



Ecodiptera - Implementation of a management model for the ecologically sustainable treatment of pig manure in the Region of Los Serranos, Valencia-Spain

LIFE05 ENV/E/000302



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Project description:

Background

The huge volume of pig manure generated across Europe, and its customary use as fertiliser for agriculture, is the cause of serious environmental problems. These include the leaching of high nitrogen, which causes an excess nutrient enrichment of soil and water, and the emission of odours and greenhouse gases. Furthermore, the use of manure for fertiliser can result in the spreading of pathogenic micro-organisms that can be transferred through the air and water from animals to people.

Objectives

The project's main objective was to demonstrate a novel method of treating pig manure. Insects (mainly flies) can be used to decompose the waste and transform it into high quality fertiliser that can be applied without a negative impact on the environment or public health. The compost can be used to fertilise parks, gardens and green areas surrounding towns. A campaign to raise awareness of the benefits of the new, environmentally friendly technique would be carried out.

Other specific aims of the project were to:

- Demonstrate the technical and economic viability of a new pig manure management method using dipteran (maggots).
- Obtain a balance between environmental and social concerns in order

to ease acceptance among local population.

- Encourage the progressive phasing out of the current practice of direct use of pig manure as an organic fertiliser, which is not recommended due to its high nitrate content.
- Prove that the obtained sub-products – biodegradable waste remains, pupas and flies – can be included in other processes (animal feeding, plant pollination, etc.) with the goal of obtaining a cycle that produces no waste products.
- Introduce a new local juridical model.
- Show that the larvae of the flies, which has previously been considered an environmental problem and which occurs in the pig manure under natural conditions, has an important degradation potential using ecologically friendly management techniques. In this case, the problem (the flies) offers a sustainable solution to the pig manure waste problem.

Results

The project was based on the use of a new ecologically sustainable and environmentally friendly method of pig waste management that uses flies to produce a higher quality fertiliser to apply in land restoration without negative emissions or environmental impacts. The project demonstrated that by using dipterous (0.8 ml of egg can degrade 5 kg of pig manure and transform 70% of this pig manure into high-quality compost) it is possible to diminish the amount of waste and valorise by-products. The method will also lead to the progressive phasing out of the current practice of direct use of pig manure as organic fertiliser, which is not recommended due to its high nitrate content.

The project, which was carried out on a pilot scale, served to define the most suitable conditions for effectively reducing the environmental impact of the pig manure treatment in line with current legislation. Analysis of results demonstrated that the by-product:

- Positively affects the weight of the overgrown phytomass.
- Raises the nitrogen, phosphorus, potassium, sulphur content and the total chlorophyll in plants and the level of the organic carbon (humus content).
- Supplies the complex plant nutrition with macro and microelements.
- Is especially suitable for ecological agriculture.
- Is easy to manipulate and store and does not represent a risk to the environment because of low water content (12%).

The results achieved has been very good regarding the biodegradation of the pig manure, nevertheless, the manipulation of the dipterous mass rearing system and its maintenance which is really simple for the project's participants (universities and R&D centres) requires a "know-how" which is not available for farmers. Furthermore the continuity and transferability of the project results is conditioned to the validation at industrial scale of the process by the commercial companies of the sector.

Further information on the project can be found in the project's layman report and After-LIFE Communication Plan (see "Read more" section).

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Environmental issues addressed:

Themes

Waste - Agricultural waste

Keywords

environmental impact of agriculture, manure

Target EU Legislation

- Water
- Directive 91/676 - Protection of waters against pollution caused by nitrates from agricultural so ...
- Industry and Product Policy
- Directive 96/61 - Integrated Pollution Prevention and Control (IPPC) (24.09.1996)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Diputación de Valencia - Servicio de Medio Ambiente
Type of organisation	Regional authority
Description	The Valencia Provincial Council (Diputación de Valencia) is tasked with preserving inter-territorial balance, offering co-operation and advice to municipal areas and collaborating in the implementation of infrastructure projects.

Partners
Institute of Zoology-Slovak Academy of Sciences
Helsingin Yliopisto, Finland
Eurovías-Asesoría Integral Comunitaria, Spain
Red de Municipios Valencianos Hacia La Sostenibilidad, Spain
Fundación Europa Comunidad Valenciana-Región Europea, Spain
Universidad de Alicante, Spain

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Administrative data:

Project reference	LIFE05 ENV/E/000302
Duration	01-DEC-2005 to 30-NOV -2008
Total budget	1,595,266.00 €
EU contribution	791,633.00 €
Project location	Comunidad Valenciana(España)

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Read more:

Project web site	Project's website (ES/EN)
Publication: After-LIFE Communication Plan	Title: After-LIFE Communication Plan Year: 2009 No of pages: 12
Publication: Layman report	Title: Layman report (ES) Year: 2008 No of pages: 10
Publication: Layman report	Title: Layman report (EN) Year: 2008 No of pages: 10
Video link	Link to the project's video (Project Ecodiptera in images)

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