



LIFE DOP - LIFE DOP - Demonstrative model of circular economy Process in a high quality dairy industry

LIFE15 ENV/IT/000585



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#### Project description:

##### Background

The dairy sector in Lombardy contributes more than 37% to Italian milk production. In the Po Valley region, nearly 97% of the total ammonia emissions come from the agricultural sector, the bovine dairies contributing some 32% of this share. As a result, around 30% of the PM10 emissions in Lombardy are related to ammonia from the agricultural sector. In addition, about 100 000 tonnes/year of nitrogen-based fertilisers are used, producing a total emission of CO2 eq. of about 350 000 tonnes/year.

##### Objectives

Life DOP aims to promote the transition to a circular economy along the whole value chain of the dairy sector. The project will evaluate and demonstrate a new model, and apply it to the production of Grana Padano DOP (Denominazione di Origine Protetta/Protected Designation of Origin) and Parmigiano Reggiano DOP. The project will integrate all the phases along production chains (from livestock rearing to production), in order to re-use all of the waste products/materials generated. This not only promotes a circular economy and greater resource efficiency, but also reduces PM10, ammonia, NOx and CO2 emissions. In turn, the re-use of slurry as fertiliser will decrease ammonia emissions and increase soil organic content, thus contributing to the Soil Thematic Strategy.

Specific objectives include:

- Combining good practices to implement a circular economy model for dairy production chains, to comply with the Nitrates Directive through the recovery of livestock slurry for biogas production, application of manure on soils for more sustainable nutrient management, rearing livestock according to sustainability criteria, and defining the composition of feed rations to reduce ammonia emissions;
- Establishing a sustainable production territorial model (VIRGIL: VIRtuous or Green and Sustainable Dairy Production);
- Defining an LCA model to help guide the entire value chain towards a more sustainable approach, and to define its Product Environmental Footprint (PEF);
- Developing a circular economy model, based on the Grana Padano value chain, that is replicable in other European countries;
- Promoting resource efficiency along the entire value chain by introducing interlinked processes of waste re-use and greenhouse gas emissions reduction;
- Implementing measures to safeguard and improve soil quality; and
- Developing a monitoring and evaluation model for innovative techniques for the pre-treatment of slurry/manure and its use in biogas plants.

#### Expected results:

- At least 75 000 tonnes/year of manure (liquid/solid) delivered to end users (biogas plants, farms outside the chain);
- At least another 10 anaerobic digestion plants in the area and at least 50 buyers of organic fertilisers in manure market trading operations engaged in the project;
- 20-30 local companies with a volume of treated and transported liquid manure of 150 m<sup>3</sup> a day involved;
- Substitution of 70% of corn used in 2 biogas plants with about 150 tonnes/day of pre-treated animal slurry in biogas plants, allowing a 20% reduction in the impact on climate change category;
- Increased methane potential of pre-treated manure compared to standard manure, moving from a productivity of 45-50 Nm<sup>3</sup>/tonne to 60-65 Nm<sup>3</sup>/tonne;
- Sharp decrease in the addition of mineral fertilisers in agronomic trials;
- Decrease in total nitrogen load introduced into the system by 40% (from 450 kg to 280 kg);
- Reduction in nitrates in underground waters by 20%;
- Reduction of ammonia emissions by 40-60%;
- Reduction of nitrogen load from livestock and/or 30% increase in the number of heads;
- Reduction of methane emissions by 40% due to the new manure management approach;
- Development of an operational plan that engages at least six farms to decrease by 10% the average impact of the dairies; and
- Involvement of at least 200 technical experts and 150 college students to increase knowledge and awareness on the ecological impact of livestock slurry/manure on the environment, and the innovative technical solutions to mitigate it.

#### Results

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Environmental issues addressed:

Themes

Industry-Production - Agriculture - Forestry  
Land-use & Planning - Soil and landscape protection

Keywords

Agriculture, soil degradation, waste use, waste recycling, organic pollution, agricultural waste

Target EU Legislation

- Land & Soil
- COM(2006)231 - "Thematic Strategy for Soil Protection" (22.09.2006)
- COM(2010)672 - The CAP towards 2020: Meeting the food, natural resources and territorial challenge ...
- Waste
- COM(2015)614 - "Closing the loop - An EU action plan for the Circular Economy" (02.12.2015)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Consorzio Latterie Virgilio
Type of organisation	Professional organisation
Description	Virgilio is a consortium of 70 associated dairies and more than 2 000 farmers in the Po Valley region of Italy, which is considered a centre of excellence for the production of butter, creams and cheese (including Grana Padano and Parmigiano Reggiano). The consortium checks and certifies all dairy production chains.

## Partners

Consorzio Export 3P, Italy Cooperativa San Lorenzo Soc. Agr. Coop., Italy Università degli Studi di Milano, Italy Associazione Mantovana Allevatori, Italy Consorzio Agrario del Nord Est, Italy

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## Administrative data:

Project reference	LIFE15 ENV/IT/000585
Duration	01-SEP-2016 to 01-MAR -2021
Total budget	3,691,795.00 €
EU contribution	2,083,547.00 €
Project location	Lombardia(Italia)

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## Read more:

Project web site	<a href="#">Project's website</a>
Project web site - 2	<a href="#">Project's Twitter page</a>
Project web site - 2	<a href="#">Project's Facebook page</a>
Slides Presentation	Title: "Il refluo vale un'esperienza concreta che guarda lontano" (1.25 MB) Author: Alessandro Gandolfi Year: 2016 Editor: Coop. San Lorenzo - Pegognaga No of pages: 13
Slides Presentation	Title: "Descrizione del progetto" (1.83 MB) Author: Stefano Garimberti Year: 2016 Editor: Associazione Mantovana Allevatori No of pages: 24
Slides Presentation	Title: "Valori e cultura di progetto" (1.06 MB) Year: 2016 Editor: LIFE DOP No of pages: 10
Slides Presentation	Title: "LIFE DOP - Demonstrative mOdel of circular economy Process in high quality dairy industry" (823 KB) Year: 2016 Editor: LIFE DOP No of pages: 34

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