

Zero inorganic waste for the agri-food sector

REINWASTE experience in ANDALUSIA

Towards a green and circular economy in the Euro-Mediterranean region

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GREEN GROWTH
COMMUNITY

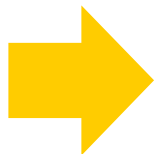


WHY REINWASTE?



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To combat the phenomenon of inorganic waste in agri-food chain



**finding and testing the best-advanced
solutions in inorganic waste in 3 European
value chains**



3 value chains

Andalucía



HORTICULTURE

Sud-Provence-Alpes-
Côte d'Azur



MEAT

Emilia-Romagna



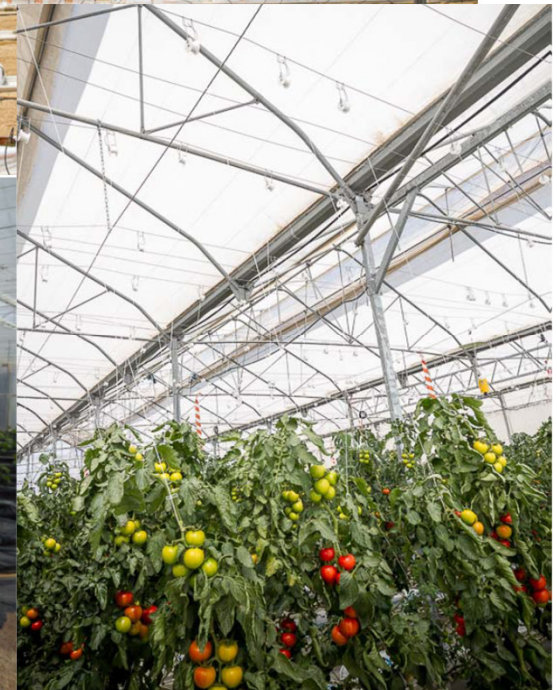
DAIRY



HOW ARE SOME
HORTICULTURAL
PRODUCTS PRODUCED?



HOW IS A GREENHOUSE?



PLASTIC SEA





PLASTIC SEA





Consequences of a bad waste management



How are horticultural products presented?



Excessive
amount of
packaging waste

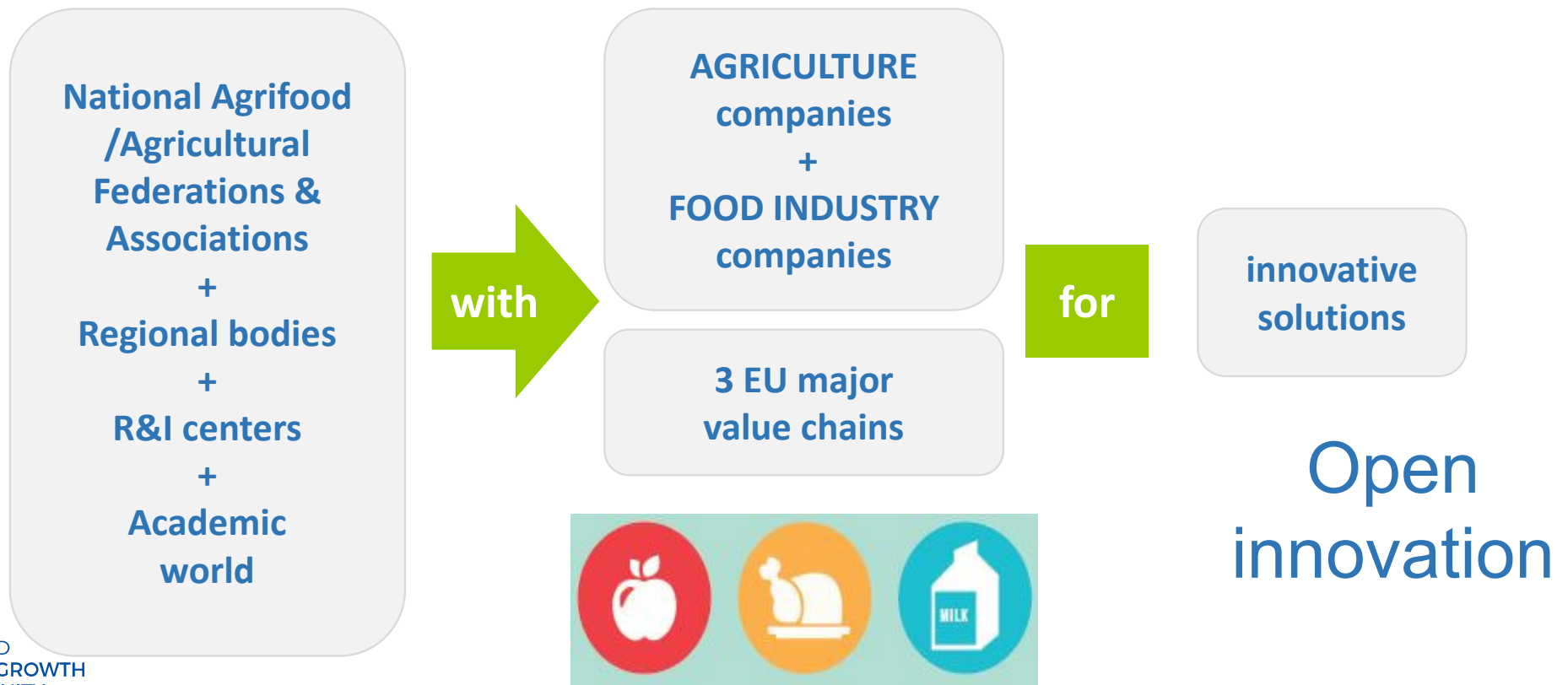




HOW?



An innovative partnership





10 partners



+ 5 associated partners:

ITALY:

- Cluster Agrifood Nazionale CLAN
- Istituto Italiano Imballaggio
- SPES GEIE, Spread European Safety Geie

SPAIN:

- Consejería de Agricultura, Pesca y Desarrollo Rural
- COEXPHAL



TESTING SOLUTIONS IN COMPANIES

- ✓ Identification of inorganic waste generation & management
- ✓ Analysis of innovative solutions for zero inorganic waste

PHASE 0

- ✓ Analysis of current inorganic waste generation & management in 45+45 production & agrofood companies
- ❖ Results Personalized Light Assessments

PHASE 1

- ✓ Pilot actions in most appropriate 15+15 production & agrofood companies
- ❖ Results Pilot Action Factsheets

PHASE 2



WHAT?

A practical example in Andalusia

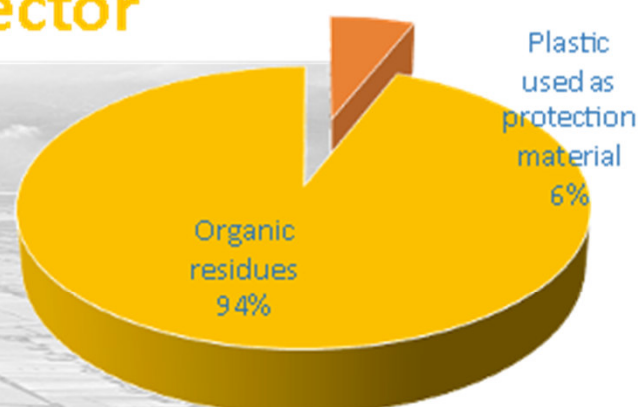


Waste in the protected horticultural sector

Estimates for **35,000 ha** of greenhouses (90% Almería):

About **91,000 t** and **190,000 m³** of inorganic waste every year

of which



Functions:

- ✓ Cover plastics (43%)
- ✓ Disinfection fine plastics (23%)
- ✓ ...

Materials:

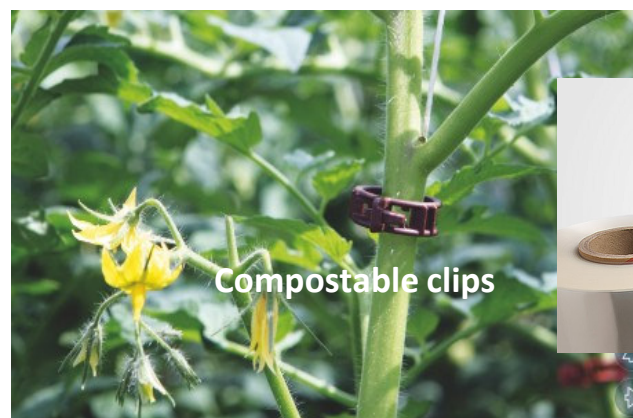
- ✓ Metal (41%)
- ✓ Low-density polyethylene (38%)
- ✓ ...



Identification of Best available solutions (BATs)



29 BAT for AGROINDUSTRY



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21 BAT for AGRICULTURE



Pilot actions in horticulture production Andalusia



BIODEGRADABLE & COMPOSTABLE TWINE (RAFFIA)

BIODEGRADABLE & COMPOSTABLE MULCHING FILM

WASTE MANAGEMENT MODELS AT ASSOCIATIVE LEVEL

IMPROVEMENT OF WASTE MANAGEMENT TRACEABILITY

GASIFICATION OF DIFFICULT-TO-MANAGE-WASTE





Pilot actions in horticulture industry Andalusia

BIODEGRADABLE PLASTIC TRAYS

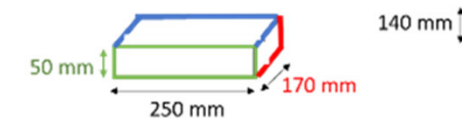
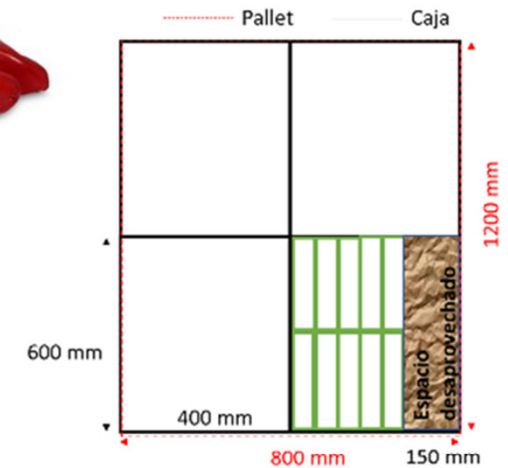
LOGISTICS OPTIMIZATION OF PRIMARY&SECONDARY PACKAGING

REDESIGN&NEW MATERIALS FOR PRIMARY PACKAGING

SUSTAINABLE PACKAGING FOR GOURMET PRODUCTS

ECO-DESIGN USING COMPOSTABLE MATERIALS

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Pilot actions in horticulture production Andalusia



Staking elements (raffia)



- ✓ Conventionally made of polypropylene
- ✓ Problems because they are mixed with vegetable crops.
- ✓ Composting plants often reject vegetable waste mixed with raffia
- ✓ Risk for the soil, water, flora, and fauna, if not properly managed.



Mulching



- ✓ Thin plastics conventionally made of LDPE
- ✓ Difficult-to-manage waste (high degree of degradation / presence of vegetable waste and sand).
- ✓ High conditioning is needed and waste management plants sometimes do not accept them (considered low profit) risking abandonment.
- ✓ There is a lack of EPRS* covering its management



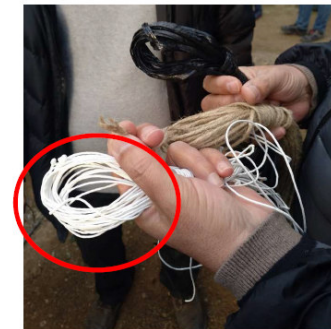
*EPR system = Extended Producer Responsibility System



Biodegradable/Compostable materials have been successfully tested replacing plastic

Staking elements (raffia)

- Alternative n: Conventional 100% polypropylene
- Alternative 1: Biodegradable (mixture of a polymer & cellulose)
- Alternative 2: Compostable (100% jute)



Mulching

- Alternative n: Conventional LDPE
- Alternative 1: Compostable mulching film (Ecovio®, BASF)
- Alternative 2: In-soil biodegradable mulching film (BIOMULCH, non-commercial)





Main results of compostable/biodegradable raffia & mulching

- **Feasibility:** Although conventional options show greater resistance, the alternatives tested are technically feasible and have similar performance to conventional material
- **Advantages:**
 - Raffia: Separation from vegetable waste (raffia)/ waste conditioning (mulching) is not needed
 - It can be sent to ordinary waste management plant together with vegetable waste or being composted in the farm
 - Environmental (guarantees adequate waste management) and social advantages (health & jobs creation)
- **Barriers/Challenges:** Overcosts.
 - Raffia: Extra cost 300 - 400 €/ha/year, 5-6 times higher. Operational funds covering a large part.
 - Mulching: 1.7 times higher. 629€/ha· year. Operational funding being included.

Pilot actions general conclusions



INNOVATIVE SOLUTIONS AVAILABILITY

❖ INSUFFICIENT TECHNOLOGICAL PROCESS & EQUIPMENT DEVELOPMENT

→ HIGHER R&D INVESTMENTS
→ LOWER PRICES

❖ UNSATISFACTORY PERFORMANCES OF SUSTAINABLE MATERIAL ALTERNATIVES

PRODUCTION & INDUSTRY VALUE-CHAIN AGENTS

❖ LOW-MEDIUM KNOWLEDGE → ALTERNATIVE TECHNOLOGIES & MATERIALS

❖ MEDIUM-HIGH PREDISPOSITION → IMPLEMENT INNOVATIVE ALTERNATIVES

PUBLIC ADMINISTRATION

❖ HOMOGENEOUS & COMPLETE LEGAL FRAMEWORK → NEW MATERIALS & PROCESSES

❖ WASTE MANAGEMENT POLICIES → WHOLE VALUE CHAIN INVOLVEMENT

❖ RECYCLING, RECOVERY, REUSE & VALORIZATION RATE IMPROVEMENT

What can be exploited from REINWASTE results at policy level?



RW results & regional context

- ✓ Inspiring Regional S3 2021-2027 (S3 regional meetings, permanent consultation forum, KPI)
- ✓ Regional Action Plans, OILs
- ✓ Transferability Plan
- ✓ Andalusian Regional Ministry of Agriculture is associated to the project
- ✓ AGAPA (RW LP) technical support in decision making



MOVING TO A CIRCULAR ECONOMY IN ANDALUSIA

- ✓ Integrated Waste Plan for Andalusia. Towards a circular economy on the Horizon 2030 (PIRec 2030)
- ✓ Draft Law for Circular Economy
- ✓ Andalusian Strategy for Circular Bioeconomy
- ✓ Strategic Plan for competitiveness of Agriculture, Agri-food & R.D.
 - ➡ S. Line 3.10. Improve knowledge in inorganic waste management
- ✓ CAP:
 - ✓ 1st Pillar CAP: F&V Producers Organisations (FVPO) Operative Programmes (OOPP)
 - ✓ 2nd Pillar CAP: RDP:
 - ✓ EIP Agri Operational Groups
 - ✓ Agro-environmental scheme measures
 - ✓ Financial support for modernization of agro-industries





Propositions to minimize i-waste and EU Funds for 2021-2027

EAFRD, EAGF & ERDF

R+D+i projects to reach new solutions & materials in farms and agro-industries

- ✓ Margin biodegradable/compostable films. Costs. Biomass hubs
- ✓ Recycled & recyclable materials (mono-materials packaging vs multilayer)
- ✓ Packaging optimization: Reducing thickness, avoid unnecessary
- ✓ Operational groups- EIP-Agri, public-private partnerships to transfer solutions to commercial phase



Propositions to minimize i-waste and EU Funds for 2021-2027 EAFRD, EAGF & ERDF

Demonstrative projects: Promote farmers/ agro-industries/ waste managers/institutions introducing innovations to reduce i-waste

- ✓ New materials: Extend support: different uses, sectors and funds. Viability
- ✓ Waste management improvements: associative models, EPRS, traceability, valorization plants, collection points, infrastructures for correct management of new materials



Propositions to minimize i-waste and EU Funds for 2021-2027

EAFRD, EAGF & ERDF

Competences, empowerment and networking. Lack of professional skills.

- ✓ **Mentorship projects & consultancy** for farmers & agro-industries to reduce i-waste
- ✓ **Competences.** New team members specialized on waste
- ✓ **Networking.** Connection of actors. New collaborations



Propositions to minimize i-waste and EU Funds for 2021-2027

EAFRD, EAGF & ERDF

Information, transfer & awareness raising projects

- ✓ for **farmers, agro-industries**, input providers & waste managers to reach more sustainable approaches
- ✓ for **consumers**
 - ✓ about implementation of good practices in waste management by farmers/agro-industries
 - ✓ to promote proper management of food packaging by consumers
 - ✓ to clarify differences among materials (compostable, biodegradable, bioplastics, etc.)



FUTURE

- Need to take a step forward to increase the green ambition. The moment is crucial
- Comprehensive strategy to promote good practices among farmers & industries
- Agro-environmental scheme and FVPO OOPP
- Transfer of technologies, training & advisory services measures RDP
- Collaborative works
- Perhaps go beyond: More compulsory measures to reduce waste

Thank you!

<https://reinwaste.interreg-med.eu/>

