



Solar Thermal Energy in Flemish Agriculture



AIM: presenting the Flemish 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: 9.6%

- Price of energies (2019):
- Photovoltaic: 0.032-0.15€/kWh
 - Electricity: 0.14€/kWh
 - Biomass: 0.05-0.06€/kWh
 - Natural gas: 0.04€/kWh

National Aids & Legal Framework for STE

- Flemish Climate Policy Plan 2021-2030
- Flemish agricultural investment fund (VLIF)
- Premiums from distribution grid operator
- Tax investment allowance

Milk-Fed Calves



- **Average Direct Consumption over 22-week (French Basis) :**
 - 152 kWh/calf (all activities/100%)
 - 108 kWh only for drinking (= 71%)

- **Holding :** Total: 250 farms (≈ 590 calves)
Target candidates for STE: whole sector seems eligible
- **Main Energy Used :** Fuel Oil / Natural Gas

KEY SECTORS FOR STE

Dairy Farms



- **Holding :**
Total: 5 606 farms with an average of 59 cows

Target candidates for STE with on-farm processing: 2214 farms with in average 113 cows

- **Water per day :**
between 200 & 500L/cow
- **Main Energy Used :**
Electricity

- **Average Direct Consumption :**
 - o 97 kWh kWh/cow = cleaning (22% all)
 - o 254 kWh/milk (L) for processing

Pig Farms



- **Holding :**
 - o Total: 3 731 farms (≈ 1563 pigs)
 - cf. 5.8 M pigs, including 392 000 sow
- **Average Direct Consumption :**
 - o Maternity stage: 729kWh/place (80%)
 - o Post-Weaning stage: 67kWh/place (79%)
- **Main Energy Used :**
Fuel Oil & Natural gas
cf. more and more, heat pumps

- **Holding (tomato & cucumber) :**
 - o Horticulture: 6683 holdings
 - o Market Gardening: ??
- **Average Direct Consumption :**
 - o Horticulture: 160kWh/m2/year
 - o Market Gardening: 317kWh/m2/year
- **Main Energy Used :** CHP ???

Greenhouse



2 particularly appropriate sectors: Milk-Fed Calf Farms & Dairy Farms



3 sectors with low potential currently: Poultry, Pig, farms & Greenhouses