# GREENHOUSES IN FRANCE

PRESENTATION OF THE SECTOR

Low carbon

Interreg North-West Europe ICARE4FARMS

European Regional Development Fund

## Distribution:

- Share of Total Production:
  - o Horticulture = young & nursery plants (34%), potted plants (20%) & bedding plants (17%)
  - o Market Garden = 467.6 ha in Brittany + 204.3 in Loire Valley
- Plants:
  - o Horticulture: 3308 companies = 16152ha (cf. 1105 ha glasshouses / 466 ha plastic tunnel)
  - o Market Garden: 1081.6 ha of tomato (88%) and cucumber (12%) cf. 951ha = 20% area = 80% tomato

# ENERGY NEEDS

## Average Energy Consumption:

- **Overal Sectoral Consumption:**

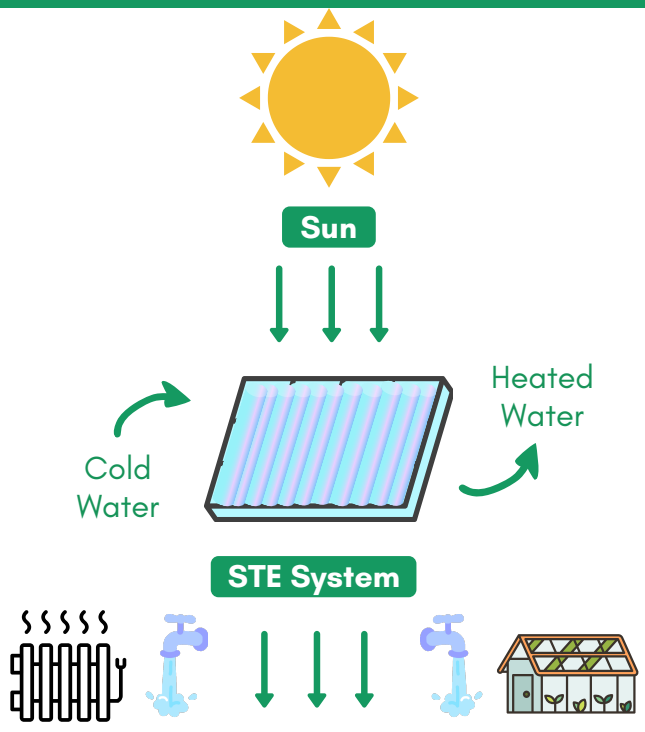
- 2 TWh/year (Maternity)
- 0.2-2 MWh/year (Market Garden) (23% of direct consumption cost)

- **Heating**: 160 kWh/m2/year (Horticulture) & 317 kWh/m2/year (Market Garden) (80% of total consumption)

- **Energy Source**:

- Cogeneration (55%) vs Gas only (16%) for Horticulture
- Cogeneration (50%) vs Biomass (14%) vs Industrial Hot Water (6%) for Market Garden

## MODELISATION OF FUNCTIONING




Heated Water cleans Milking Parlours & Milk Storage + serves for milk transformation

## POTENTIAL FOR SOLAR THERMAL ENERGY (STE)

**Hot Water in Greenhouses:**

- Daily needs & 1st Electric Consumption
- T° = 8-15°C (Horticulture) vs 15-23°C (Market Garden)

**Relevant Cases**: **Holdings below 1 ha with 10-20% of supplied needs**

- Deshumidification purposes
- Vegetable Greenhouse consuming 3.17 Millions kWh/year (for 1 ha)
- 80% of needs at night & 2/3 winter needs in summer

**Example**: **Typical Pig Farm (Maternity)**

- 1 ha supplied with 20% needs
- Heating the building ≈ 20°C
- 317kWh/m2/y => 634000kWh/year

Sources: Market Analysis I4F: www.nweurope.eu/icare4farms