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# Characteristics of organic dairy farm types in Europe

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# ORGANIC DAIRY HEALTH – an CORE organic project

**Over all aim:** To improve animal health and welfare through breeding and management in organic dairy milk production with special emphasis on udder and metabolic health

**One of the project hypothesis:** Breeding strategies for organic dairy production can be enhanced by taking into account characteristics of commercial and local/native breeds and their ability to adapt to local environments

Suitable management and breeding strategies depend on the production environment that the cows are producing in, i.e. farm- and production system characteristics.



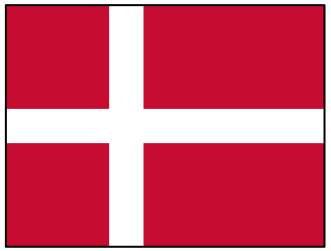

# WP 2 – Organic Dairy Farm types in different European countries

**Aim:** Establish a data base with information on the major organic dairy farm types in Europe to be used in other WP's in the project and as an information source in future research- and development projects.

- Database information should be useful as input case farms in economic simulations in SIMHERD and in genetic simulations in ADAM
- The database should include detailed information on major organic farm types, not aimed to describe all organic dairy farms in Europe

# WP 2 – Organic Dairy Farm types in different European countries

1. Identification of major farm types in project partner countries
2. Description of major farm types (detailed questionnaires)
3. Establishment of a database on organic dairy farm types in Europe




# 1. Identify major farm types

- In each country: identification of major organic dairy farm types based on four criteria: Herd size, Production level, Location and Housing.
- Identification based on information from national milk recording, breeding and organic certification organisations.
- Reliability in the information sources in each country was evaluated.

| Criteria | Variation | Class definition | Number of organic herds in relevant classes | Number of cows in relevant classes | Amount of milk produced in relevant classes | Information source | Reliability in data source (judgment of researcher) |
|---|---|---|---|---|---|---|---|
| **Herd size** | Variation (min, max, median and mean) | Large herd (XX-XX cows) | Large herd | Large herd | Large herd | | |
| | | Medium herds (XX-XX cows) | Medium herd | Medium herd | Medium herd | | |
| | | Small herds (XX-XX cows) | Small herd | Small herd | Small herd | | |
| **Production level (kg ECM per cow and year)** | Variation (min, max, median and mean) | Low production ( | Low production | Low production | Low production | | |
| | | Medium production | Medium production | Medium production | Medium production | | |
| | | High production | High production | High production | High production | | |
| **Location** | Describe relevant location differences in the country | Location 1 | Location 1 | Location 1 | Location 1 | | |
| | | Location 2 | Location 2 | Location 2 | Location 2 | | |
| | | Location 3 | Location 3 | Location 3 | Location 3 | | |
| | | Tie housing | Tie housing | Tie housing | Tie housing | | |
| **Housing** | How animals are kept | Loose housing in cubicles | Loose housing in cubicles | Loose housing in cubicles | Loose housing in cubicles | | |
| | | Loose housing deep litter | Loose housing deep litter | Loose housing deep litter | Loose housing deep litter | | |

# 1. Identify major farm types

| Austria | Denmark | Germany | Lithuania | Poland | Sweden | Switzerland |
|---|---|---|---|---|---|---|
| •A. Herd size small or small-medium, tie stall, alpine region<br>•B. Herd size small-medium or medium, tie stall, medium production area<br>•C. Herd size medium to large, loose housing, favourable production area<br>•D. Herd size medium to large, loose housing, medium production area<br>•E. Herd size medium, loose housing, alpine region<br><br>•*Data source: Central cattle data base and data base for genetic evaluation* | •A. Danish organic farm type<br><br>•*Data source: Central cattle data base and expert panel knowledge* | •A. Medium-scaled, low-medium-yielding farms, East DE<br>•B. Small-scaled, low-yielding farms<br>•C. Large-scaled and high-yielding farms<br>•D. Medium-scaled and medium-yielding farms in South-DE<br><br>•*Data source: Official national information, data from on-farm research projects, and expert panel knowledge* | •A. Territories less favourable for farming, tie housing and low herd size<br>•B Territories less favourable for farming, loose housing<br>•C. Territories favourable for farming, tie housing and low herd size<br>•D. Territories favourable for farming, loose housing<br><br>•*Data source: Organic certification organisation Ekoagros* | •A. Large herd size<br>•B. Medium herd size,<br>•C. Small herd size, alpine<br><br>•*Data source: Cattle data base and Agricultural and Food Quality Main Inspection.* | •A. Loose housed – milking parlour<br>•B. Loose housed – milking robot<br><br>•*Data source: Cattle data base and Organic certification organisation KRAV* | •A. Mountain areas, high input (intensive production)<br>•B. Mountain areas, low input (extensive production)<br>•C. Lowland regions, high input (intensive production)<br>•D. Lowland regions, low input (extensive production)<br><br>•*Data source: Official national data and expert panel knowledge* |

# 2. Description of major farm types

**Development of protocol for farm description on:**

- Basic information about the farm
- Housing and milking system
- Herd size and herd structure
- Production level
- Herd health status including preventive management (emphasis on udder and metabolic diseases)
- Feeding, pasture and fodder production
- Breeding strategy (breed(s), reproduction techniques etc.)

**Development of in depth questionnaire**

- Translated to native language
- Web or paper questionnaire, on farm interviews.
- At least 10 farms per farm type

# 2. Description of major farm types

**Questionnaire for the characterisation of the organic dairy systems in Switzerland 2014**

Please fill in the white fields

| | Questions | | | | | |
|---|---|---|---|---|---|---|
| **Basic information** | Name of the farmer | | | agricultural zone | | |
| | Date of questionnaire response | | | metres above sea level | | |
| | phone number | | | | | |
| | e-mail adress | | | | | |
| | farm location (Post code) | | | | | |
| **Housing** | **Housing and floors (multiple answers possible)** | | | | | |
| | ***Houing system*** | **Lactating cows** | **dry cows** | **heifers** | **calves** | |
| | e.g. loose housing, tied stall, Tretmiststalll,deep litter system etc. | | | | | |
| | outdoor run (space, proportion covered?) | | | | | |
| | others (please describe) | | | | | |
| | ***Resting area*** | **Lactating cows** | **dry cows** | **heifers** | **calves** | |
| | cubicle (please tick and fill in as appropiate) | raised/deep straw/no | raised/deep straw/no | raised/deep straw/no | raised/deep straw/no | |
| | rubber mat (yes/no) | | | | | |
| | concrete (yes/no) | | | | | |
| | litter (if yes, which material, e.g. straw, saw dust, sand etc.) | | | | | |
| | others (please describe) | | | | | |
| | ***Floor alley*** | **Lactating cows** | **dry cows** | **heifers** | **calves** | |
| | slatted (yes/no) | | | | | |
| | concrete (yes/no) | | | | | |
| | rubber mat (yes/no) | | | | | |
| | litter (if yes, which material, e.g. straw, saw dust, sand etc.) | | | | | |
| | others (please describe) | | | | | |
| | ***Floor feeding area*** | **Lactating cows** | **dry cows** | **heifers** | **calves** | |
| | slatted (yes/no) | | | | | |
| | concrete (yes/no) | | | | | |
| | rubber mat (yes/no) | | | | | |
| | litter (if yes, which material, e.g. straw, saw dust, sand etc.) | | | | | |
| | others (please describe) | | | | | |
| | **Milking system** | | | | | |
| | moblie single milking machine connected to milk line (yes/no) | | | | | |
| | milk parlor (yes/no) | | | | | |
| | milking robot (yes/no) | | | | | |
| | others (please describe) | | | | | |
| | **Dehorning** | | | | | |
| | dehorned animals (yes/no)? | | | | | |

# 3. Establishment of a database

- Common database (all countries) plus additional country specific extra information
- The common data base consists of 319 variables with detailed information on farm structure and size, production level, housing and milking system, animal health and management, feed production and feeding strategy, breeding and reproduction
- The data base is not capturing all organic dairy production in Europe, but describes characteristics of major organic dairy farms types in Europe
- Use of data:
  - On farm level as case farms in economic simulations in SIMHERD
  - On farm type level as input in building of breeding scenarios in genetic ADAM
  - General descriptions of farm types

# 3. Examples of farm characteristic information in the data base

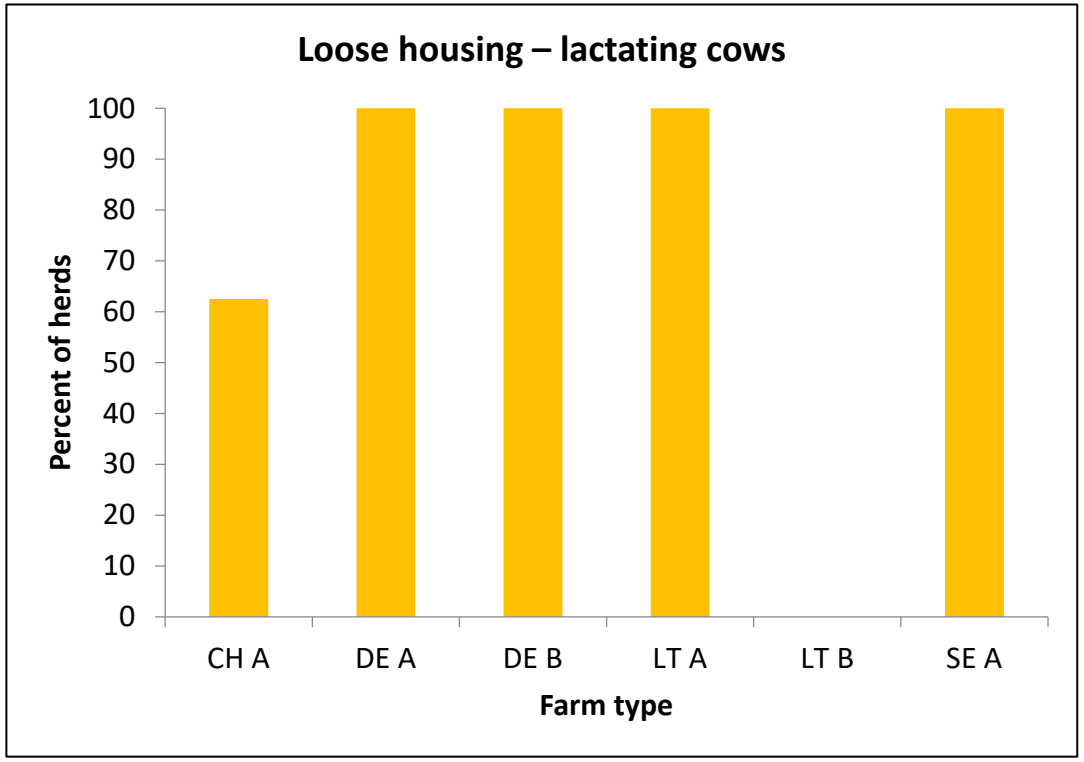
## Farm structure, size, production, animal health and feed production

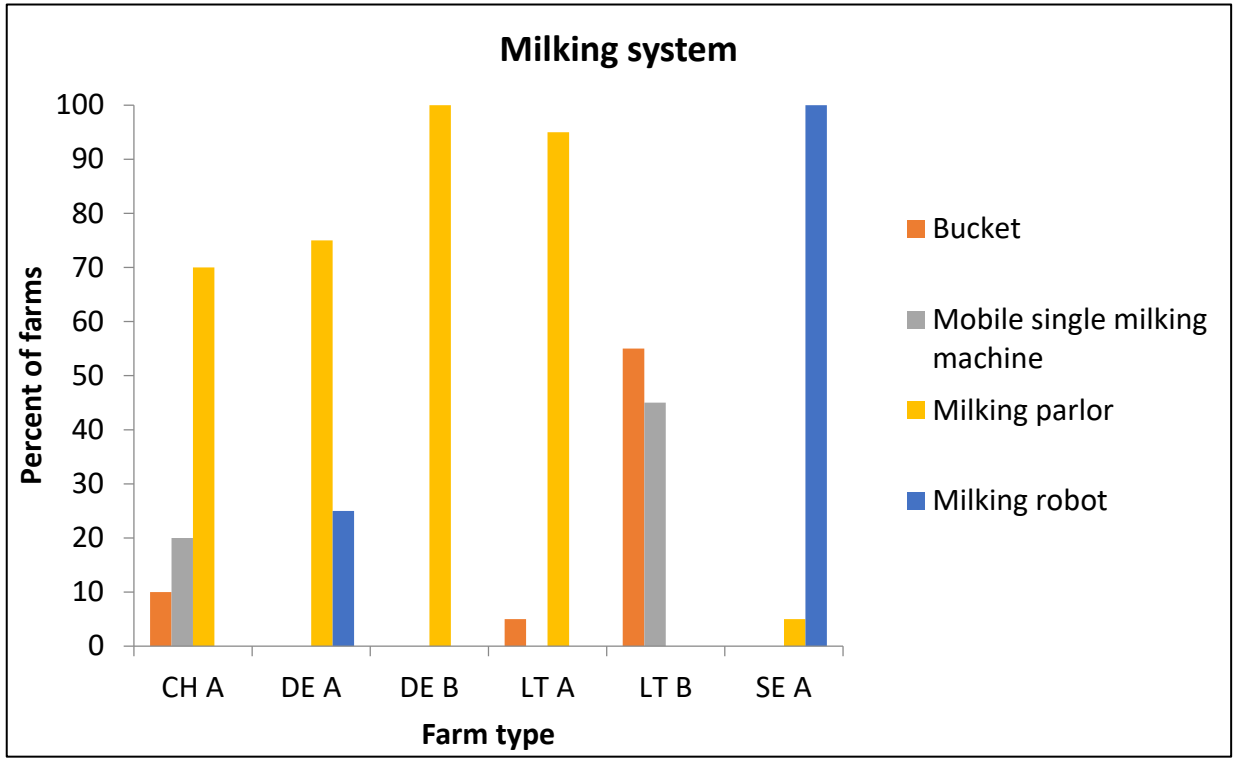
| Median, production year 2014 | Farm type | | | | | |
|---|---|---|---|---|---|---|
| | **SE A** | **CH A** | **DE A** | **DE B** | **LT A** | **LT B** |
| Average number of cows in production (lactating) | 70 | 17 | 98 | 28 | 72 | 28 |
| Percent 1st parity cows (%) | 30 | 24 | . | . | 19 | 17 |
| Arable land with crop prod. (ha) | 144 | 0 | 89 | 21 | 151 | 16 |
| Arable land with ley prod. (ha) | 80 | 0 | 53 | 16 | . | . |
| Pasture land on arable land (ha) | 18 | 0 | 0 | 0 | 141 | 55 |
| Semi-natural pasture (ha) | 15 | 26 | 73 | 44 | . | . |
| Herd milk level, average per cow (ECM) | 9200 | 7119 | 7658 | 5521 | 6097 | 5900 |
| Average herd milk protein content (%) | 3.4 | 3.3 | 3.2 | 3.4 | 3.3 | 3.3 |
| Average herd milk fat content (%) | 4.2 | 4.0 | 4.2 | 4.1 | 4.3 | 4.3 |
| Average SCC x 1000 | 205 | 170 | 241 | 230 | 230 | 250 |

+ information on disease cases, cow, heifer and calf mortality, preventive management of udder and metabolic diseases, feeding strategies (including typical summer and winter diets, and feeding technique) and pasture management.

# 3. Examples of farm characteristic information in the data base

## Farm housing and milking system




+ information on stable-, floor- types and straw types for all animal categories in the farm (lactating and dry cows, recruitment heifers and calves .

# 3. Examples of farm characteristic information in the data base

## Breeding and reproduction - Breeds used

| SE A | CH A | DE A | DE B | LI A | LI B |
|---|---|---|---|---|---|
| •Holstein<br>•Swedish Red<br>•Dairy cross<br>•Jersey<br>•Swedish mountain<br>•Dairy crosses | •Swiss brown cattle<br>•Braunvieh<br>•Simmental<br>•Original Braunvieh<br>•Original brown cattle<br>•Swiss Fleckvieh<br>•Holstein CH<br>•Dairy Crosses | •DSN (old German black & white breed)<br>•Holstein Friesian<br>•Angler<br>•Brown Cattle<br>•Jersey<br>•Nordic Red<br>•Dairy crosses | •Holstein Friesian<br>•Brown Cattle<br>•Angler red cattle old breed<br>•Fleckvieh<br>•RBDN (old German red & white breed)<br>•Dairy Crosses | •Holstein<br>•Lithuanian black and white<br>•Lithuainian red<br>•Ayrshire<br>•charolai<br>•Lithuainian ash-gray<br>•Swedish Holstein<br>•Dairy-Beef crosses | •Holstein<br>•Lithuanian black and white<br>•Lithuanian red<br>•Lithuanian ash-grey<br>•Dairy-Beef crosses |

| Median (min-max) | **Farm type** | | | | | |
|---|---|---|---|---|---|---|
| | **SE A** | **CH A** | **DE A** | **DE B** | **LT A** | **LT B** |
| Cows artificially inseminated (%) | 100 (10-100) | 100 (0-100) | 100 (30-100) | 80 (0-100) | 100 (23.5-100) | 100 (17-100) |
| Heifers artificially inseminated (%) | 100 (70-100) | 100 (0-100) | 100 (100-100) | 50 (0-100) | 100 (50-100) | 100 (0-100) |

+ information on calvings, proportion of inseminations and natural services with dairy and beef breed, information on breeding traits the farmer considered important when selecting bulls and general goals with breeding on the farm.

# Sum-up

- **Aim:** Establish a data base with information on farm characteristics of major organic dairy farm types in Europe to be used in economic and genetic simulations.
- Structured process to 1)identify and 2)describe major organic dairy farm types in seven European countries.
- Describes some of the most important characteristic similarities and differences between farms in organic dairy production in Europe, but not representative for all organic dairy production in Europe.