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AN INTEGRATED FOOD-ENERGY SYSTEM (IFES) CONCEPT FOR CLIMATE-SMART AGRICULTURE

CORRESPONDING
MODULE 1



Introduction

An Integrated Food-Energy System (IFES) is a diversified agricultural production farming system that incorporates agro-biodiversity and builds on the principles of [sustainable production intensification](#).

IFES can be small-scale operations managed at village/household level or large-scale operations designed for commercial activities. IFES can optimize land use through a combination of food and energy crops

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and/or optimize biomass use through its a cascading sequence to produce both food and energy. Depending on the circumstances, the generation of solar, thermal, geothermal, wind and/or hydro energy can be an integral part of the system.

(FAO, Organisation des Nations Unis pour l'alimentation et l'agriculture.)



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Description

General description of the CASE STUDY with information related to the questions already mentioned in section 3 of this document.

Background, types, basic information

Fontolan Farm is a good example of sustainable energy application in the rural sector. An IFES application for agriculture, located in the Po valley, near the city of Bovolenta.

Thanks to the renewable energies in rural farming systems, it contributes to the renewable energy value chain. Fontolan is a family farm, founded 40 years ago, in the North of Italy, focused on Food Farming.

It is specialized in:

- Cereals plantation
- Bovine livestock
- Meat retail
- Clean energy production from photovoltaic system

The energy renewable systems are:

- **The photovoltaic system installer** (1 MWp)
- **Biomass**



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Main objective of the institution implementing the case study and main achievements.

Good to remember information, practical information, links to other CSs.....

.....



**AZIENDA AGRICOLA
FONTOLAN**





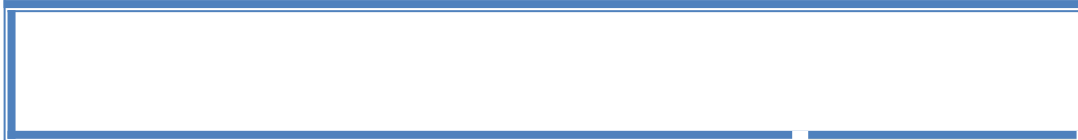
Advantages:

- Alternative clean energy production;
- Safeguard of the nature and the environment;
- Genuine livestock and meat retail from producer to consumer;
- Carbon dioxide saving;
- Methane emission reduction thanks to its degradation in carbon dioxide and water.

Challenges:

- Large initial costs
- Availability of space
- Investment on technology formation

Fontolan Farm aims to give customers a service directly from the producer to the consumer, breeding in a genuine way their fields and safeguarding the environment and nature.



Main data

Budget, main dates (investment, start of production, period of raise funding, etc.), location, module name and number, contact data when possible, institution

- **The photovoltaic system installer** (1 MWp)

It is composed of more than 4100 solar panels, in order to convert solar energy to electricity. Fundamental is the inverter device that leads electricity into the distribution network.

Thanks to the photovoltaic system, structured both on the ground and on the roofs, the farm is able to cover the needs of about **328 homes** by saving the environment **609,500 KG** of carbon dioxide annually.

- **Biomass**

Bioenergy implantation, that produces alternative and clean energy. The whole natural operation takes place thanks to anaerobic bacteria (in the absence of oxygen) that allow the fermentation of animal biomass (manure produced by breeding) and vegetable biomass (silomais). What is obtained from this fermentation is then processed into carbon dioxide, hydrogen and methane.

Further

Information

..... to be completed with links when possible

[https://
www.aziendaagricola
fontolan.it/
azienda.html](https://www.aziendaagricolafontolan.it/azienda.html)
[https://
www.fao.org/
energy/bioenergy/
ifes/fr/](https://www.fao.org/energy/bioenergy/ifes/fr/)



ANNEX - STRUCTURE OF MODULE CONTENT TO PREPARE SLIDES

| |
|---|
| Module Name: The name of the partner: Country: |
|---|

| | |
|--|--|
| The name of the module | |
| Target group involved | |
| Current information about the topic | |
| Principles of the specific module | |
| Basic terms/measures of the module/topic | |
| Training materials (tasks, case studies, exercises) | |
| Short description of the materials | |
| Link of the online resources (film or video resources) | |
| Specific images (to support the purpose of the resources) | |
| Duration | |
| Materials | |
| No of Learners/Representatives | |
| Individual or group work | |
| Step by step guide | |