROJECT IMPLEMENTATION AND EVALUATION BY END-USERS

Besides the above mentioned Regional Action Plans that offer policy recommendations, other REINWASTE results are more focused on the agri-food sector. Innovation to reduce inorganic waste in farms and food industries is well represented in the 14 transferability factsheets delivered by the REINWASTE project. Specific information about a selection of the best and most transferable

solutions tested in the pilot phase of the project are shown in these factsheets.

In general, most of the novelties proposed are already on the market or close to the market. In the latter case, most of the promising solutions are next to be validated in a pre-commercial phase.

WHAT IS THE TRANSFER POTENTIAL AND PROJECT REPLICABILITY?

The novelties are globally open to all interested practitioners and have a sounding potential to be transferred outside the supply chain they were tested for.

Nevertheless, the transferability potential shall be well-tailored according to the type of companies and its capacity to increase expenses to get equipped with new investments.

In the primary sector, the proposed solutions are globally fitting to any-size company, with a low degree of mechanization. In the supply chains analysed there are mature solutions that can be already found on the market, with affordable costs. Some other solutions are not fully ready for the market, although they are well promising. At this regard, R&D can have further margins to scout new and more sustainable materials, like the development of biodegradable films.

With regard to food industry, a particular attention should be devoted to those low-plastic or recycled plastic solutions adopted that are already available on the market, positively applied in one sector and likely to be transferred to other supply chains. Although they might have a good transferability potential, every supply chain has its own safety and quality requirements, and the exportability of such solutions could require a significant test phase before being considered as a suitable replacement for existing packaging. Hence, a costs and timing verification of possible "hidden" issues should be duly assessed beforehand, as part of a focalized risk-innovation analysis. As part of the wise risk analysis to be tackled before introducing innovation, the verification of internal competences is demanding: lack of expertise to handle the novelty is often pointed out as one of those underestimated risks that companies face off and that could generate extra costs.

WHAT CHALLENGES MAY ARISE?

The most highlighted risk for the adoption of these solutions is the change of regulatory aspects, since numerous organizations (in particular, those belonging to food transformation and challenged in finding new packaging solutions) are concerned that the legislation could make proposed solutions obsolete or unusable.

The high cost has been identified as a relevant barrier for the introduction of some solutions proposed. However costs and overruns may decrease as solutions are spread among producers due to economies of scale. Increasing environmental awareness in society and in the producing sector may raise the use of these solutions.