

**GREEN**  
Life +



**W**   **OLF**

**Green hydrolysis conversion of Wool wastes  
into organic nitrogen Fertilisers**

# LAYMAN'S REPORT



Partner



Project  
coordinator



Partner

# Background

The primary role of EU sheep farming is **meat** and **milk** production.



Therefore, the **EU wool** is generally a **worth nothing by-product** which is often disposed of or illegally buried or burnt.

**Raw wool** (greasy wool) is a renewable resource containing elements such as carbon, nitrogen and other, which play an essential role in **plant nutrition**.

**Coarse wool cannot be used as fertiliser without a previous washing**, because of **infection** risks and, in normal conditions, degradation is a slow process.

For these reasons, fertilisation with untreated greasy wool is forbidden by the **EU legislation**, which strictly provides guideline for **raw wool storage, transportation and disposal**. These costs heavily weigh on the profit of sheep farmers.

Sheep breeds for milk and meat generally produce low quality wool (coarse wool) not suitable for textile uses.

EU regulation provides restrictions for storage, transportation and disposal of wool wastes (EU reg. N. 142/2011 for class 3 materials).

Sheep breeders must shear sheep for the wellbeing of the animals. Selling price of coarse wool does not cover the cost for shearing!

# The project

**Life+GreenWoolF** is a project co-funded by the EU under the **LIFE** financial instrument aimed to demonstrate that the LIFE programme can support private financing for strategic investments.

The GreenWoolF treatment allows complying with the **EU regulations on wool sterilisation** and produces **fast or slow release fertilisers** suitable for organic agriculture and foliar feeding. **Preliminary wool scouring is not required.**

**GreenWoolF is the imaginary “environmentalist wolf” which only eat sheep’s wool, which is disposed of!**

**The use of not sterilised greasy wool as fertiliser is forbidden. The GreenWoolF process sterilise wool and make wool elements easier to be absorbed by plants.**

## Project aims

- Design of the green hydrolysis process
- Construction, tuning and optimisation of demonstration plants
- Pilot production of liquid and solid fertilisers
- Pot and on field fertilisation trials

# Long-term objectives

- prevent waste generation and reduce waste disposal
- recycle renewable resources
- increase sheep farming profit
- promote sustainable use of soil
- exploit rural and marginal areas
- improve landscape
- reduce EU dependency of imported meat
- create job and business opportunities

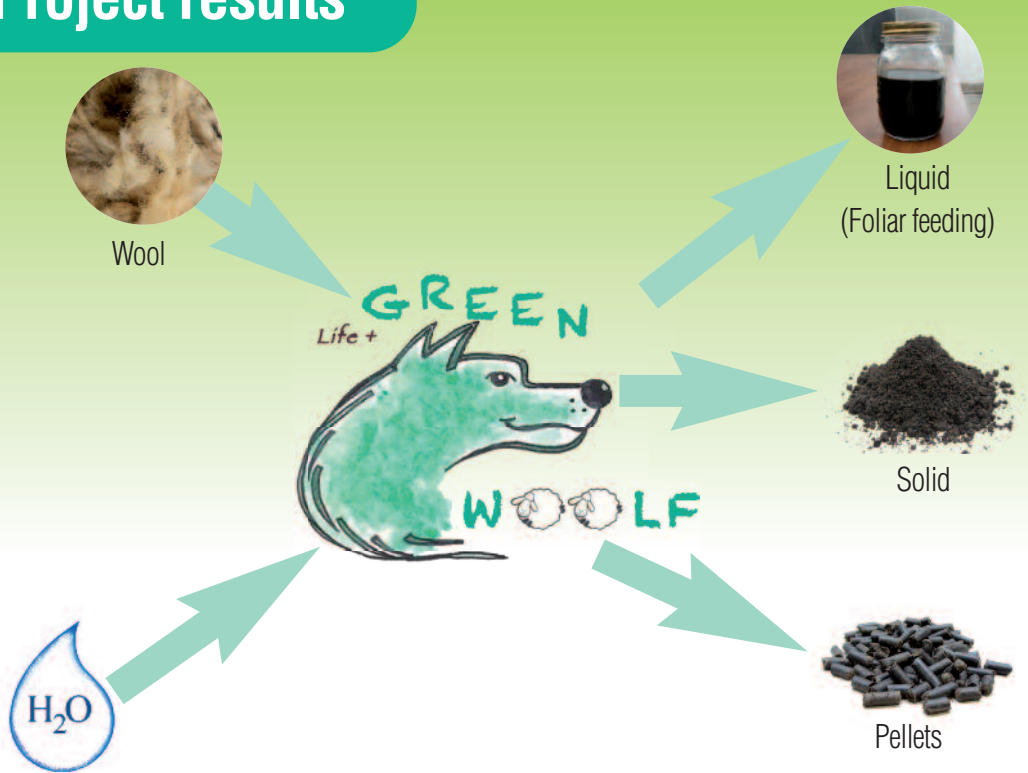
## Stakeholders and reference markets

- national health authorities
- sheep-breeders
- fertiliser industry and market
- plants manufacturers
- slaughterhouses
- hobby farmers

## GreenWoolF

**business and job opportunity for sheep farming, organic agriculture, fertilisers industry and market**

# Project results



- The green hydrolysis process was designed and optimised
- A small demonstration plant (10 Kg) was built and placed on a pickup truck for demonstration events and exhibitions
- A big demonstration plant (100 Kg) was designed and built for pilot production
- The fertiliser is produced in the form of pellets or diluted for foliar feeding
- The fertiliser shows bio-stimulating and chelating properties
- The process is economically and environmentally sustainable

# Environmental and socio-economic impact

- Conversion of wool wastes into value-added fertilisers developing recycling markets
- Production of a new slow release nitrogen fertiliser with biostimulant properties for organic agriculture
- Chemical-free treatment; no preliminary cleaning / scouring / sterilizing treatments
- Application to coarse wool and hairs from shearing and butchery (slipe wool)
- Technology transfer to end-of-life wool based products and other animal wastes (e.g. poultry feathers)
- Increase of management yield and extension of the pasture lands
- Increase of employment and sheep farming profit
- Promotion of rural and marginal areas
- Reduction of meat import



# Economic benefits

The **Life+GreenWoolF** project has been selected for the First EU platform meeting: Life program as an investment catalyst, aimed to demonstrate that the LIFE programme can help mobilise private financing for strategic investments. The event brought together a sample of selected LIFE projects and representatives from the European Investment Bank (EIB), to discuss possibilities of funding through the existing EIB financing instruments and, in particular, the European Fund for strategic Investments (EFSI).

GreenWoolF:  
the "Project of the month", March 2015,  
website of the Italian Ministry of Environment.





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