



# Solar Thermal Energy in French Agriculture



**Interreg** EUROPEAN UNION  
**North-West Europe**  
**ICARE4FARMS**  
European Regional Development Fund



**AIM:** presenting the French agricultural domain, it's potential for Solar Thermal Energy (STE) application and its key sectors.



**METHOD:** summarizing this ambition by highlighting results from interviews, academic and official documents analyses.

## Use of Renewable Energy in Agriculture

Share of Renewable Energy: 3%

Price of energies (2019):

- Photovoltaic: 0.086-0.143€/kWh
- Electricity: 0.094€/kWh
- Biomass: 0.062-0.122€/kWh
- Natural gas: 0.036€/kWh

## National Aids & Legal Framework for STE

- ADEME & Calls for Fond Chaleur
- Certification: CSTBat, Solarkeymark...
- CEE: assistance in installing RE
- Schemes from the Chambers of Agriculture
- PCAE: aids for competitiveness

### Milk-Fed Calves



- **Average Direct Consumption over 22-week (usual rearing period):**
  - 108 kWh only for drinking (= 71%)
  - 152 kWh/calf (all activities/100%)
- **Holding :** Total: 6 000 farms (≈ 250 calves)  
Target candidates for STE: 2222 farms with more than 50 calves
- **Main Energy Used :** Liquefied Petrol Gas

## KEY SECTORS FOR STE

### Dairy Farms



- **Holding :**  
Total: 62000 farms with an average of 59 cows  
Target candidates for STE with on-farm processing: 3000 farms
- **Water per day :** between 200 & 500L/cow
- **Main Energy Used :** Fuel oil & Electricity
- **Average Direct Consumption :**
  - o 120 kWh/cow for cleaning
  - o 254 kWh/milk (L) for processing

### Pig Farms



- **Holding :**
  - o Total: 22000 farms
  - o 5700 farms with around 190 sows
  - cf. those farms owns 98% total sows
- **Average Direct Consumption :**
  - o Maternity stage: 729kWh/place (80%)
  - o Post-Weaning stage: 67kWh/place (79%)
- **Main Energy Used :** Electricity & Fuel Oil

### Holding (tomato & cucumber) :

- o Horticulture: 1105 ha
- o Market Gardening: 1081.6 ha
- **Average Direct Consumption :**
  - o Horticulture: 160kWh/m2/year
  - o Market Gardening: 317kWh/m2/year
- **Main Energy Used :** Electricity & Gas

### Greenhouse



3 particularly appropriate sectors:  
Milk-Fed Calf Farms, Dairy Farms & Horticulture



2 other sectors of interest: Tomato Market Gardenings & Maternity Pig Farms



2 sectors with low potential currently: Poultry Farms & Post-Weaning/Fattening Pig Farms

Sources: Market Analysis I4F: [www.nweurope.eu/icare4farms](http://www.nweurope.eu/icare4farms)