

Upcycling food waste and agrifood byproducts into animal feed and organic fertilizer using insects: creating awareness and technical know-how in Greece

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Insects can upcycle food waste and agrifood byproducts into animal feed ingredients and organic fertilizer. Greece can ideally benefit from this green, circular, EU-approved technology.

In Greece, >1.5 Mt/year of food waste is landfilled, leading to GHG emissions, environmental degradation, and EU-legal fines; while the rich variety of agrifood byproducts are undervalorized. Insect-based upcycling will give these materials economic value and reduce environmental impacts of their disposal.

Greek aquaculture and livestock sectors use feed ingredients obtained at the cost of marine fish stocks, deforestation and other environmental damage and imported with fluctuating prices. Insects will provide price-stable, green alternatives.

Greek agriculture relies on mineral fertilizers, associated with GHG emissions and mineral resource depletion. Insect frass-based organic fertilizers will be resource-efficient alternatives.

As a cross-sector consortium, we propose a strategy to start realizing these benefits.

1. Adapting insect farming to the Greek conditions.

A prototype insect farm based on bioclimatic architecture and natural building materials to reduce need for active climatization and thus energy consumption.

Optimal insect diet recipes combining food waste and local agrifood byproducts. Innovative pre-processing methods for difficult materials, e.g., olive press cake, enabling their incorporation to reduce production costs and increase environmental benefits.

3. Making a case for insect-based business in Greece

Products introduced to early adopters among fish/ poultry/ swine farmers, agricultural producers and then promoted in the wider markets.

€ Concrete business cases delineated based on pilot implementation and presented to waste management bodies, municipalities, compound feed manufacturers to encourage repetition/ upscale.

Public, NGOs, policy makers, regulatory bodies informed via multimedia materials and in person visits to the pilot farm.

2. Piloting insect farming in Greece

Monthly
15 t food waste & agrifood byproducts converted into
2.5 t mature larvae & 5 t frass
post-processed into
animal feed ingredients & organic fertilizer.

Following EU regulations for feed safety/ hygiene.

Product quality/ efficacy characterized via detailed analyses and controlled trials.

Capital/ operating costs & environmental performance quantified.



← Chania/ Crete

With these critical steps, we intend to create in Greece, a nucleus of awareness and know-how around which a domestic insect-sector can then grow.