

# EuroDairy

A network of 120 innovating dairy farmers



This project has received funding from the European Union's Horizon 2020 research and innovation programme (ISIB-2015-1 programme) under grant agreement No 696364

# A network of 120 innovating dairy farmers

## **Submission date:**

January 2018

Update: January 2019

## **Names of the responsible authors and organisations:**

Valérie Brocard – Idele, Jocelyn Fagon (Idele), Pilar Merino (NEIKER), Jason Rankin (Agrisearch), Alberto Menghi (CRPA), Jouke Oenema (WUR), Ralf Loges (Ukiel), Maria Rey Campos (AGACA), Henrique Trinidad (UTAD)

## **Work package name:**

Network of innovating pilot farmers and Knowledge Transfer Centres

## **Dissemination level:**

Public

## **Deliverable:**

Deliverable 2.7: A network of 120 innovating dairy farmers

## **Annex:**

Short descriptions of pilot farms participating in EuroDairy networks

### *About EuroDairy*

EuroDairy spans 14 countries, from Ireland to Poland, and from Sweden to Italy, encompassing 40% of dairy farmers, 45% of cows and 60% of European milk output. EuroDairy is an international network to increase the economic, social and environmental sustainability of dairy farming in Europe. EuroDairy fosters the development and dissemination of practice-based innovation in dairy farming, targeting key sustainability issues: socio economic resilience, resource efficiency, animal care, and the integration of milk production with biodiversity objectives. EuroDairy is funded by the EU Horizon 2020 research and innovation programme under Grant Agreement No 696364.

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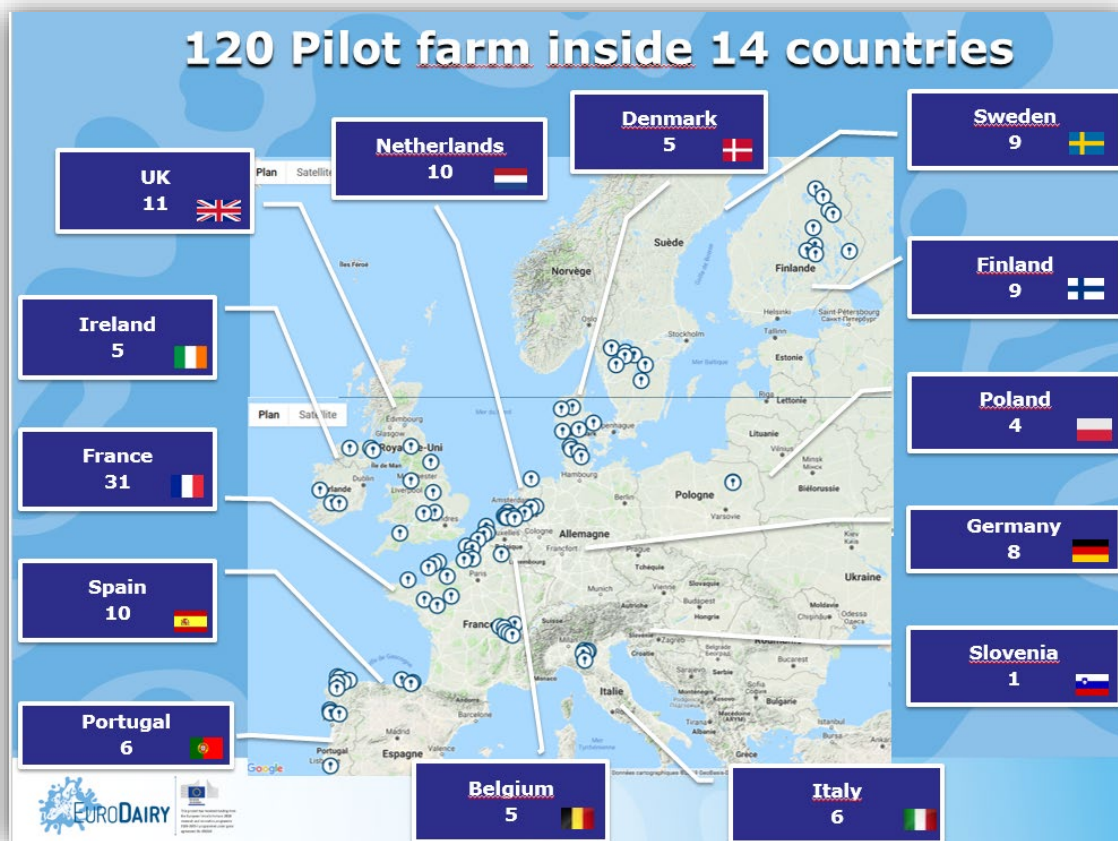
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## 1.0 Summary of deliverable

Across participating member states, 120 innovating pilot farmers have been identified and recruited to the project. These farmers are sources of innovative ideas, and as far as possible, have been chosen as good communicators to act as champions for the project, and to inspire other farmers through their own experiences. These farmers reflect a range of circumstances and farming systems: from high-input indoor systems, to low-input pasture based production. Regional differences in approaches to forage production, including variations in crop rotation, types of forages grown, fertilizer policy and harvesting methods provide a range of experience and measured performance levels which can be shared more widely. Pilot farms provide the practical context for further development, demonstration and dissemination of improved husbandry techniques.

This deliverable provides an inventory of the 120 farms, linked to one of the four technical work packages of the project: Resource efficiency (WP3), Biodiversity (WP4), Animal care (WP5) and socio-economic Resilience (WP6).

In addition to identifying innovation and best practice, financial performance and resource efficiency data has been collected from pilot farms for two years. Biodiversity audits have also been carried out on over a third of the farms. This gives a rich dataset with which to evaluate performance, and evidence the impact of best practice.

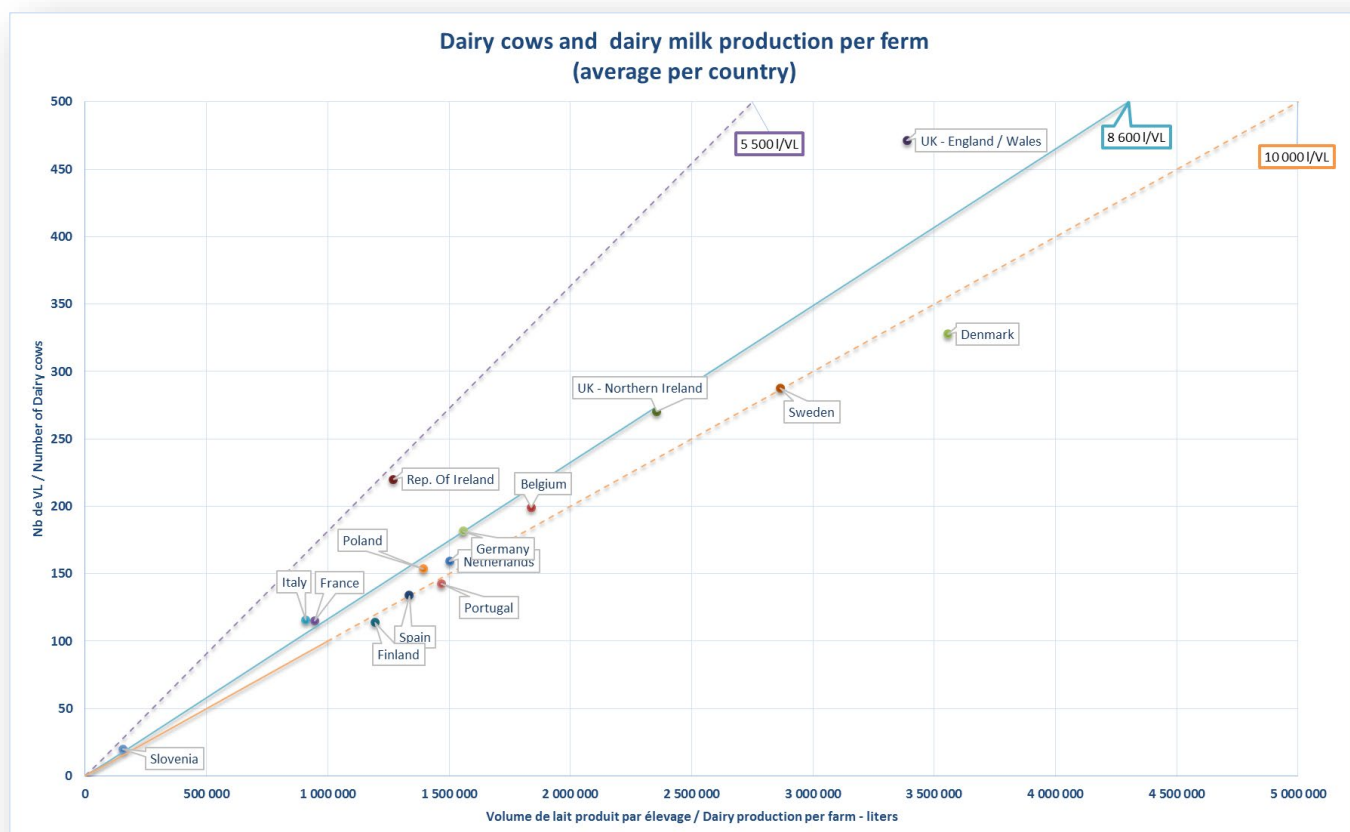




## 2.0 Overview of EuroDairy Pilot Farms

### 2.1 Some statistics

- 16 500 Ha dedicated to milk production
  - 10 000 ha Grasslands
  - 6 500 ha Arable Land
- 181 000 tons of milk produced in 2016
- 21 000 Cows
- 560 people directly involved in these farms
  - 230 farmers (family units)
  - 330 hired labour
- Average milk volume: 1,620,000 liters /farm
- Average dairy cows per farm: 183 cows/farm
- Ranging from 14 cows (in Poland) to 829 (in France)
- Average milk yield per cow: 8,600 liters/cow
- Range in farmed area 0 ha (in Denmark) to 962 ha (in Sweden)
- Range in stocking rate (cows/ha) : From 0.3 /ha (in Finland) to 5.8 /ha (in Portugal)



## 2.2 Distribution by EuroDairy theme



**WP 3: Ressource efficiency** (48 % - 57 farms)



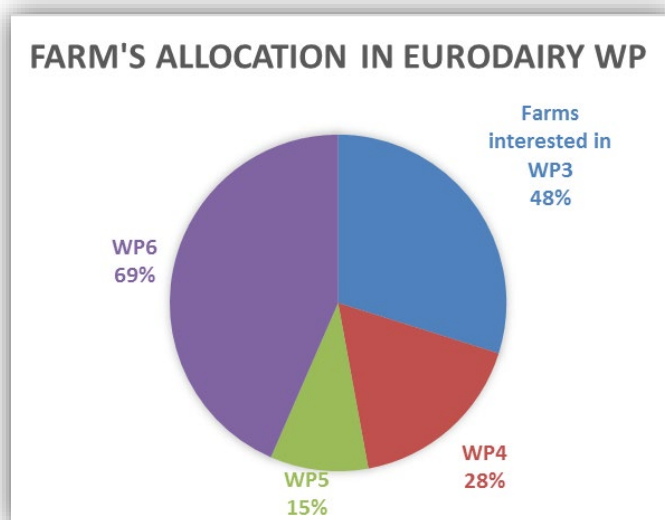
**WP 4: Biodiversity** (28% - 33 farms)



**WP 5: Animal care** (15 % - 18 farms)



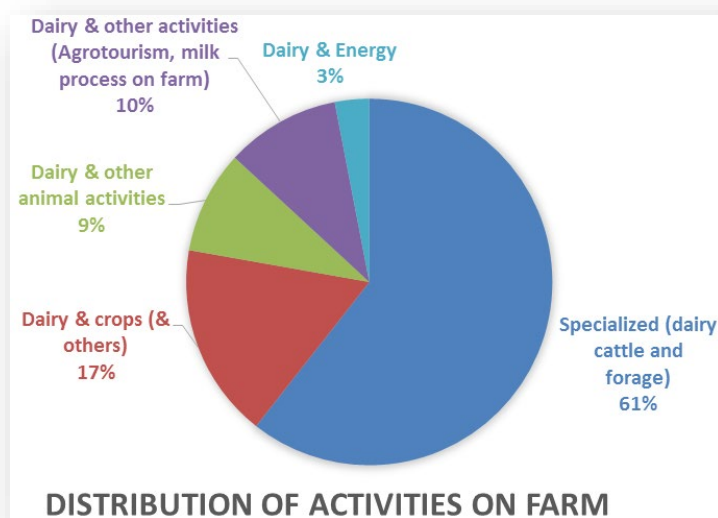
**WP 6: Socio-economic resilience** (69 % - 83 farms)



## 2.3 Type of enterprise

Farms were classified into 11 categories:-

- 60 % Pilot farm **specialised** on dairy production,
- 40 % with one or several **additional activities** per farm

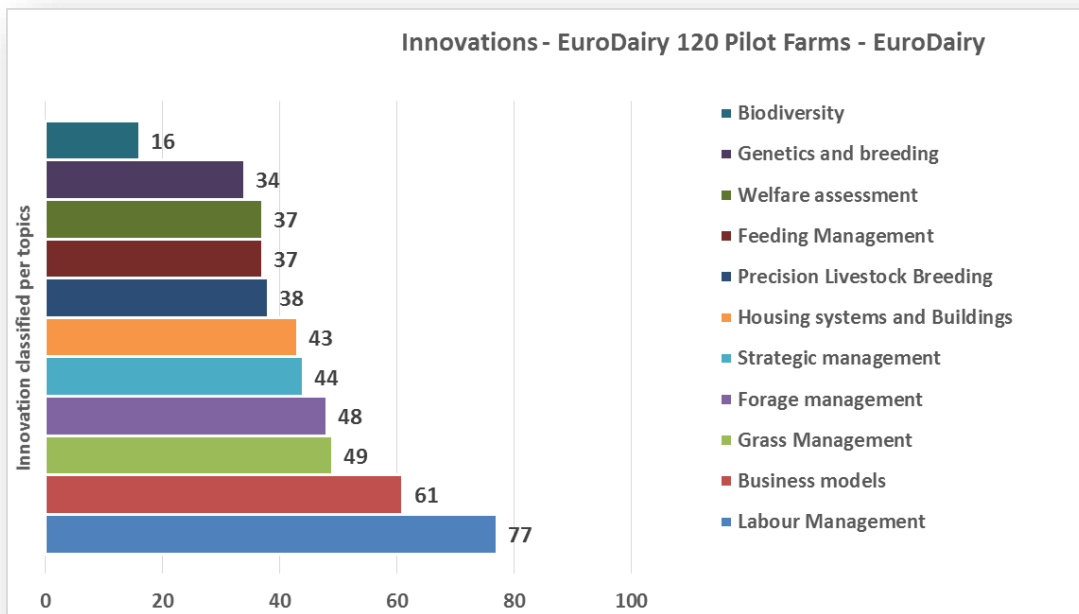


Other activities include

- 14 direct sales : (milk, yoghurt, cheese, ice cream, beef) & 1 with a collective farmers shop;
- 4 Agrotourism (farm visit, rural hostel, camping, café);
- 3 energy production (solar panel, Biogas)

## 2.4 Topics of innovation or best practice pursued

In the figure below illustrates the distribution of innovative activity by farm. The top subjects for innovation were Labour management, Business model, Grass management and Forage management.



## 3. Key words linked to innovation

Topics	Keywords	Detailed	Main topics connected to this keywords
<b>Social issues</b>	<b>Labour Management</b>	<i>Aims after Labour issues</i>	Reduction of workload, Saving time, Good working organization, Reduction of the painfulness, Mind load decreasing, Free time, Holidays
		<i>People Management/ Human Resource</i>	People employment, Staff management, Motivation, Recognition, Discussion, Responsibilities sharing, Leadership, Team building, Collective working organization, Cooperation, Flexible working time, Farming with associates/partners
		<i>Communication skills, Organisation tools</i>	Sharing informations with many partners, Regular meeting to organize and distributes tasks, Specific tools (sharing agenda, What's App, to do List, Whiteboard), Lean management, Standard operation procedures and protocols
		<i>Meeting / Training</i>	Training session, Relevant professional meeting, Local, national or international discussion group, Networks, Farms visit, Education and graduate programme, Continuous learning to develop new skills and decision-making autonomy
		<i>Delegate, Sharing workload and mind load</i>	Outsourced work to contractor, Employer alliances, Working bank to share hours and knowledge, Employ external staff to do some tasks, Collective investment to work with neighbours and develop your network
		<i>Technical levers to reduce workload, Simplification</i>	Grazing and pasture fields management, Block calving, Manage batch of animals to rationalise labour and to be focused on a few tasks, Simplify feed ration (reduce components, or one total mix ration for the all herd)
		<i>Equipment, Buildings, Precision livestock farming,</i>	Using Technologies and Robots to reduce workload, taking advantage from Data analyses to take decisions, Buildings investments or Building organization to optimize and save time, Manure transport with pipe
		<i>Societal issues</i>	Actions to improve or reinforce the image of dairy production (communication, display of cow's on the edge of roads, open days, article in local newspaper, Implement a system in link with citizens' demands, he is taking part in local groups to promote Social Responsibility.), Dairy production attractiveness (to be proud to be a dairy farmer), Externalities of dairy production, Animals/men relationship, Social sustainability indicators, Improve awareness and acceptance amongst consumers (direct contact with direct selling, farm shop, restaurant on farm)
		<i>Other social issues</i>	Family business, Very intensive labour force (1 man/woman alone), Farm transfer (social and human aspects),
<b>System and technical management</b>	<b>Feeding management</b>	Specific concentrates, GMO free ration, Early lactation feeding, Nutrient balance	
	<b>Grass management</b>	Grazing management, Grass based production with low concentrate input, Multisward pasture	
	<b>Forage management and Environmental issues</b>	Alternative forages production, Intensive production of forages, Manure management, Fertilizations, Different kind of forages, Catch crops, Crops rotation	
	<b>Welfare assessment</b>	Alternative treatments, Antimicrobials strategy, Preventive care, Mastitis treatments, Dry cow management, Heifers and calves management, Good practices to work with animals,...	
	<b>Genetics and breeding</b>	Breed selection, Cross breeding, Heats detection strategy	
	<b>Biodiversity</b>	High valued natural pastureland, reduction of of plant health molecules, maintaining biodiversity, Agroforestry and woodland pasture, hedges, Environmental Stewardship Scheme, higher plant biodiversity on field edges	
	<b>Precision livestock farming</b>	Robot (milking, feeding), New technologies (drones, data collector, sensors...)	



<b>Technology &amp; investment</b>	<b>Housing systems and Building</b>	Alternative housing, Sand bedding, Composted bedding, Hay dryer, Free barn with greenhouse roof, building investment, low cost buildings	
<b>Economy &amp; Strategy</b>	<b>Strategic &amp; Risk management</b>	Risk management, Lean management, Sharing knowledge, Slow build up/Fast Build up, Volatility management, Cooperative investment in machinery	
	<b>Business models</b>	<i>Financial management</i>	Business planning, Low cost system, Original fundings, Forecast tool, Budget tool, Farms merging, Farm's transfer (financial aspects), Key Performance Indicators use to manage the farm
		<i>Market intelligence</i>	Added value productions, Direct sale, Milk processing on farm, Organic farm
		<i>Diversification</i>	New agricultural activity, Forestry, Energy, Agro-tourism

## 4.0 Annex 1

Pilot Farm location and ID number					EuroDairy Work Package
N°	Pilot Farm's ID Number	Country	County / Local Area	City	WP Allocation
	<i>ID Number</i>				<i>WP 3 : Resource efficiency</i> <i>WP 4 : Biodiversity</i> <i>WP 5 : Animal care</i> <i>WP 6 : Socio-economic resilience</i>
1	ES-903	Spain	Bizkaia	Carranza	WP 4 : Biodiversity
2	ES-905	Spain	Alava	Azkoaga	WP 3 : Resource efficiency
3	ES-906	Spain	Alava	Aramaio	WP 3 : Resource efficiency
4	ES-904	Spain	Alava	Elosu	WP 3 : Resource efficiency
5	ES-19	Spain	LUGO	FRIOL	WP 3 / WP 6
6	ES-80	Spain	CORUÑA	IRIXOA	WP 3 / WP 6
7	ES-81	Spain	LUGO	POL	WP 3 / WP 6
8	ES-102	Spain	PONTEVEDRA	SILLEDA	WP 3 / WP 6
9	ES-101	Spain	CORUÑA	MIÑO	WP 3 / WP 6
10	ES-82	Spain	CORUÑA	FRADES	WP 3 / WP 6
11	IE-23	Rep. Of Ireland	Cork	Conna	WP 6 : Socio-economic resilience
12	IE-32	Rep. Of Ireland	Cork	Mallow	WP 6 : Socio-economic resilience
13	IE-31	Rep. Of Ireland	Cork	Crookstown	WP 6 : Socio-economic resilience
14	IE-03	Rep. Of Ireland	Cork	Kilworth	WP 6 : Socio-economic resilience
15	IE-40	Rep. Of Ireland	Cork	Doonbeg	WP 6 : Socio-economic resilience
16	UK-101	UK - Northern Ireland	County Tyrone (NI)	Omagh	WP 3 : Resource efficiency
17	UK-102	UK – NI	County Down (NI)	Kircubbin	WP 3 / WP 5
18	UK-28	UK – NI	County Down (NI)	Newtownards	WP 3 / WP 6
19	UK-25	UK – NI	County Tyrone (NI)	Omagh	WP 3 / WP 6

<b>N°</b>	<b>Pilot Farm's Name</b>	<b>Country</b>	<b>County / Local Area</b>	<b>City</b>	<b>WP Allocation</b>
20	IT-108	Italy	Emilia-Romagna	Parma	WP 4 : Biodiversity
21	IT-110	Italy	Emilia-Romagna	Reggio emilia	WP 4 : Biodiversity
22	IT-107	Italy	Emilia-Romagna	Reggio emilia	WP 6 : Socio-economic resilience
23	IT-106	Italy	Emilia-Romagna	Reggio emilia	WP 6 : Socio-economic resilience
24	IT-109	Italy	Emilia-Romagna	Reggio emilia	WP 6 : Socio-economic resilience
25	IT-93	Italy	Emilia-Romagna	Parma	WP 6 : Socio-economic resilience
26	NL-90	Netherlands	Noord- Brabant	Lage Mierde	WP 4 / WP 5
27	NL-91	Netherlands	Noord- Brabant	Moerstraten	WP 5 : Animal care
28	NL-92	Netherlands	Noord- Brabant	Achtmaal	WP 5 : Animal care
29	NL-93	Netherlands	Noord- Brabant	Goirle	WP 5 : Animal care
30	NL-94	Netherlands	Noord- Brabant	Rijkevoort	WP 6 : Socio-economic resilience
31	NL-95	Netherlands	Noord- Brabant	Gilze	WP 6 : Socio-economic resilience
32	NL-96	Netherlands	Gelderland	Winterswijk	WP 3 / WP 4
33	NL-97	Netherlands	Noord-Brabant	Moerdijk	WP 5 : Animal care
34	NL-98	Netherlands	Groningen	Niekerk	WP 4 / WP 5
35	NL-99	Netherlands	Gelderland	Silvolde	WP 3 / WP 4
36	BE-117	Belgium	Antwerp	Geel	WP 3 : Resource efficiency
37	BE-116	Belgium	Oost-Vlaanderen	Bassevelde	WP 3 / WP 4
38	BE-115	Belgium	Antwerp	Essen	WP 3 : Resource efficiency
39	BE-26	Belgium	West-Vlaanderen	Oudenburg	WP 4 / WP 6
40	BE-04	Belgium	West-Vlaanderen	Kortemark	WP 4 / WP 6
41	FR-918	France	Rhone-Alpes	Sandrans	WP 3 / WP 6
42	FR-919	France	Rhone-Alpes	Amplepuis	WP 3 / WP 6
43	FR-917	France	Rhone-Alpes	St-Clement les places	WP 3 / WP 6
44	FR-202	France	Rhone-Alpes	Massingy	WP 3 / WP 4 / WP 6
45	FR-921	France	Rhone-Alpes	Pouilly les nonains	WP 3 / WP 6

<b>N°</b>	<b>Pilot Farm's Name</b>	<b>Country</b>	<b>County / Local Area</b>	<b>City</b>	<b>WP Allocation</b>
46	FR-920	France	Rhone-Alpes	Soucieux en jarret	WP 3 / WP 6
47	FR-241	France	Rhone-Alpes	Luzinay	WP 3 / WP 4 / WP 6
48	FR-900	France	Bretagne/Brittany	Le Foeil	WP 3 / WP 6
49	FR-903	France	Bretagne/Brittany	St-Marc / couesnon	WP 3 / WP 6
50	FR-905	France	Bretagne/Brittany	Noyal sur vilaine	WP 3 / WP 6
51	FR-902	France	Bretagne/Brittany	Mahalon	WP 3 / WP 6
52	FR-906	France	Bretagne/Brittany	Langoelan	WP 3 / WP 6
53	FR-1218	France	Normandie / Normandy	Ryes	WP 6 : Socio-economic resilience
54	FR-203	France	Normandie / Normandy	Isigny Le Buat	WP 6 : Socio-economic resilience
55	FR-224	France	Normandie / Normandy	Fresne le plan	WP 6 : Socio-economic resilience
56	FR-1219	France	Normandie / Normandy	Ste Marguerite d'Elle	WP 6 : Socio-economic resilience
57	FR-1220	France	Normandie / Normandy	Savigny	WP 6 : Socio-economic resilience
58	FR-1217	France	Normandie / Normandy	Saint Hilaire la Gérard	WP 6 : Socio-economic resilience
59	FR-901	France	Hauts de France	Bethencourt/Mer	WP 4 / WP 6
60	FR-916	France	Hauts de France	Airaines	WP 4 / WP 6
61	FR-904	France	Hauts de France	Doudeauville	WP 4 / WP 6
62	FR-914	France	Hauts de France	Brias	WP 4 / WP 6
63	FR-908	France	Hauts de France	Fleurbaix	WP 4 / WP 6
64	FR-94	France	Hauts de France	Linselles (	WP 4 / WP 6
65	FR-915	France	Hauts de France	Raillimont	WP 6 : Socio-economic resilience
66	FR-907	France	Hauts de France	Pierrefite	WP 6 : Socio-economic resilience
67	FR-58	France	Pays de la Loire	Héric	WP 6 : Socio-economic resilience
68	FR-910	France	Pays de la Loire	La Tourlandry	WP 6 : Socio-economic resilience
69	FR-912	France	Pays de la Loire	L'herbergement	WP 6 : Socio-economic resilience
70	FR-911	France	Pays de la Loire	CHENU	WP 6 : Socio-economic resilience
71	FR-913	France	Pays de la Loire	Javron	WP 6 : Socio-economic resilience



<b>N°</b>	<b>Pilot Farm's Name</b>	<b>Country</b>	<b>County / Local Area</b>	<b>City</b>	<b>WP Allocation</b>
72	DK-35	Denmark	Region Midtjylland / Herning Kommune	Sørvad	WP 3 / WP 4
73	DK-20	Denmark	Region Midtjylland / Viborg Kommune	Rødekærsbro	WP 3 / WP 6
74	DK-23	Denmark	Region Syddanmark / Esbjerg Kommune	Ribe	WP 3 / WP 6
75	DK-55	Denmark	Region Sjælland / Kalundborg Kommune	Kalundborg	WP 5 : Animal care
76	DK-56	Denmark	Region Syddanmark / Middelfart Kommune	Gelsted	WP 3 / WP 6
77	UK-107	UK - England / Wales	Edenhall	Cumbria	WP 3 / WP 4 / WP 6
78	UK-109	UK - E/ W	Oadby	Leicestershire	WP 6 : Socio-economic resilience
79	UK-110	UK - E/ W	Hessay	York	WP 3 / WP 5 / WP 6
80	UK-40	UK - E/ W	Buckinghamshire	Bledlow	WP 3 : Resource efficiency
81	UK-70	UK - E/ W	Devon	Exeter	WP 4 / WP 5 / WP 6
82	UK-76	UK - E/ W	Cheshire	Tarporley	WP 3 : Resource efficiency
83	UK-108	UK - E/ W	Wiltshire	Swindon	WP 3 : Resource efficiency
84	FI-01	Finland	North Savo	Leppävirta	WP 3 / WP 4 / WP 5
85	FI-04	Finland	North Savo	Siilinjärvi	WP 3 / WP 4 / WP 5
86	FI-03	Finland	North Karelia	Valtimo	WP 3 / WP 4 / WP 5
87	FI-05	Finland	West Savo	Pieksämäki	WP 3 / WP 4 / WP 5
88	FI-02	Finland	Kainuu	Paltamo	WP 3 / WP 4 / WP 5
89	FI-16	Finland	Kainuu	Sotkamo	WP 3 / WP 4 / WP 5
90	FI-15	Finland	Pohjois-Karjala	Nurmes	WP 3 / WP 4 / WP 5
91	FI-18	Finland	North Carelia	Tohmajärvi	WP 3 / WP 4 / WP 5
92	FI-17	Finland	South Savo	Joroinen	WP 3 / WP 4 / WP 5
93	SE-067	Sweden	Västra Götaland	Tibro	WP 6 : Socio-economic resilience
94	SE-088	Sweden	Jönköping	Nye	WP 6 : Socio-economic resilience
95	SE-089	Sweden	Jönköping	Sävsjö	WP 6 : Socio-economic resilience
96	SE-125	Sweden	Västra Götaland	Vårgårda	WP 6 : Socio-economic resilience

<b>N°</b>	<b>Pilot Farm's Name</b>	<b>Country</b>	<b>County / Local Area</b>	<b>City</b>	<b>WP Allocation</b>
97	SE-127	Sweden	Jönköping	Tranås	WP 6 : Socio-economic resilience
98	SE-132	Sweden	Västra Götaland	Mellerud	WP 6 : Socio-economic resilience
99	SE-134	Sweden	Västra Götaland	Skara	WP 6 : Socio-economic resilience
100	SE-144	Sweden	Västra Götaland	Mellerud	WP 6 : Socio-economic resilience
101	SE-147	Sweden	Västra Götaland	Götene	WP 6 : Socio-economic resilience
102	PL-144	Poland	Mazowsze (Central Poland)	Ostrołęka	WP 3 / WP 4
103	PL-145	Poland	Mazowsze (Cental Poland )	Ciechanów	WP 3 / WP 4
104	PL-143	Poland	Śląskie	Opole	WP 6 : Socio-economic resilience
105	PL-57	Poland	Lodzkie	Brzeźnio	WP 6 : Socio-economic resilience
106	SL-01	Slovenia	Dolenjska	Trebnje	WP 4 / WP 5 / WP 6
107	PT-12	Portugal	Entre Douro e Minho region (Northwest)	Vila do Conde	WP 3 / WP 6
108	PT-01	Portugal	Entre Douro e Minho region (Northwest)	Póvoa de Varzim	WP 4 / WP 6
109	PT-10	Portugal	Entre Douro e Minho region (Northwest)	Amarante	WP 6 : Socio-economic resilience
110	PT-04	Portugal	Barcelos	Carvahal	WP 6 : Socio-economic resilience
111	PT-13	Portugal	Entre Douro e Minho region (Northwest)	Vila do Conde	WP 6 : Socio-economic resilience
112	PT-11	Portugal	Esposende	Fonte-Boa	WP 6 : Socio-economic resilience
113	DE-927	Germany	Schleswig-Holstein, D	Großbarkau	WP 3 : Resource efficiency
114	DE-929	Germany	Schleswig-Holstein, D	Ecklak	WP 3 : Resource efficiency
115	DE-113	Germany	Schleswig-Holstein, D	Wanderup	WP 3 : Resource efficiency
116	DE-45	Germany	Niedersachsen, D	Nendorf-Jengun	WP 3 : Resource efficiency
117	DE-76	Germany	Schleswig-Holstein, D	Borstel-Hohenraden	WP 3 / WP 6
118	DE-107	Germany	Schleswig-Holstein, D	Gelting	WP 3 / WP 6
119	DE-118	Germany	Schleswig-Holstein, D	Jübek	WP 3 / WP 6
120	DE-928	Germany	Schleswig-Holstein, D	Lindhöft, Noer	WP 3 : Resource efficiency

Key: WP3 = Resource efficiency. WP4 = Biodiversity. WP5 = Animal care. WP6 = Socio economic resilience





# Short descriptions of pilot farms participating in the EuroDairy network

Factsheets of the farms

January 2019



## **A European thematic network in support of a sustainable future for EU dairy farmers**

EuroDairy spans 14 countries, from Ireland to Poland, and from Sweden to Italy, encompassing 40% of dairy farmers, 45% of cows and 60% of European milk output

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# Foreword

Across 14 participating countries, EuroDairy established a network of 120 innovating dairy farms, to demonstrate innovation and best practice, and to push boundaries in the application of new knowledge.

The specific objectives for growing this network of Pilot Farms were, to:

1. Accelerate the uptake of best practice, through demonstration and exchanging knowledge, on four priority themes related to dairy farming (resource efficiency, biodiversity, animal care and socio-economic resilience)
2. Capture and/or stimulate further innovative practice in order to provide solutions, or overcome barriers to practical implementation
3. Bring together scientific and practice-based knowledge, into user-friendly formats and training materials
4. Disseminate this information widely to other European dairy farmers
5. Collate ideas from end-users for further innovation-driven research and policy development, and communicate these back to the European Commission.

Pilot farms were selected on the basis of being:

- Progressive, both in outlook and in the levels of performance currently being achieved
- Open to sharing experience and knowledge with others
- Still on a development path to further refine, improve or explore new ideas
- Credible with other farmers, good communicators

The EuroDairy sample of pilot farms is not representative of any particular country, or region. Drawing international comparisons based on the data is not the intention. Farm selection was designed to provide encouragement and inspiration to other farmers, operating in real life under a range of different conditions.

To get better insight into technical and financial performance, 120 Pilot Farms allowed two years farm data to be collected, validated and analysed, based on the European Dairy Farmers (EDF) cost of production model. More detailed data on resource efficiency were also collected to capture nitrogen, phosphorous and feed efficiency figures. In addition, over 40 farms participated in a separate audit, to determine physical and management features contributing to the biodiversity status of the farm.

In return, Pilot Farmers had the opportunity to engage in workshops, international exchanges, webinars and other activities organised by EuroDairy, where they could interact with other farmers and experts, to exchange knowledge and innovative thinking.

This booklet provides an overview of the diversity in dairy farming across Europe, reflected in the range of conditions and farming systems practiced by Pilot Farms: from high-input indoor systems, to low-input pasture-based production, regional differences to forage production, variations in crop rotation, types of forages grown, fertilizer policy and harvesting methods, approaches to animal husbandry, and connectivity with consumers.

This book contains 102 farm leaflets. For a variety of reasons, it was not possible to include a leaflet for each of the 120 farms contributing to the overall dataset. Farms are presented as much as possible in alphabetical order by country, with the location indicated on the map on page 9. Also a detailed map for each country is included.

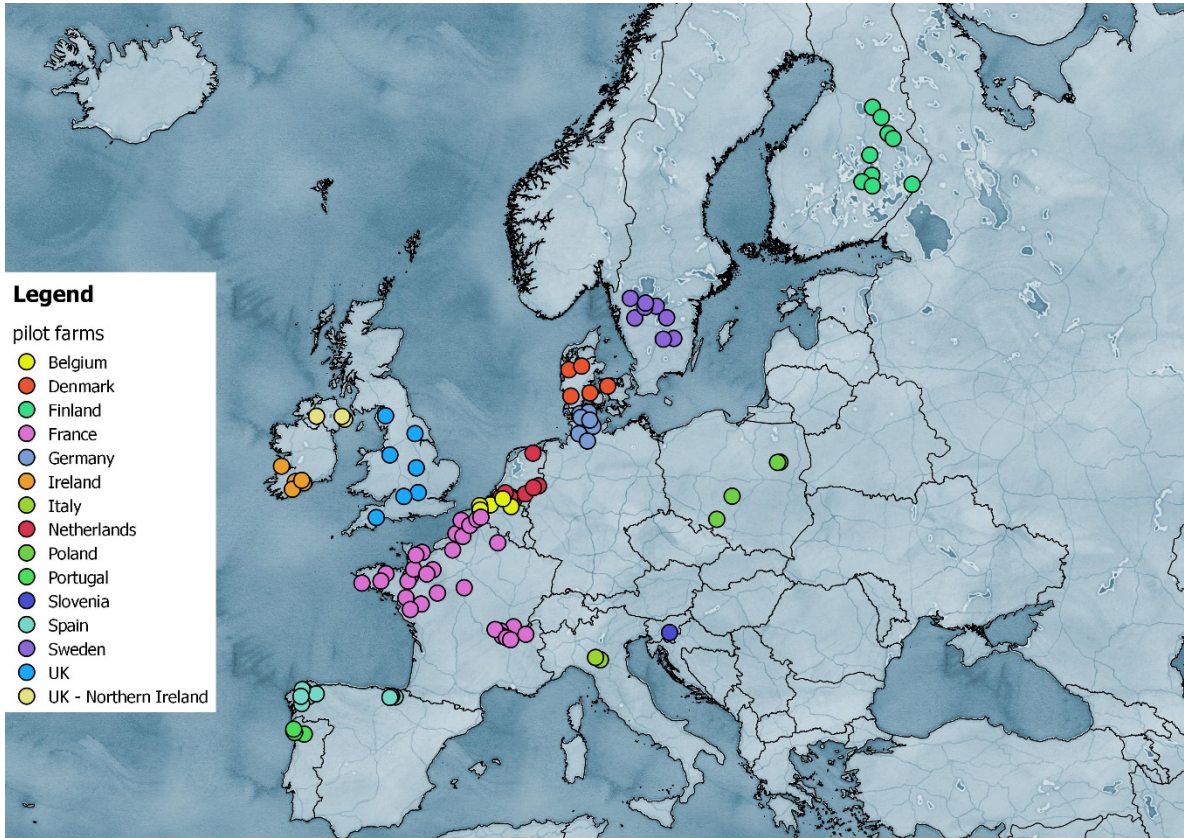
There are many different routes to profitable and sustainable milk production. We hope this collection of examples from innovating Pilot Farms will inspire confidence in the dairy farming community, and stimulate interest to learn more by visiting the EuroDairy website [www.eurodairy.eu](http://www.eurodairy.eu), where much more information is available in a range of different formats - webinars, videos, leaflets, leaflets, and reports – many based around our Pilot Farms.

#### Acknowledgements

The professionalism and generosity of Pilot Farmers to engage with the project, and to allow their data to be collected and used anonymously for the greater good of dairy farming, is gratefully acknowledged. Further thanks to EDF and its STAR network for their diligence and care in the collection and analysis of the data. EuroDairy is funded by the EU Horizon 2020 research and innovation programme under Grant agreement No 696364.

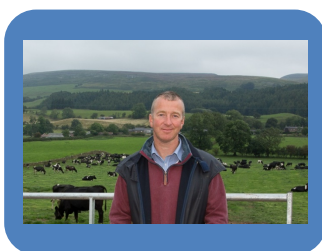


# Map of the pilot farms









**Robert Craig**  
 Dolphenby Farm  
 Penrith  
 Great Britain  
 2016

- The herd**
- 550 cross-bred cows
  - 140 home reared heifers
  - Spring 12 week block calving
  - 6,080 litres/cow/year
  - 4.88% fat and 3.87% protein
  - Average age at first calving: 24 months
  - 544kg milk solids/cow from only 817kg of concentrates per cow
  - Specialist rotational grazing system from early February until December
  - Stocking rate 2.57 livestock units/ha

- The farm**
- Specialist dairy farm
  - Workforce: Four full time + two relief milkers
  - 279 ha agriculture area
  - 227 ha grazing platform
  - Furthest paddock 2km from parlour

- Innovations**
- Progressive expanding business aiming to maximise milk from grass in a profitable simple system
  - KPI's are set and achieved to drive high production from grass
  - System depends on grazing through the year with in calf heifers outwintered on grass and monitored by regularly weighing
  - Some dry cows are managed on deferred grazing and silage bales before being housed in free stalls
  - Desired breeding traits include productivity, longevity and aggressive grazing
  - Heat observation is done by staff three times per day during the mating period
  - Staff management and motivation is delivered through regular attendance of courses and discussion groups
  - Their moto is 'simple and enjoyable 😊'

- Areas of interest/Aspirations**  
 Socio-economic resilience, Resource efficiency, Biodiversity
- Soil management
  - Externalities of farming and environmental impact
  - Optimise grassland productivity to grow 14 t DM grass/ha annually
  - Improve fertility parameters to achieve <10% empty rate
  - Create surplus heifer stocks to sell as bonus cash flow
  - Produce 11,000 litres/ha or 910kg milk solids annually





**Neil & Jane Dyson**  
 Holly Green Farm  
 Buckinghamshire  
 Great Britain  
 2016

**The herd**

- **500 Holstein cows**
- **120 home reared heifers**
- **9,000 litres/cow/year**
- **4.4% fat and 3.4% protein**
- **Milking three times/day**
- **Housed in free stalls with sawdust on mattresses**
- **Summer seasonal block calving**
- **Average age at first calving: 23/24 months**

**The farm**

- **Specialist dairy farm**
- **Has been in Jane's family for 100 years**
- **Workforce: 6**
- **210 ha Agriculture area**
- **170 ha arable land**
- **40 ha permanent grassland**
- **90 ha rented keep**



**Innovations**

- Attention to detail with **minimal use of technology**
- **0% mortality target** for replacement heifers reared in a **high bio-security unit**
- Graduate training programme to encourage **staff personal development**
- **Use of sexed semen** is being trialled and compared against non-sexed semen
- **Genomic breeding** is used on two-thirds of the herd. Traits for milk yield, solids and legs and feet are selected
- **Slurry separation** to exchange muck for straw with arable neighbour
- **Fresh calvers temperature and blood ketone levels are monitored**
- **Monitor dry cows urine pH** to balance Dietary Cation-Anion Balance (DCAB) diets to eliminate milk fever
- **Rumen fluid samples** taken to help balance feed rations
- **Scientific methodology** to calculate quantity of feed offered
- **In the top 10% of Arla farms for low carbon footprint** due to a biomass boiler, solar panels and rations soya exclusion

**Areas of interest/Aspirations**  
 Resource efficiency, Animal care, Socio-economic resilience

- *Staff management*
- *Animal health and welfare*
- *Use of standard operating procedures and protocols*
- *Continue to improve profitability and resilience by planning and regularly reviewing budgets*



**Roger, Judith & Tom Hildreth**  
 Curlew Fields Farm  
 Yorkshire  
 Great Britain  
 2016

### The herd

- **120 Pedigree Holstein cows**
- **All year round calving**
- **10,611 litres/cow/year**
- **Milk from forage: 4,480 litres/cow/year**
- **4.10% fat and 3.21% protein**
- **31 home reared genomic bred heifers**
- **Average age at first calving: 24 months**
- **Rotational grazing** in the summer
- **Housed in free stalls on deep sand**

### The farm

- **Specialist dairy farm**
- **Workforce: 2 family members**
- **70 ha Agriculture area**
- **32 ha arable land**
- **21 ha grazing platforms**

### Innovations

- **Achieving high levels of performance** for productivity and animal health.
- Part of an Arla group whose **KPI is to produce 1.5 times cow live weight in milk solids/year**
- **Innovative design of handling system** which increase animal **welfare** and **reduce stress** with only one operator
- **Genomic testing all heifers** at birth following an initiative through AHDB Dairy Calf to Calving campaign
- **Profitable Lifetime Index (PLI) is used** and favours lifespan and management traits. PLI averaging at 328 (**top 5% PLI**)
- Out of parlour feeders used **to control body condition** in the last trimester of pregnancy
- **Analysing slurry** to help prepare an accurate farm nutrient management plan
- **Slurry is applied via a shallow injector** on a trailing shoe
- **Selective dry cow therapy** has helped **reduce the use of antibiotics to 20%**
- **Monitoring carbon footprint** through an Arla initiative
- Investment in bird covers to **improve biodiversity**

### Areas of interest / Aspirations

Resource efficiency, Animal care,  
 Socio-economic Resilience, Biodiversity

- *Improving nutrition efficiency*
- *Application of genomic breeding*
- *Controlled traffic farming to improve grassland productivity and silage yield*
- *Expand slowly and sustainably*
- *Keep developing the farm with dry cow and calving pens planned in 2018*
- *Continue to focus on profit per cow place*





**Robert & Maria Mallett**  
 Northleaze Farm  
 Wiltshire  
 Great Britain  
 2016

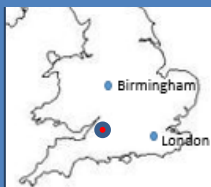
- The herd**
- **230 Pedigree Holstein cows**
  - **Seasonal autumn block calving**
  - **10,800 litres/cow/year**
  - **3.80% fat and 3.34% protein**
  - **60 home reared genomic heifers**
  - **Average age at first calving: 24 months**
  - **Milk from forage: 1800 litres/cow/year**
  - **Milking three times/day**
  - **Grazing high and low yielders March – October**
  - **Stocking rate 2.5 livestock units/ha**

- The farm**
- **Specialist dairy farm**
  - **Doubled** initial farm size
  - Workforce: 3 and 1 family member
  - **172 ha Agriculture area**
  - **73 ha arable land, 85 ha grazing platforms**

- Innovations**
- **Five grass silage cuts** taken from April to August to improve quality of home-grown forages
  - **All breeding on selected genomic bulls** for the last seven years.
  - Lifespan and milk production are desired traits.
  - **Artificial insemination is done by staff** using a computer mating programme for support to maintain high fertility rate
  - **Reseeding** regularly with latest varieties to improve grassland productivity. Currently growing 11.75 tonnes of grass DM/ha
  - **Farm nutrient management plan** updated regularly using the Nutrient Management Guide (RB209) and slurry analysis results to satisfy Nitrate Vulnerable Zone regulations
  - **Staff encouraged to attend relevant meetings** regularly through AHDB
  - **Heifers trained to graze** and consume large amounts of forage
  - **Desired growth rates are monitored** and achieved through regularly weighing
  - **Invested in a new ear tag activity programme** to collect behaviour data, monitor rumination and heat observations.

- Areas of interest/Aspirations**  
 Resource efficiency, Animal care  
 Socio-economic resilience
- *Start investigating succession planning*
  - *Aim to continue increasing capital growth*
  - *Staff Management*
  - *Grazing youngstock efficiently*
  - *Maximising use of home grown feed*





## Mary Quicke

Home Farm

Devon

Great Britain

2016

### The herd

- **600 cross-bred cows**
- **Managed as 2 separate herds:** 1 spring and 1 autumn block calving
- **Rotational grazing** from Feb-Dec
- **5,311 litres/cow/year spring herd** with 3,633 litres from grazed grass. **4.38% fat and 3.49% protein. Stocking rate 3.25 cows/ha**
- **6,400 litres/cow/year autumn herd** with 1,926 litres produced from grazed grass. **4.46% fat and 3.57% protein. Stocking rate 3.26 cows/ha**
- **Housed in free stalls with mats**
- **400 home reared heifers**
- **Average age at first calving: 24 months**

### Innovations

- **Mix of breeding**, Scandinavian Red, Kiwi Holstein, Kiwi Friesian, Friesian, Brown Swiss, Jersey and Montbéliarde, to achieve quality milk for cheese production
- Breeding for fertility, feet, milk quality and fat: protein ratio
- Introducing **herbal lays** onto the grazing platform to support sward growth in drought
- **Home-grown beans and crimped wheat are ensiled in forage clamps at harvest**
- Spring calving cows are **out-wintered** on forage and fodder beet (kale for young stock) with round grass silage bales
- Two herds provide **a level supply of milk for cheese production**, reducing the need for bought in milk
- **Environmental Stewardship Scheme** in place to protect biodiversity on 80 ha

### The farm

- **Specialist dairy farm**
- Has been in the Quicke's family for 14 generations
- **Produce award-winning** traditional cloth-bound cheddar which is sold globally
- **Workforce:** 8 full time & 4 part-time
- **560 ha Agriculture area**
- **180 ha arable land**
- **240 ha forming 3 grazing platforms**

### Areas of interest/Aspirations

Resource efficiency, Biodiversity  
Socio-economic resilience

- *Continue to improve self-sufficiency and sustainability by optimising home-grown forages*
- *Introduce another grazing platform and a third herd*
- *Water efficiency measures*



**Tom Rawson**  
 Houghton Lodge Dairy  
 Leicester  
 Great Britain  
 2016

- The herd**
- 800 cross-bred cows
  - Spring and autumn block calving
  - 5,000 litres/cow/year
  - Milk from forage 3,104 litres/cow/year
  - 4.75% fat and 3.65% protein
  - Average age at first calving: 24 months
  - Rotational grazing system February to November
  - Stocking rate 2.55 cows/ha

- The farm**
- Specialist dairy farm
  - Workforce: Five full time and in hand machinery operations
  - £1 million of seed capital invested to bring life back to a redundant dairy unit
  - 428 ha agriculture area
  - 273 ha grazing platform

- Innovations**
- Innovative business model involving share capital and crowdfunding
  - Two new **24:48 swing over parlours**
  - Borehole - £30,000 digging project found **water at 100m down**
  - **20,000 concrete sleepers** at £5.05 each for cow tracks to improve infrastructure
  - Infrastructure of more than **40km of electric fencing** invested to set up paddock grazing
  - **Reseeding ground** previously laid to arable
  - **Grass is key to keep cost low** however meal can be fed through parlour feeders
  - **Landlord provides the straw** in exchange for manure and help with cleaning out.



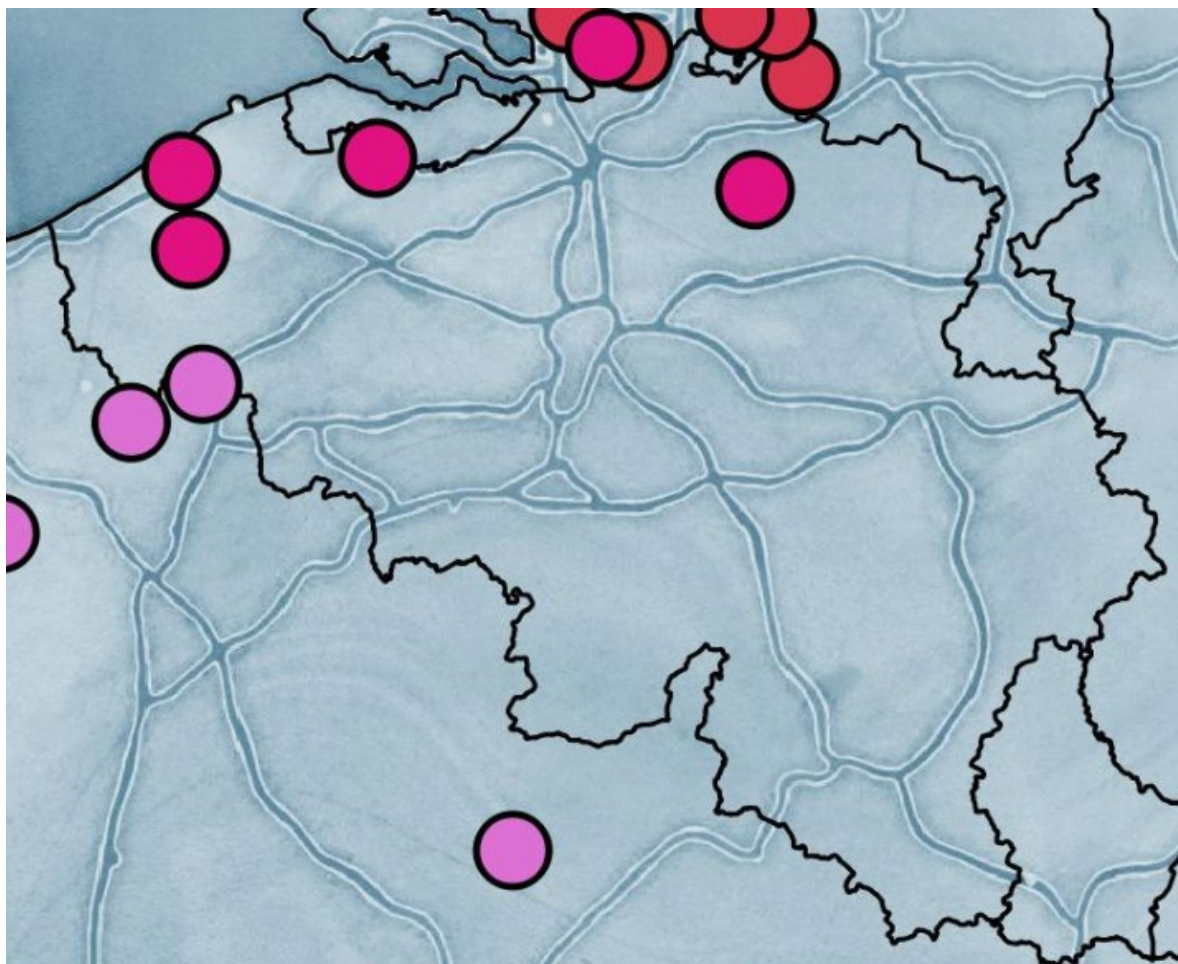
- Areas of interest/Aspirations**  
 Socio-economic resilience
- *New business models*
  - *20% return on tenant's capital*
  - *19% profit retained after rent and finance*
  - *Mature cows yielding their body weight in milk solids*
  - *Reduce concentrate use to 700kg cow/year*
  - *Build up to 1,000 cows*
  - *Increase milk from forage to 3,500 litres/cow/year*
  - *2018 year business profit of at least 8 pence/litre*



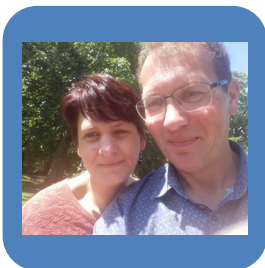
## 2 Belgium



Location of the Pilot farmers







**Geert Buysse**  
 Buysse LV  
 Bassevelde  
 Belgium

**The herd**

- 79 cows
- 65 young cattle
- 580,000 litres/year

**Innovations**

- Focus on **cost management: low input combined with a high margin** on his milk
- Used to produce for short chain but decided to become a **specialist dairy farmer**

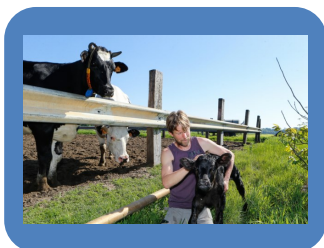
**The farm**

- **Specialist dairy farm**
- 14 ha of grassland
- 24 ha of silage maize
- 9 ha of field crops: 4,5 ha fodder beet and 5 ha potatoes



**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
 Socio-economic resilience, Animal care



**Cis Oostvogels**  
Essen  
Belgium

- The herd**
- 100 cows
  - 102 young cattle and bulls
  - 860,000 litres/year
  - Grazing 120 days a year

- Innovations**
- Runs company on his own
  - **Grassland management without ploughing**
  - Uses **grass clover** as field crops
  - Crossing with the **special variety of Black Angus**
  - Short chain: sale of meat
  - Aims to **build a drainage system that can function as an irrigation system** in the summer



- The farm**
- **Specialist dairy farm**
  - 40 ha of grassland
  - 20 ha of silage maize
  - 14 ha of **field crops** including: corn, grass clover, fodder beet, alfalfa, white and red clover

**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care





**The Peeters Family**  
 Peeters Group LV  
 Geel  
 Belgium

**The herd**

- **630 cows**
- **422 young cattle** and bulls
- More than **7,150,000 litres/year**
- Using a **carousel** as a milking machine

**Innovations**

- Work together with **seven family members**, all of them have their own capabilities and responsibilities
- Also work with **external staff**
- **Focused on effective feeding**
- A part of their **young stock** is housed in **The Netherlands**
- They are participating in a **Delta-test program** for heifers of CRV

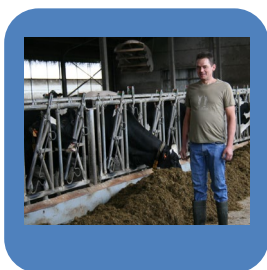


**The farm**

- **Specialist dairy farm**
- **88 ha of grassland**
- **145 ha of silage maize**

**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
 Socio-economic resilience, Animal care



**Koen Sap**  
Kortemark  
Belgium

- The herd**
- 90 cows
  - 65 young cattle
  - 10,000 litres/cow
  - 900,000 litres/year



- The farm**
- Specialist dairy farm
  - 15 ha of grassland
  - 2,25 ha of grass clover
  - 18 ha of silage maize
  - Circa 2 ha of field crops



- Innovations**
- Runs the company on his own
  - Introduced **block calving** on his farm to spread work
  - **Exchanges the use of land** with a neighbour, a horticulturist
  - Likes to **experiment**, for example has tried '**compact**' feeding
  - **Automatic calf feeder** to make it more comfortable to feed his calves

**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care



## Geert Van Hecke

Van Hecke-Cornu  
Oudenburg  
Belgium

### The herd

- **Mixed farm** – cows and pigs
- **81 cows**
- **65 young cattle and bulls**
- **740,000 litres/year**



### Innovations

- Strategy of the company is to operate a **mixed farm** – cows and pigs – to **spread risks and to become more socio-economically resilient**
- **Focus on good entrepreneurship:** maximum utilisation of labour forces, forages, infrastructure, etc.
- **Cooperative investment in machinery** – purchasing together with neighbour
- **Family business** with a family culture

### The farm

- **37 ha of grassland** (15 ha in a natural area)
- **19 ha of silage maize** (a part is grain maize for the pigs)
- **12 ha grains** (winter wheat and winter barley)

### Areas of interest/Aspirations

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care

# 3 Denmark



Location of the Pilot farmers







## Martin Madsen

Myredalsgård  
Svallerup Landevej 8  
4400 Kalundborg  
Denmark

### The herd

- **210 cows**
  - **39% Holstein** (purebred core)
  - **12% Holstein x Viking red** (2<sup>nd</sup> cross)
  - **28% Holstein x Viking red x Jersey** (3<sup>rd</sup> cross)
  - **21% Holstein x Jersey x Viking red** (3<sup>rd</sup> cross)
- **All year-round calving**
- **11,054 kg ECM per cow/year**
- **3 times milking per day**

### Innovations

- **Systematic 3-breed crossbreeding** (combi cross)
- **Focus on leading**
  - Works with **Lean and Standard Operating Procedures**
- **Experimented with “shredlage” cracker in maize**
- **Optimising the settings** in the milking parlour to **increase milking efficiency**

### The farm

- **350 ha land**
  - **1/3 for roughage** (mainly maize and a little clover grass)
  - **2/3 for crops for sale** (grass for seed, corn, rapeseed)
- **Works on the farm together with his wife and four employees**



### Areas of interest/Aspirations

Socio-economic resilience, Animal care



## Dick Millenaar

Pogagervej 8  
7550 Søvad  
Denmark

### The herd

- 300 Holstein cows
- Dairy production based on grass
- All year-round calving
- 11,298 kg ECM per cow/year
- Average age at first calving: 25.4
- Cows housed in free stalling

### Innovations

- Want to make **local grass-based milk with a story**
- **Grass management with a plate meter**
- Old grass fields relative to normal Danish conditions
- **Many “foderkontroller”** (feed check - calculation of parameters and key figures on the feed eaten by the cows)
- **Facilitates events “close to the cow”**

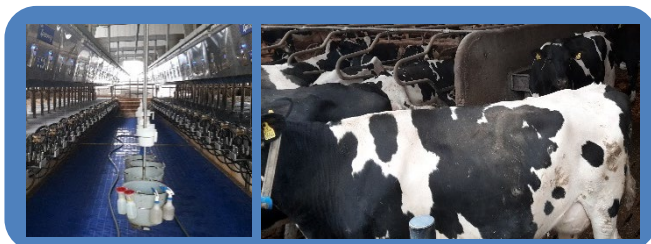
### The farm

- **240 ha cold and wet land**, suitable for grass and beets
- **Land centred around the farm**
- **Grazing when possible** according to weather
- **Grazing 7.3 kg DM in average (2017)**
- **Mixture of rye grass, clover and timothy** on the grass fields
- **Grass field renewed after eight years**
- **Prioritises** a work environment with a **positive atmosphere and energy**



### Areas of interest/Aspirations

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care



**Ralf Sanderink**  
 Hedegårdsvej 8  
 6760 Ribe  
 Denmark

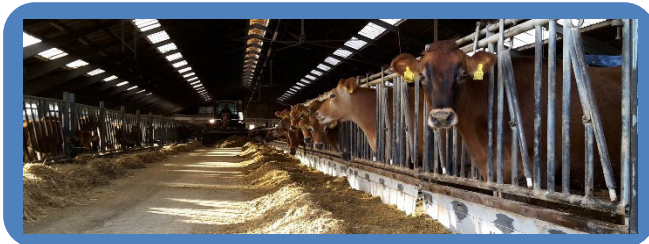
- The herd**
- 620 Holstein cows
  - All year-round calving
  - 11,409 kg ECM per cow/year
  - Average age at first calving: 25.0 months
  - Cows housed in free stalling

- Innovations**
- Feed mixer with data-connection to the Danish Herd Management system. Giving daily “foderkontrol” (calculation on parameters and key figures on the feed eaten by the cows)
  - Follow-up on production economics each quarter with “KPO”
  - Focus on logistics with cows close to the farmhouse
  - Focus on a high amount of roughage and increasing yield in a new production system

- The farm**
- 470 ha
  - Business based on three units, joined all lactating cows on the main unit with a new milking parlour
  - 10 employees



**Areas of interest/Aspirations**  
 Socio-economic resilience



## John Trædholm

Dyregårdsvej 2  
5591 Gelsted  
Denmark

### The herd

- 230 Jersey cows
- 9,463 kg ECM per cow/year
- All year-round calving
- Average age at first calving: 22.4 months
- Hit by *Mycoplasma Bovis* in the beginning of 2018
  - Back on track after 10 months with major losses

### The farm

- 200 ha land including 50 ha rented land
- 4 employees
- Cow house for 2,000 enlarged in 2007
- Old machine house changed to calving and care section



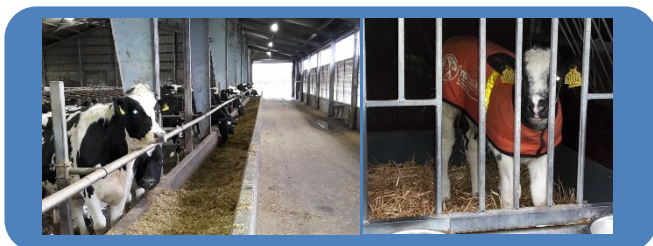
### Innovations

- Production on the field is done by sub-contractor
  - All land is rented out to the sub-contractor
  - All roughage is bought from the sub-contractor
- Feed mixer with data-connection to the Danish Herd Management system. Giving daily “foderkontrol” (calculation on parameters and key figures on the feed eaten by the cows)

## Areas of interest/Aspirations

Socio-economic resilience





**Sjoerd Ydema**  
 Fårup Overgaard  
 Fårupvej 7  
 8840 Rødkærsbro  
 Denmark

- The herd**
- **450 Holstein cows**
  - **All year-round calving**
  - **11,095 kg ECM per cow/year**
  - **Average age at first calving: 25.4 months**
  - **Cows housed in free stall**
  - **Milking:** Three times a day
  - **Feeding:** Grass, maize, protein mix and NaOH treated rye

- Innovations**
- **Biogas on farm** – delivering energy to Arla
  - **Feed mixer with data-connection to the Danish Herd Management system. Giving daily “foderkontrol”** (calculation on parameters and key figures on the feed eaten by the cows)
  - **Super on-farm logistics**
  - Uses **UNIFORM-Agri** to control the separation gates
  - Uses **beef semen on many cows** to produce good meat calves
  - Uses **calf blanket**

- The farm**
- **Three locations in the business:**
    - Cows unit (with calves)
    - Heifer unit
    - Biogas unit
  - **Seven employees and two owners**
  - **550 ha**
  - **Subcontractor for all the work on the field** – buying all roughage from the subcontractor

**Areas of interest/Aspirations**

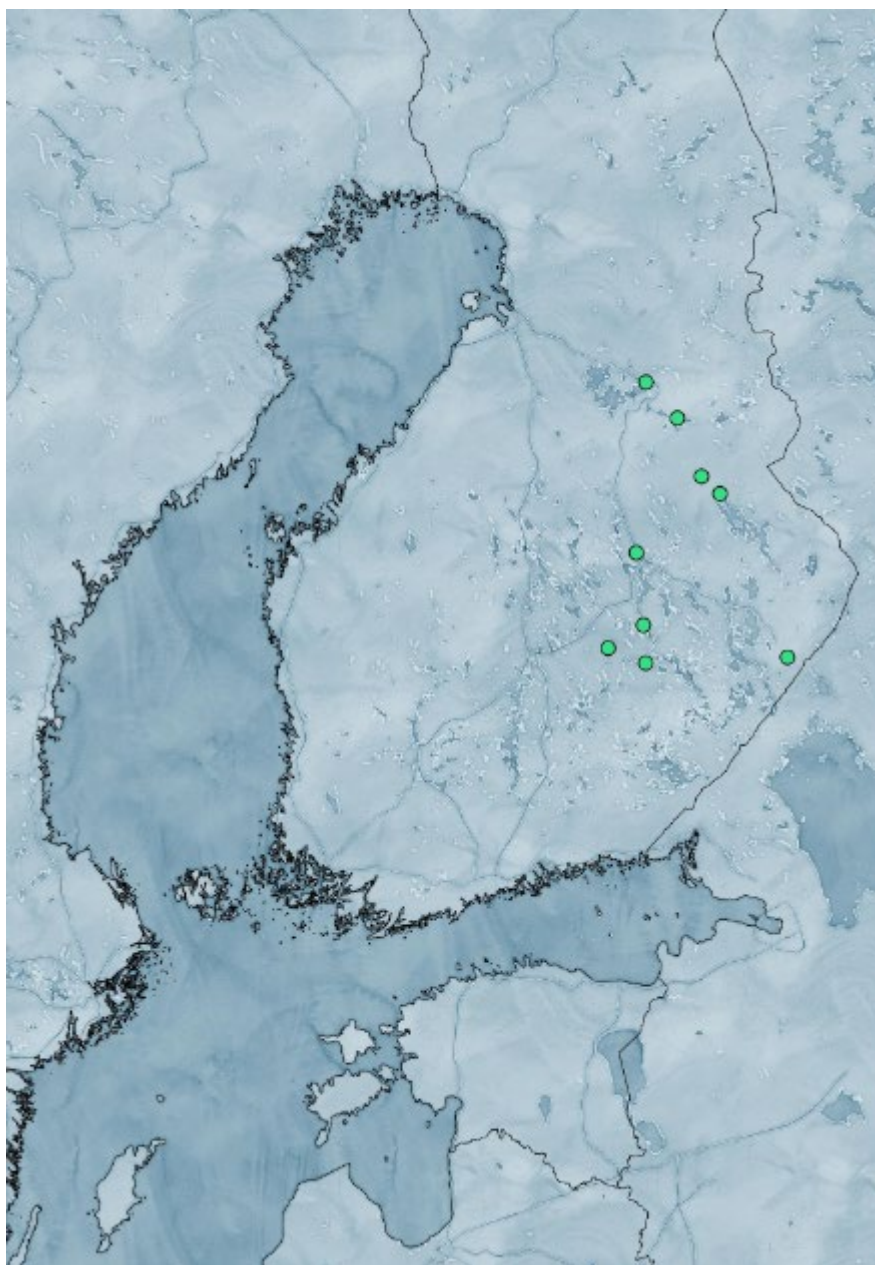
Resource efficiency,  
 Socio-economic resilience, Animal care



# 4 Finland



Location of the Pilot farmers





**Niina & Hannu Gröhn**  
 Pasola  
 Nurmes  
 North Karelia  
 Finland

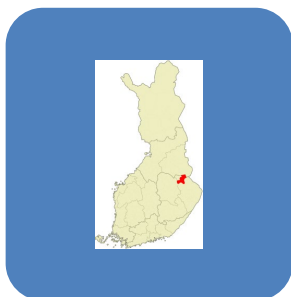
- The herd**
- **69 dairy cows and 61 dairy heifers**
  - **Breeds:** Holstein and Ayrshire
  - **Age at calving:** 24.5 months
  - **Automatic milking system** (one robot)
  - **Milk to dairies** 726,000 kg
    - 12,000 kg ECM/cow/year
    - Milk fat: 4.05%
    - Milk protein: 3.48%

- The farm**
- **Arable area 150 ha** of which **120 ha on grass**
    - Mixture of timothy, meadow fescue, and clover
  - **Three grass silage cuts** per year typically
    - Silage stored in round bales with own machinery
  - **Workforce:** Two family workers and one hired

- Innovations**
- **Collaboration** with contractors improves efficiency
    - E.g. manure spreading
  - Farm invests in **efficient grass production and management**
    - Good forage quality
    - Grassland area quite large in relation to the number of animals → opportunity to sell the feed
  - **Dry cows** outside during summer
    - good conditions for cows during the dry period
  - **Importance of bedding material** in cubicles
    - Bedding twice a day with peat
    - Better udder health and cleanliness, less skin alterations
  - **Crimped grain** used as a part of dairy cows' feeding
    - Simplifies grain harvesting in autumn

**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care



## Arto ja Teija Hämäläinen

Timola  
Valtimo  
North Karelia  
Finland

### The herd

- **Organic milk producer**
- **78 cows and 64 heifers**
- **Breeds:** Holstein and Ayrshire
- **Age at calving:** 25 months
- **Automatic milking system** (one robot)
- **Milk to dairy:** 720,000 kg
  - 11,000 kg ECM/cow/year
  - Milk fat: 4.19%
  - Milk protein: 3.24%

### The farm

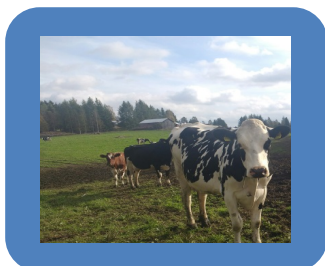
- **Arable area 240 ha** of which **160 ha on grass** (organic)
- Usually **two grass silage cuts** per year
  - Grass is mixture of timothy, meadow fescue and clovers
  - Silage stored in round bales with own machinery
- **Whole crop silage used as part of the feeding**
  - Green peas and oats
- **Workforce:** Two family workers and one hired

### Innovations

- Farm invests in **efficient grass production and management**
  - Good forage quality
  - -> high milk production and high milk fat and protein %
- **Cows have part time access to pasture during summer**
  - Positive effects on claw health and reproduction
  - Winter paddock also under consideration
- **Group calving pen with peat bedded pack**
  - Good and restful area for calving
- An **automatic system for animal health and fertility monitoring**
  - The system measures automatically milk progesterone, urea, BHB and lactase hydrogenase enzyme content
- **Network and collaboration with crop farmers**
  - Facilitates labour availability and makes work more efficient

## Areas of interest/Aspirations

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care



**Ari Lajunen**  
 Koivumäki  
 Tohmajärvi  
 North Karelia  
 Finland

**The herd**

- **Organic milk producer**
- **200 cows and 150 heifers**
- **Breeds:** Holstein and Ayrshire
- **Age at calving:** 25 months
- **Milking** two times a day, 2x14 side-by-side parlour
- **Milk to dairy:** 1,445,000 kg
  - 9,500 kg ECM/cow/year
  - Milk fat: 4.1%
  - Milk protein: 3.3%

**The farm**

- **Arable area 250 ha** of which **180 ha** on grass (organic)
- Usually **two grass silage cuts** per year
  - Grass is mixture of timothy, meadow fescue, perennial ryegrass and clover
  - Silage stored in concrete silos
- **Whole crop silage** included in the feeding
  - Wheat, oat, barley, spring rye-wheat
- **Concentrate feeds** purchased outside
- **Workforce:** 4-5 fulltime workers

**Innovations**

- **Cooperation with contractors in silage harvesting**
  - Less need to invest into own machinery chain
    - saves costs
- **Invests for cows' lying and resting comfort**
  - Good stall structures enable easy movements
- **Good management and care of animals lead to** good animal health and low veterinary costs
- **Cows have part time access to pasture during summer and to a paddock during winter**
  - Positive effects on claw health and reproduction
- Cows have **an automatic system for feeding time measurements**
  - Health monitoring

**Areas of interest/Aspirations**

Resource efficiency  
 Socio-economic resilience, Animal care





## Anna and Jussi Lappalainen, Juha-Pekka Lappalainen

MTY Lappala  
Siilinjärvi  
North Savo  
Finland

### The herd

- **230 dairy cows and 100 heifers**
- **Breed:** Holstein
- **Age at first calving:** 25 months
- **Automatic milking system** (four robots)
- **Milk to dairy:** 1,510,000 kg
  - 11,800 kg ECM/cow/year
  - Milk fat: 4.29%
  - Milk protein: 3.51%

### The farm

- **Arable area 302 ha** of which **224 ha on grass**
- **3 grass silage cuts** per year
  - Silage stored in silos and round bales
- **Workforce:** Five family workers and 1 hired

### Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience,  
monitoring of working hours,  
Animal care

### Innovations

- **Co-operation with contractors improves efficiency**
  - Grass silage harvesting and manure spreading
- **Umbilical slurry system**
  - In the spring slurry can be applied earlier to the grass
- **Heifers in a separate building**
  - More space and possibilities for grouping in the dairy barn  
→ Adequate facilities increase cows' welfare; e.g. own department for cows in transition period
- **Long-term health breeding** in cattle
  - Focuses e.g. udder health management and genetic progress
- **Recycled manure solids (RMS)** used as bedding material
  - Own separator -> cost savings in bedding material
  - The spreading of the slurry is easier when it is mostly separated
- **Deep bedded** free stalls
  - Less skin ulcerations and clean cows, improved cow comfort
- **Colostrum quality** testing
  - Only good quality colostrum for the newborn calves  
→ Good base for growth and development





## Jussi Moilanen

Alila  
Paltamo  
Kainuu  
Finland

### The herd

- **70 cows and 40 heifers**
- **Breeds:** Holstein and Ayrshire
- **Age at first calving:** 26.6 months
- **Milking** two times a day, herringbone parlour (transition to an automatic milking system currently in progress)
- **Milk to dairy:** 610,000 kg
  - 10, 000 kg ECM/cow/year
  - Milk fat: 4.20%
  - Milk protein: 3.42%

### The farm

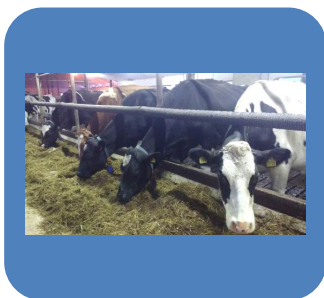
- **160 ha** agriculture area
- **130 ha** grassland
- **2-3 grass silage cuts** per year
  - Grass is mixture of timothy, meadow fescue and tall fescue
  - Silage stored in round bales with own machinery
- **Whole crop silage** included in the feeding (dry cows and heifers)
- **Workforce:** Two family workers

### Areas of interest/Aspirations

Resource efficiency, Biodiversity  
Socio-economic resilience, Animal care

### Innovations

- **Efficient grass production and management**
  - Good forage quality
  - Feed samples collected on a regular basis
    - facilitates correct ration formulation for cows
- Promotion of **animal welfare** seen as a part of **resource efficient milk production**
- **Deep-bedded stalls with sand** contribute to animal welfare
  - Animals are clean and skin lesions have decreased compared to the previous bedding material and stall structures
- **Herding dogs** used for assisting the driving and handling of animals → work flow effective
- Cows **graze** part time during summer and **go out also during winter**
  - Heifers on a traditional biotope through summer – enhanced biodiversity
  - Positive effects on claw health and reproduction
- Farm land **biodiversity** taken into account in many
  - Permanent ways grasslands; natural pastures and meadows; perennial green fallows; protection zones; agroforests and woodland pasture



## Pekka Poikolainen & Jouko Poikolainen

Toukola  
Pieksämäki  
South Savo  
Finland

### The herd

- **115 dairy cows and 65 dairy heifers**
- **Breeds:** Holstein and Ayrshire
- **Automatic milking system** (two robots)
- **Age at first calving:** 25 months
- **Milk to dairy:** 1,260,000 kg
  - 11,900 kg ECM/cow/year
  - Milk fat: 4.14%
  - Milk protein: 3.46%

### The farm

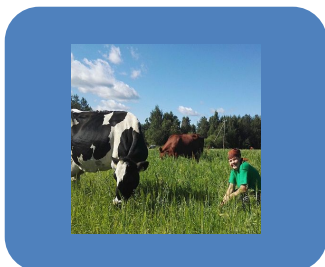
- **Arable area 135 ha** of which **80 ha on grass**
  - Grass mostly mixture of timothy, meadow fescue, perennial ryegrass and clover
- **Three silage cuts per year**
  - Silage stored in round bales (biological preservative)
- **Whole crop silage** also used as a part of the feeding
- **Separate feeding** (belt feeder for forage)
- **Workforce:** Three family workers

### Innovations

- **Efficient grass production and management**
  - Forage quality very good
  - Round bales and forage mixer enable homogeneous silage for cows
  - Co-ownership of machinery in silage harvesting chain with other farmers saves costs
- **Heifers on a contract farm**
  - More space and possibilities for grouping in the barn  
→ Adequate facilities increase the welfare of cows
  - Own department for dry cows (with water beds)
- **Extended lactation** as a management tool
  - High milk yield and lactation potential (milk yield of primiparous cows > 11,000 kg)
  - Dry-off during high production level not necessary

### Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience, Animal care



## Anna & Matti Rönty

Iivonlahti  
Sotkamo  
Kainuu  
Finland

### The herd

- **77 dairy cows**
- **Heifers** raised on a contract farm
- **Breeds:** Holstein and Ayrshire
- **Age at first calving:** 24.5 months
- **Milking** two times a day, a herringbone parlour
- **Milk to dairy:** 703 903 kg
  - 10 000 kg ECM/cow/year
  - Milk fat: 4.52%
  - Milk protein: 3.56%

### The farm

- **Arable area 160 ha** of which **75 ha on grass**
- Barley, oats and wheat harvested as **whole crop silage**
- **2 grass silage cuts** typically per year
  - Silage stored in silos and round bales
- **Workforce:** Three family workers and 1.5 hired

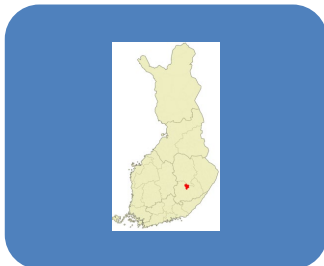
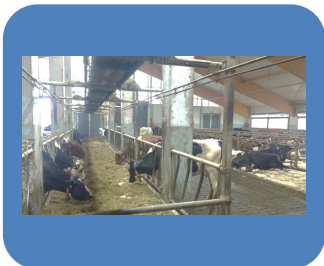
### Innovations

- **Co-operation with the contractors improves efficiency**
  - Grass silage harvesting
  - Manure spreading
- **Heifers on a contract farm**
  - More space and possibilities for grouping in the barn  
→ Adequate facilities increase cows' welfare
  - Own department for dry cows
- **Cows graze during summer and go outdoors also in winter**
  - Positive effects on claw health and reproduction
- **Calves are handled a lot at young age**
  - Farm arranges weekly a cowclub for children, where kids can play with cows and calves, and are familiarised with milk production
  - Animals are easier to handle also when they are adults

## Areas of interest/Aspirations

Resource efficiency, Biodiversity, Socio-economic resilience

- *Extended lactation as a management tool in dairy farm*
- *Rearing dairy cow and calf together; what are the economical impacts*
- *Monitoring of working hours*



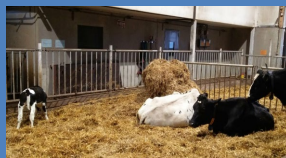
**Sari & Jouni Sikanen**  
 Mäntykangas  
 Joroinen  
 South Savo  
 Finland

- The herd**
- **87 dairy cows and 90 dairy heifers**
  - **Breeds:** Holstein and Ayrshire
  - **Age at calving:** 27.6 months
  - **New barn** built in 2014
  - **Automatic milking system** (two robots)
  - **Milk to dairy:** 750,000 kg
    - 10,000 kg ECM/cow/year
    - Milk fat: 4.33%
    - Milk protein: 3.6%

- Innovations**
- **Cooperation with contractors in silage and maize harvesting**
    - Less need to invest into own machinery chain
    - → saves costs
  - **Innovative automatic feeding system**
    - Stationary mixer wagon mixes TMR automatically nine times / day
  - **Efficient use and management of workforce**
    - With a small workforce good economic results
  - **Use of maize in feeding**
    - a good addition for dairy cows' feeding and crop rotation (?)
  - **Cows have an automatic system for heat and rumination time measurements**
    - Helps with heat and health monitoring

- The farm**
- **Arable area 115 ha** of which **66 ha on grass**
  - **3 grass silage cuts** typically per year
    - mixture of timothy, meadow fescue, perennial ryegrass and clover
  - **Silage contracted** by neighbour (forage harvester and concrete silos)
    - Heifer feed in round bales
  - **Whole crop silage and maize** used also in the feeding
  - **Workforce:** Field work managed by Jouni and paid workers; barn work managed by Sari

**Areas of interest/Aspirations**  
 Resource efficiency,  
 Socio-economic resilience, Animal care



## Heikki Havukainen, Anni, Henna and Kari Tiitinen

Pajuharju  
Leppävirta  
North Savo  
Finland

### The herd

- **97 cows and 54 heifers**
- **Breeds:** Holstein and Ayrshire
- **Age at calving:** 25.5 months
- **Milking** two times a day, herringbone parlour
- **Milk to dairies:** 933,500 kg
  - 10,000 kg ECM/cow/year
  - Milk fat: 4.26%
  - Milk protein: 3.46%

### The farm

- **Arable area 110 ha** of which **80 ha on grass**
- **Grass is established** with barley or mixture of wheat and peas  
→ harvested as **whole crop silage** and used as feed for young stock
- **Three grass silage cuts** per year typically
  - Silage stored mainly in horizontal silos
- **Separate feeding**, Five concentrate feeders
- **Workforce:** Three family workers

### Innovations

- **Long cooperation history with contractors and silage harvesting**
  - Silage made by contractor's forage wagon
  - Saves farmer's time
  - No need to invest in own machinery, which saves costs
- Cows have **free access to pasture** during summer
  - Positive effects on claw health and reproduction
- **Dry cows in their own separate building**
  - Uninsulated bedded pack barn gives good conditions for cows in transition period
  - More space and possibilities for grouping in the dairy barn
- **Reserve potassium analysis** from soil guides potassium fertilisation
  - Proper fertilisation response brings economical benefits

### Areas of interest/Aspirations

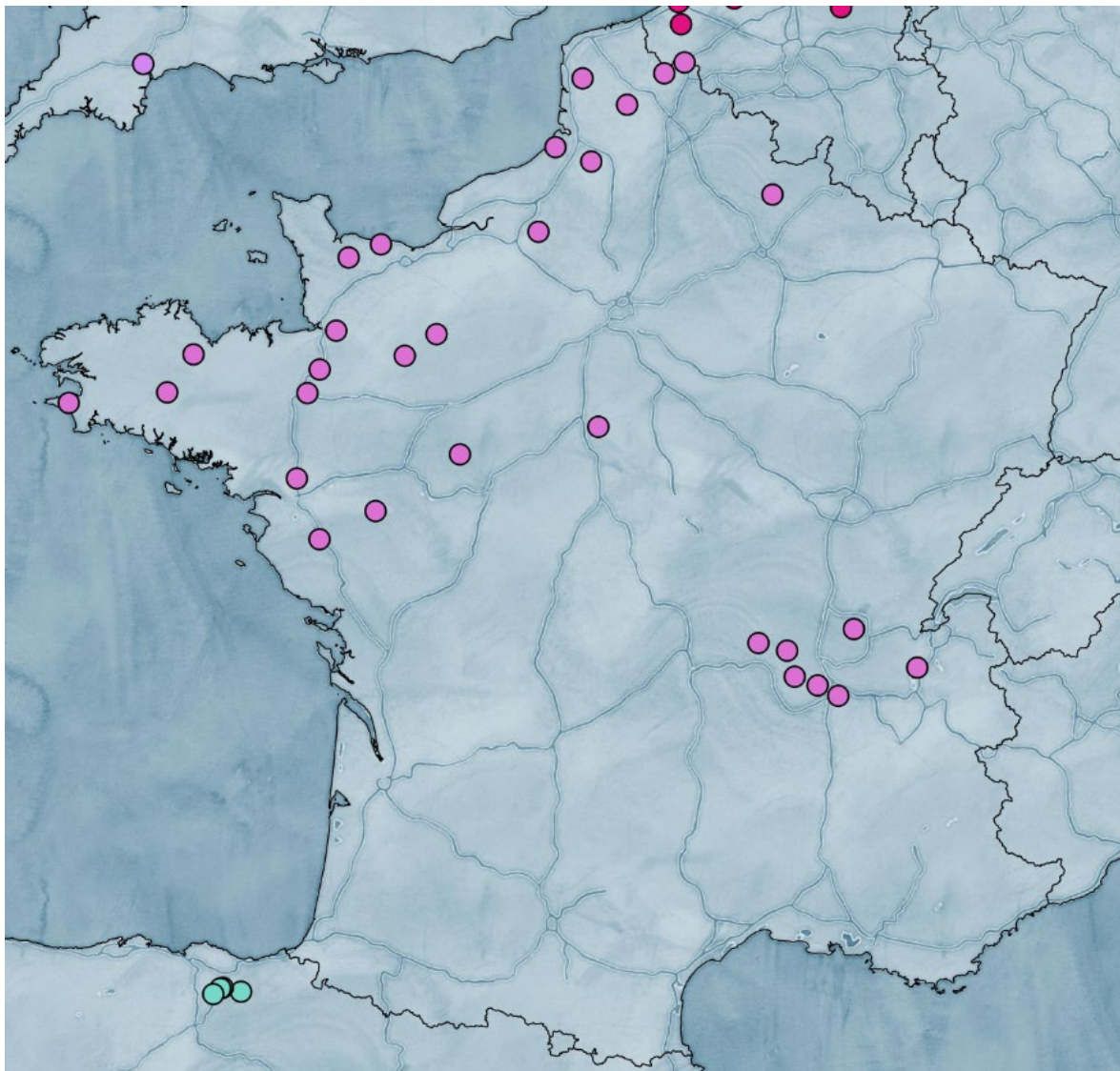
Resource efficiency,  
Socio-economic resilience, Animal care



# 5 France



Location of the Pilot farmers





## Aurélie et Rodolphe Cauchard

EARL de la Landerie  
Savigny  
Normandie  
France  
2016

### The herd

- **120 dairy Livestock Units (LU)**
- **74 dairy cows** and 63 dairy heifers
- **Breeds:** Normande (100%)
- **Age at first calving:** 28 months
- **463,000 kg of ECM milk produced**
  - 99% sold
  - 4.45% fat and 3.80% protein
- 6,256 kg ECM/cow/year (milk yield)
- 5,787 kg ECM milk per ha forage area
- **Stocking rate:** 1.5 LU /ha forage area
- 172 g kg<sup>-1</sup> ECM concentrate feed intake
- **Parallel parlour:** Two desks x six stations

### The farm

- **Workforce:** Two (full time)
- **Specialised dairy farm**
- **82 ha Agriculture area**
- **80 ha fodder area:**
  - 62 ha grassland (77% FA)
  - 18 ha maize silage (33% FA)

### Innovations

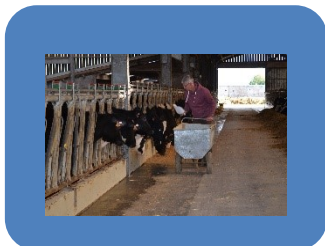
*“Improve food and protein self-sufficiency”*

- **Innovations mainly focused on improving grazing management**
- **Rotational grazing** to get some rules to manage grasslands and improve their quality
- **Milk quality:** Improve milk quality by having a complete “normand” breed herd
- **Look after added-value on farm:** Repair and renovate barns to take advantage of their building heritage.
- **Tourism:** Improve accommodation (as a swimming-pool) on the farm to welcome people in their rural area.

### Areas of interest/Aspirations

Socio-economic resilience

- *Improve self-sufficiency by optimising and diversifying home-grown forages*
- *Develop tourism*



**Amaury Smets**  
 EARL Ferme de la Clarine  
 Linselles  
 Hauts-de-France  
 2016

- The herd**
- **110 dairy Livestock Units (LU)**
  - **73 Dairy cows (Holstein)**
  - **Herd replacement rate: 44%**
  - **Calving period:** From May to January
  - **Age at first calving:** 28 months
  - **625,000 kg of ECM milk produced**
    - 96 % sold
    - 3.90% fat and 3.13% protein
  - **Stocking rate:** 3.1 LU per ha forage area
  - **Milking parlour:** 2 desks x 6 stations
  - **Sleeping area on 80 cubicles**

- Innovations**
- **Simplified herd management**
  - **Key Performance Indicators** used to manage the farms' results
  - Search for **balance between work and personal life**
  - **Search for added value:** Processing a part of the milk production in yoghurt and ice cream
  - **Commitments in favour of environment:** reduction of health plant molecules, maintaining biodiversity

- The farm**
- **Workforce: 3.8 WU**
    - 2 farmers (partners)
    - 1.8 WU (employees)
  - **Agricultural area: 67 ha**
    - Maize (silage): 25 ha
    - Grasslands: 11 ha
    - Cereals: 14 ha
    - Sugar beet: 6 ha
    - Potatoes: 7.5 ha

**Areas of interest/Aspirations**

Socio-economic resilience





## Lionel Etienne

EARL Etienne  
Langoelan  
Brittany  
France  
2016

### The herd

- **86 dairy Livestock Units (LU)**
- **65 dairy cows** and 38 dairy heifers
- **Breeds:** Holstein and Normand
- **Seasonal calving:** all the year
- **Age at first calving:** 26 months
- **463,000 kg of ECM milk produced**
  - 100% sold
  - 4.07% fat and 3.19% protein
- **7,106 kg ECM cow<sup>-1</sup> year<sup>-1</sup>** (milk yield)
- **11,302 kg ECM milk ha<sup>-1</sup> forage area**
- **Stocking rate:** 2.1 LU ha<sup>-1</sup> forage area
- **115 g kg<sup>-1</sup> ECM concentrate feed intake**
- **Sleeping area on free stalls;**
- **Herringbone parlour:** Two desks x eight stations - double equipment

### The farm

- **Workforce:** Two full time (partner and volunteer parents)
- **Poultry, bull calf and dairy farm**
- **73 ha Agriculture area**
- **18 ha crops** (wheat, barley)
- **41 ha dairy fodder area**
  - 26 ha grassland (64% FA)
  - 15 ha maize silage (36% FA)
- **14 ha beef fodder area**

### Innovations

*“Reduce the food cost by producing milk with forages and few concentrates”*

- **Total mix ration:** winter ration with silage (maize and grass baler). Use only nitrogen corrector. Optimal milk production, economic efficiency and protein self-sufficiency. 700 kg DM concentrates and minerals for 7300 kg ECM cow<sup>-1</sup> year<sup>-1</sup>

Nov 15- April 15	April 15 – July 1	July 1- Nov 15
2 kg DM grazing	12 kg DM grazing	6 kg DM grazing
+ 14 kg DM maize silage	+ 4.5 kg DM maize silage	+ 12.5 kg DM maize silage
+ 2.5 kg DM grass baler silage	+ 2 kg DM hay	
1.8 kg DM soya	0.9 kg DM wheat	0.9 kg DM soya
0.4 kg DM wheat	0.3 kg mineral	0.9 kg DM wheat
0.3 kg mineral		0,3 kg mineral

- **Valorisation of manure and slurry produced on the farm:** decrease of mineral fertiliser purchases
- **Good technical efficiency especially in pasture management**
- **Well organised work:** Good sequence of activities. Same ration for milking cows and heifers until insemination. Purchase of a mixer feeder wagon of 12 m<sup>3</sup>

### Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience

- Build a system with low inputs and high economic efficiency
- Have several activities to secure income



## Philippe Levavasseur

EARL des Fresnes

Fresne le plan

Normandie

France

2016

### The herd

- **190 dairy Livestock Units (LU)**
- **125 dairy cows** and 115 dairy heifers
- **Breeds:** Holstein (100 %)
- **Age at first calving:** 27 months
- **1,020,000 kg of ECM milk produced**
  - 98% sold
  - 3.87% fat and 3.46% protein
- 8,160 kg ECM/cow/year (milk yield)
- 13,421 kg ECM milk /ha forage area
- **Stocking rate:** 2.5 LU / ha forage area
- 188 g kg<sup>-1</sup> ECM concentrate feed intake
- **Herringbone parlour:** Two desks x eight stations

### Innovations

*“Think about your global strategy to rationalise your investment and your labour”*

**Innovations mainly focused on improving technical and economic efficiency:**

- **Technical innovations:** computer science, laser, food repellent robot, guidance, GPS, drone and camera, electric car
- **Rotational grazing** to get some rules to manage grasslands and improve their quality
- **Good skills and tools to communicate** among workers (milking, days-off etc.)
- **Local employment:** local employment increases the availability of the workforce
- Switch to a **digital office**, with the aim to achieve (almost) zero-paper

### The farm

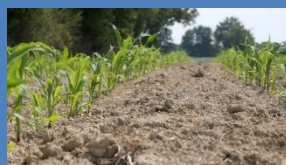
- **Workforce:** 5.5 (4.5 employees)
- **Mixed crop and dairy farm**
- **200 ha Agriculture area**
- **124 ha crops** (wheat, barley, flax)
- **76 ha fodder area:**
  - 41 ha grassland (54% FA)
  - 35 ha maize silage (46% FA)

### Areas of interest/Aspirations

Socio-economic resilience

*Improve complementary activities related to the farm (flax crops, hedges, snow removal etc.) while simplifying the tasks*





## Patrick Martin

Earl Martin  
St-André sur Vieux Joncs  
Rhône-Alpes  
France  
2016

### The herd

- **86 dairy Livestock Units (LU)**
- **65 dairy cows** and 30 dairy heifers
- **Breed:** Montbéliarde
- **Calving period:** all year round
- **Age at first calving:** 24 months
- **500,500 kg of ECM milk produced**
  - 99% sold
  - 4.00% fat and 3.40% protein
- **7,710 kg ECM/cow year<sup>-1</sup> (milk yield)**
- **9,635 kg ECM milk per ha forage area**
- **Stocking rate:** 1.7 LU /ha forage area
- **170 g kg<sup>-1</sup> ECM concentrate feed intake** and all year feed ration based on 50% of maize silage
- **Cows housed in cubicles with straw and sand** on lying area

### Innovations

- **Buildings are functional and fodder area are gathered close to the buildings and storage area.** This allows high labour productivity without too much workload from their point of view (60 hours a week per partner)
- **To get a good feed self-sufficiency and resilience,** they built a **forage system based on double purpose crops** (forage or grain) with maize and cereals, and **catch crop** with Italian ryegrass and red clover. So, they maximise the yield of the fodder area (18 to 20 T DM per ha per year).
- Home-made **full dry feed ration** for heifers
- **Added value activity with direct sales** of dairy meat (Montbéliarde breed offers better meat yield than Holstein)

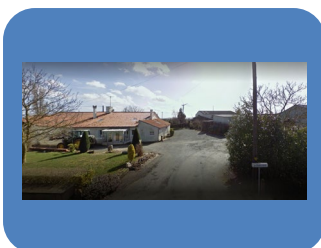
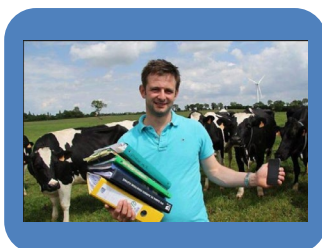
### The farm

- **Workforce: Two** (Two partners: father and son)
- **Crops and dairy farm**
- **80 ha agriculture area** (arable, drained)
- **47 ha fodder area**
  - 32 ha of maize silage
  - 15 ha permanent grassland
  - 30 ha of Italian ryegrass & red clover as catch crop

### Areas of interest/Aspirations

Socio-economic resilience  
Resource efficiency

- *Improve cost of production results*
- *Make profits with current buildings and equipment*
- *Looking after added value (meat direct selling)*
- *Anticipate generation renewal*



## Jean-Pierre Morille

Earl Morille  
49- La Tourlandry  
Pays de la Loire  
France

### The herd

- **100 dairy Livestock Units (LU)**
- **71 dairy cows** and 58 dairy heifers
- **Breeds:** Holstein (100 %)
- **Age at first calving:** 25 months
- **641,000 kg of ECM milk produced**
  - 99% sold
  - 4.10% fat and 3.08% true protein
- 9,039 kg ECM/cow/year (milk yield)
- 17,228 kg ECM milk /ha forage area
- **Stocking rate:** 2.7 LU/ ha forage area
- 207 g/kg ECM concentrate feed intake
- **Sleeping area on straw litter (cubicles with straw )**
- **Milking Robot**

### Innovations

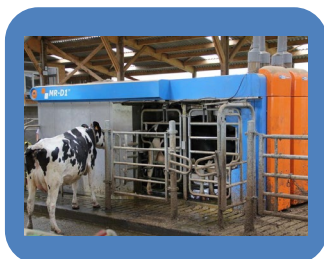
- Innovations to **improve labour organisation** in order to keep the right balance with family life and have some free time during the weekends
- Keen on **new technologies** to improve **efficiency and precision**
- **Workforce:** an apprentice representing 0.5 WU is on farm one week out of two and two weekends per month to relieve physical and field work
- **Transfer of information:** shared agenda with farmer, list of tasks to be done etc.
- Training of the apprentice: as a new one is arriving every year, **operating procedures and methods** were established and written down
- Management: **flexible working times and financial reward and recognition**
- **New technologies** on farm: milking robot, heat detection sensors, load cell for feed weighting etc.

### The farm

- **Workforce:** 1.3 (1 partner & 0.3 employee)
- **Mixed crop and dairy farm**
- **78 ha Agriculture area**
  - **37 ha crops** (wheat, barley, flax...)
  - **41 ha Fodder Area:**
    - 17 ha grassland (37% FA)
    - 24 ha maize silage (33 % FA)

### Areas of interest/Aspirations

Socio-economic resilience,  
New technologies



## François Simon

Noyal sur Vilaine  
Brittany  
France  
2016

### The herd

- **111 dairy Livestock Units (LU)**
- **81 dairy cows** and 61 dairy heifers
- **Breeds:** Holstein (100%)
- **Seasonal calving:** 80% from July to November
- **Age at first calving:** 26 months
- **575,000 kg of ECM milk produced**
  - 97% sold
  - 3.98% fat and 3.22% protein
- 7,105 kg ECM cow<sup>-1</sup> year<sup>-1</sup> (milk yield)
- 13,064 kg ECM milk ha<sup>-1</sup> forage area
- **Stocking rate:** 1.8 LU ha<sup>-1</sup> forage area
- 222 g kg<sup>-1</sup> concentrate feed intake
- **Sleeping area on free stalls**
- **Automatic Milking System (two stalls)**

### The farm

- **Workforce:** 1.5 full time (one partner and one employee)
- **Specialist dairy farm**
- **58.5 ha Agriculture area**
- **14.5 ha crops** (wheat, grain corn)
- **44 ha fodder area:**
  - 23 ha grassland (52% FA)
  - 21 ha maize silage (48% FA)

### Innovations

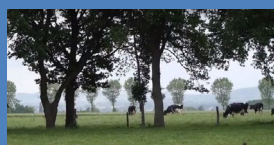
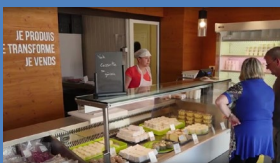
“Produce 600,000l alone on the farm and enhance grazing with a milking robot to improve economic efficiency”

- **Milking and feeding robots:** in winter, work on the dairy workshop takes only two hours a day
- **Artificial insemination** is done by farmer to improve fertility rate
- **Milking robot with grazing:** cows graze from March to November. The pasture is exclusive for two months (April and May)
- **Grass silage rich in nitrogen (alfalfa, purple clover):** Winter rations contain up to 25% grass silage. They need less nitrogen corrector. This increases protein autonomy
- **Equipment company:** Bought equipment with neighbours to reduce costs. They do fieldwork themselves in a ‘**work bank**’ - an organisation between farmers to exchange time and then to balance it between the members



### Areas of interest/Aspirations

Resource efficiency, Socio-economic resilience  
- *Build a system with high productivity and good economic efficiency*  
- *New technologies and smart breeding to manage the farm*



**GAEC de Boisy**  
**Pouilly les Nonains (42)**  
 Rhône Alps region  
 France  
 2017

### The herd

- **80 dairy Livestock Units (LU)**
- **50 dairy cows**, and 20 dairy heifers
- **Breed: Holstein**
  - 34% replacement rate
- **Age at first calving:** 26 – 28 months
- **475,000 kg of ECM milk produced**
  - 20% sold
  - 4.06% fat and 3.34% true protein
  - < 200,000 cell counts per ml
- **9,250 kg ECM/cow/year (milk yield)**
- **Stocking rate:** 1.1 LU per ha FA
- 60 cubicles with straw bedding
- **Milking parlour:** 2x5, level access
- **Milking:** One hour, twice per day

### The farm

- **Workforce:** Four partners + four salaried workers
- **Milk process on farm / Direct Sale:**
  - 400,000 litres processed
  - Sales: Farm shop + sales outlets
  - 250 pigs are fattened and processed
- **110 ha Ag. Area**, 75 ha Forage area (FA), Drying plain
- **Forage system:** Maize + Grass (25 ha maize silage, 30 ha temporary grasslands + 20 ha permanent grasslands)
- **Grazing** < 0.15 ha per cow
- **100% forage self sufficiency**

### Innovations

- Due to the close vicinity of a big city and the low agricultural potential of the area they looked for an increased added value for both milk and meat. 90% of the **products are processed and sold in the farmshop:** milk, cheese, deli, pork and beef meat
- Farmers are almost **self-sufficient in forage and concentrates** (maize, cover crops, grazing, grain and peas mixtures, cereals). Only GMO-free rapeseed cake is purchased
- **Efficiency and labour organisation:**
  - A responsibility area is defined for each partner (breeding, milk processing, meat processing, management)
  - Salaried workers are in charge of processing and selling, with a profit-sharing payment system

### Areas of interest/Aspirations

Socio-economic resilience, Resource efficiency

- *Improvement of the farm self sufficiency*
- *Diversification of the range of farm products (dairy - pork and beef)*
- *Strengthening of the team management*
- *Maintenance of a good balance between working time and profit*



## Cédric Demoulin

GAEC de Grossart  
Brias  
Hauts-de-France  
2016

### The herd

- **201 dairy Livestock Units (LU)**
- **132 dairy cows (Holstein)**
- **Herd replacement rate: 32%**
- **Calving period: All year round**
- **Age at first calving: 27 months**
- **1,253,000 Kg of ECM of milk produced**
- **Quality: 3.78% fat and 3.26% protein**
- **9,480 Kg ECM/cow/year**
- **Stocking rate: 1.9 LU per ha forage area**
- **Milking parlour: 2 desks x 7 stations**

### The farm

- **Workforce: 4.5 WU**
  - Three Labour Unit (partners)
  - 1.5 LU (employee)
- **Agricultural area: 145 ha**
  - Maize (silage): 23.3 ha
  - Grassland: 37.3 ha
  - Cereals: 68.2 ha
  - Rapeseed: 6.1 ha
  - Sugar beet: 4 ha
- **Rainfall: 770 mm per year**
- **Clay soil**

### Innovations

- **Investment management: low cost, self-building, multi-criteria thinking**
- **Strict cost management**
- **Heifer growth management (weighing)**
- **Reduction of antibiotics**
- **Minimum tillage techniques**
- **Collective methanization with 6 farms, production of spirulina**



### Areas of interest/Aspirations

Socio-economic resilience





## Vincent Menard & Michel Cuinier

GAEC de la Hutte  
Chenu  
Pays de la Loire  
France  
2017

### The herd

- **114 dairy Livestock Units (LU)**
- **78 dairy cows** and 68 dairy heifers
- **Breeds:** Holstein (100 %)
- **All year round calving to keep 70 cows at milking robot**
- **Age at first calving:** 25 months
- **697,000 kg of ECM milk produced**
  - 99% sold
  - 3.80% fat and 3.2% true protein
- 8,933 kg ECM/cow/year (milk yield)
- 6,726 kg ECM milk /ha forage area
- Stocking rate: 1.1 LU / ha forage area
- 280 g/kg ECM concentrate feed intake
- Sleeping area on straw litter
- Milking equipment: **Lely robot**

### Innovations

*"To maximise dairy production on a minimal forage area".*

- **Innovations mainly focused on working issues** to manage the labour easily, especially during the week-end
- **Equipment:** High level of equipment to facilitate the monitoring of the herd and improve the technical performances (robot, heat time)
- Sowing of cover crops for early silage to improve forage quality
- Introduction of legumes crops in the crop rotation (faba beans) to improve the yields of the forage crops

### The farm

- **Workforce: Two** (two partners)
- **Mixed crop and dairy farm**
- **241 ha Agriculture area**
- **170 ha crops** (wheat, rapeseed, faba etc.)
- **71 ha fodder area:**
  - 27 ha grassland (27% FA)
  - 44 ha maize silage (33% FA)
  - 22 ha cover crops Italian RG

### Areas of interest/Aspirations

Resource efficiency

Socio-economic resilience

- *Improvement of self-sufficiency by optimising and diversifying home-grown forages*
- *Increase in feeding self-sufficiency by developing grazing*



## Thomas Péniguel

GAEC de l'Abbaye  
Doudeauville  
Haut de France  
2016

### The herd

- 166 dairy Livestock Units (LU)
- 109 dairy cows (primarily Holstein)
- Herd replacement rate: 38%
- Calving period : All year round
- Age at first calving : 27 months
- 909,000 Kg of ECM of milk produced
- Quality :
  - 3.98% fat and 3.14% protein
- 8,325 Kg ECM/cow/year
- Stocking rate: 1.6 LU's /ha forage area
- Milking parlour: 2 desks x 6 stations
- Sleeping area on straw litter

### Innovations

- All machinery equipment are collectively invested with other farmers in a coop (CUMA, sharing equipment co-operative) including two employees
- Self-propelled silo unloader distributor (shared in CUMA)
- Cost management
- Reducing phytosanitary products

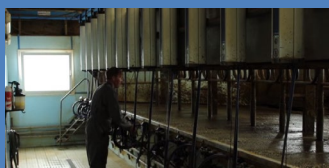


### The farm

- Labour: Four
  - Three Labour Units (farmer)
  - One LU (employee)
- Agricultural area: 121.5 ha
- Maize silage: 31.3ha
  - Grassland: 54.4 ha
  - Cereals: 35.8 ha
- Rainfall: 900 mm per year
- Silty clay soil

### Areas of interest/Aspirations

- Socio-economic resilience
- *Planning to incorporate Lean Management*



## Nadine et Philippe Levillain

Gaec de Montigny  
Ste Marguerite d'Elle  
Normandie  
France  
2016

### The herd

- **172 dairy Livestock Units (LU)**
- **117 dairy cows** and 95 dairy heifers
- **Breeds:** Holstein (100 %)
- **Age at first calving:** 26 months
- **949 000 kg of ECM milk produced**
  - 96% sold
  - 4.1% fat and 3.33% protein
- 8,109 kg ECM/cow/year (milk yield)
- 9,883 kg ECM milk /ha forage area
- **Stocking rate:** 1.8 LU / ha forage area
- 195 g kg<sup>-1</sup> ECM concentrate feed intake
- **Parallel parlour:** 1 desk x 12 stations

### Innovations

*"We're still looking for innovations and performance"*

- Innovations mainly **focused on search for autonomy, better valuation of forage areas and work organisation**
- **Rotational grazing** to get some rules to manage grasslands and improve their quality
- **Employment:** reinforce employment to increase the availability of the workforce
- Project to **develop an anaerobic digestion unit**

### The farm

- **Workforce: Two**  
(1.5 full time + 0.5 employee)
- **Specialised dairy farm**
- **96 ha Agriculture area**
- **96 ha fodder area:**
  - 64 ha grassland (66% FA)
  - 36 ha maize silage (33% FA)

### Areas of interest/Aspirations

Biodiversity / Resource efficiency  
Socio-economic resilience

- *Improve self-sufficiency by optimising and diversifying home-grown forages*
- *Build a complete sustainable system*
- *Project to get anaerobic digestion unit on farm*



## Bertrand Noury & Damien Lecuir

Gaëc Noury

Ryes

Normandie

France

2016

### The herd

- **165 dairy Livestock Units (LU)**
- **100 dairy cows** and 125 dairy heifers
- **Breeds:** Holstein (100%)
- **2 blocks calving:** spring and autumn
- **Age at first calving:** 30 months
- **852,000 kg of ECM milk produced**
  - 92% sold
  - 3.80% fat and 3.38% protein
- 8,520 kg ECM/cow/year (milk yield)
- 9,360 kg ECM milk per ha forage area
- **Stocking rate:** 2.0 LU /ha forage area
- 155 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping area on straw litter**
- **Herringbone parlour:** 2 desks x 14 stations - simple equipment

### The farm

- **Workforce:** 4 (3.8 full time) (2 partners & 2 employees)
- **Mixed crop and dairy farm**
- **265 ha Agriculture area**
- **191 ha crops** (wheat, barley, flax)
- **91 ha fodder area:**
  - 60 ha grassland (65% FA)
  - 30 ha maize silage (33% FA)
  - 1 ha fodder beet

### Innovations

*“Think your global strategy as simply as possible, to rationalise your investment and your labour”*

- **Innovations mainly focused on working issues** to manage the labour easily, especially the week-end
- **Two blocks of calving:** spring/autumn to rationalise the labour (heat period, calving, +/- same amount of milk each month) and to focus on these tasks
- **Rotational grazing** to get some rules to manage grasslands and improve their quality
- **Good skills and tools to communicate** among workers (milking, days-off etc.)
- **Employer alliances:** Share employees with other farms (reinforce their skills and local employment with full-time opportunities, increase the availability of the workforce)
- **Equipment company:** High level of equipment to get flexibility on their fields. But to optimise costs, they create a specialised equipment company related to the farm to work with their neighbours.

### Areas of interest/Aspirations

Resource efficiency

Socio-economics resilience

- Improve self-sufficiency by optimising and diversifying home-grown forages;
- Build a complete sustainable system;
- Project to be organic farm later



**Rémi, Christian and Jean-Paul Laffay**  
**GAEC du Crocomby**  
 Amplepuis, Rhône-Alps  
 France  
 2016

### The herd

- **181 dairy Livestock Units (LU)**
- **114 dairy cows** and 101 dairy heifers + 33 beef heifers
- **Breed:** Montbéliarde (100%)
- **Calving season:** all year round
- **Age at first calving:** 28 months
- **834,000 kg of ECM milk produced**
  - 98% sold
  - 3.99% fat and 3.31% protein
- 7,316 kg ECM/cow year<sup>-1</sup> (milk yield)
- 6,474 kg ECM milk per ha forage area
- **Stocking rate:** 1.4 LU/ha forage area
- 233 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping in freestalls with straw**
- **Herringbone parlour** :2x10 double equipment

### The farm

- **Workforce:** Three WU (3.1 full time) (3 partners + children help)
- **Specialised dairy farm**
- **136 ha Agriculture Area**
- **7 ha crops** (barley, triticale)
- **129 ha fodder area (FA):**
  - 105 ha grassland (81% FA)
  - 24 ha maize silage (19% FA)
  - +24 ha catch crops

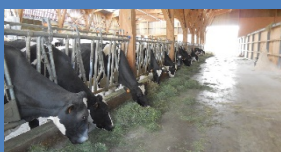
### Innovations

- **Low input mountain system with high constraints** (1/3 arable, 1/3 non-harvestable): **search for feed autonomy with evolution towards more grass**
- Large herd with **cross-bred heifer rearing** (15 head per year sold at 34-36 months) to **use distant and sloping pastures**
- **Many agro ecological elements:** natural grasslands, hedges, wood edges
- **Spatial restructuring: exchanges of parcels** with neighbors to save time and fuel
- Jointly owned equipment (except tractors) to **reduce costs** and have better equipment
- **Good organisation of work.** Family and professional team spirit. Lots of dialogue.
- **Energy saving:** photovoltaic panels, milk pre-cooler

### Areas of interest/Aspirations

- Socio-economic resilience,**  
**Resource efficiency, Biodiversity**
- *Build a complete sustainable system: feed autonomy, work organisation, continuation of land restructuring and buildings*
  - *Collective methanization project*
  - *Succession planning*





## Guillaume Family

Gaec Ferme du Marjon  
Soucieu en Jarrest  
Rhône-Alpes  
France  
2016

### The herd

- **102 dairy Livestock Units (LU)**
- **64 dairy cows** and 65 dairy goats
- **Breeds:** Holstein (100 %)
- **Two calving periods:** summer and winter
- **Age at first calving:** 30 months
- **507,000 kg of ECM milk produced**
  - 80% sold + 20 % direct sold
  - 3.87% fat and 3.16% protein
- 7,982 kg ECM/cow year<sup>-1</sup> (milk yield)
- 5,899 kg ECM milk per ha forage area
- **Stocking rate:** 1.1 LU /ha forage area
- 226 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping on stalls with straw**
- **Herringbone parlour:** 2 × 8 double equipment

### The farm

- **Workforce: Seven** (7.3 full time)  
(Five partners and two employees)
- **Specialised dairy farm** (cows and goats)
- **108 ha Agriculture Area**
- **13 ha crops** (wheat, barley)
- **95 ha Fodder Area:**
  - 72 ha grassland (76 % FA)
  - 6 ha alfalfa (6 % FA)
  - 13 ha maize epi (14 % FA)
  - 2 ha grain sorghum + 2 ha moha
  - +10 ha catch crops

### Innovations

- **Added value research and adapt the farming system to its peri-urban environment:** organic system and direct sale of cheese, produced on the farm
- **Build a forage system to get a strong feed autonomy and resilience** by the diversity of forage: irrigation of corn and alfalfa; more dry forage trials (multiswards grasslands, moha and sorghum)
- **Barn hay drying:** to harvest early, to get a good quality hay, to be autonomous for the harvesting
- **Harvest ear of maize:** to get fodder with high level of energy contents, simple to distribute (tractor and feed mixer are not necessary)
- **Good organisation of work.** Weekly meeting to organize and distribute tasks amongst partners and employees
- **Dairy goats cattle** is reared to produce and diversify cheese on farm and to allow one of partner's wife to join the farm

### Areas of interest/Aspirations

- Socio-economic resilience,  
Resource efficiency, Biodiversity
- *Build a sustainable system*
  - *Look after feed self-sufficiency with fodder species adapted to dry climatic conditions*



## Jean Philippe et Loïc Guines

Gaec Guines  
St Marc s/Couesnon  
Brittany  
France  
2016

### The herd

- **147 dairy Livestock Units (LU)**
- **94 dairy cows** and 87 dairy heifers
- **Breeds:** Holstein (100%)
- **1 block calving:** February to end of July
- **Age at first calving:** 26 months
- **754,714 kg of ECM milk produced**
  - 100% sold
  - 4.2% fat and 3.25% protein
- 8,020 kg ECM cow<sup>-1</sup> year<sup>-1</sup> (milk yield)
- 6,705 kg ECM milk ha<sup>-1</sup> forage area
- **Stocking rate:** 1.3 LU ha<sup>-1</sup> forage area
- 79 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping area on strawed freestalls**
- **Herringbone parlour:** 2 desks x 8 stations - double equipment

### Innovations

*“Build a system with more grass to make the best use of farmland”*

- **Calving grouped:** the production of dairy cows is wedged on the growth of the grass to maximise grazing and reduce feed cost
- **Daily rotational grazing:** this allows regulation of production and improve grass production and quality
- **Green alfalfa** distributed in summer when grass growth stops
- **Grass silage rich in nitrogen:** winter rations contain up to 50% grass silage. They need less nitrogen corrector. This increases protein autonomy
- **Grass silage cuts early** to improve forage quality
- **Crossbreeds with three breeds** to improve milk quality (Holstein x Jersey x Swedish red)
- **Use of specialised companies to reduce working time:** delegation of fieldwork, of forage and concentrate distribution during six months

### The farm

- **Workforce:** Two full time (Two partners and one employee)
- **Specialist dairy farm**
- **125 ha Agriculture area**
- **12 ha wheat**
- **113 ha fodder area:**
  - 91 ha grassland with 11 ha alfalfa (81% FA)
  - 22 ha maize silage (19% FA)

### Areas of interest/Aspirations

Resource efficiency, Socio-economic resilience

- *Improve protein autonomy with a grass system*
- *Build a system with good economic efficiency and respect for environment*
- *Transition to be organic farm*



**Jean-Baptiste & Thibault Journet**  
**Gaëc Journet**  
**Massingy, Rhône-Alps**  
 France  
 2016

### The herd

- **131 dairy Livestock Units (LU)**
- **93 dairy cows** and 75 dairy heifers
- **Breeds:** Montbéliarde (50%), Tarine (35%) and Abondance (15%)
- **Calving period:** spring
- **Age at first calving:** 35 months
- **323,000 kg of ECM milk produced (IGP Tomme Emmental Raclette de Savoie)**
  - 84% sold
  - 3.71% fat and 3.28% protein
- 3,471 kg ECM/cow year<sup>-1</sup> (milk yield)
- 2,213 kg ECM milk per ha forage area
- **Stocking rate:** 0.9 LU /ha forage area
- 157 g kg<sup>-1</sup> ECM concentrate feed intake
- **Cows housed in stanchion-tied stable**
- **Milking at the stable in winter and at the grazing area in summer**

### Innovations

- **Organic farming** system since 2015
- **Fodder system based only on grass**
- **Barn hay drying system**
- **Block calving period on 10 weeks in spring** (from 1 March to 30 April) to produce milk mainly with grazed grass and to reduce the feed cost
- **No hay to feed dairy cattle during grazing period** (from 15 April to 15 November)
- **Milking cows in pastures** (from 15 April to 15 November)
- **Very low concentrate consumption** (400 kg per cow and per year). Only corn and minerals
- **Low cost of production**, especially costs related to machinery and vehicles
- **High returns values**

### The farm

- **Workforce: 3 WU**  
(Two partners + one employee)
- **Specialised dairy farm**
- **146 ha Agriculture Area**
- **146 ha fodder area**
  - 146 ha permanent grassland

### Areas of interest/Aspirations

- Socio-economic resilience,  
 Resource efficiency, Biodiversity
- *Improve income*
  - *Improve reproduction performance to further reduce calving period*
  - *Work on labour organisation to reduce working time*
  - *Install water pipe and create better access to pastures*



## Luzinay

Gaec Le MAS d'ILLINS  
Rhône-Alpes  
France  
2017

### The herd / dairy cattle

- 143 dairy Livestock Units (LU)
- 98 dairy cows
- Crossbreeding Holstein with Montbéliarde, Brown Swiss, Simmental
- Calving pattern: all year round
- Age at first calving: 28 months
- 743,000 kg of ECM milk produced
  - 92 % sold + 2.6 % in direct selling
  - 4.04% fat and 3.33% true protein
- 7,579 kg ECM cow<sup>-1</sup> year<sup>-1</sup>
- 5,713 kg ECM milk per ha forage area
- Stocking rate: 1.1 LU/ha forage area
- 226 g kg<sup>-1</sup> ECM concentrate
- Cow housing: strawed cubicles with mattresses and automatic scraper
- Herringbone milking parlour: 2 × 6 double equipment

### The farm

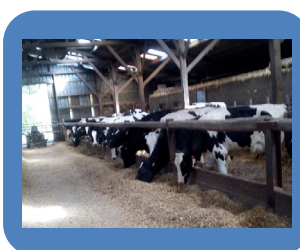
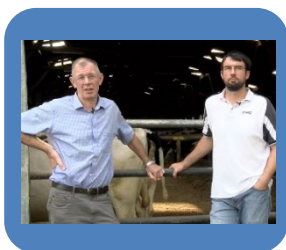
- Workforce: Four (Two partners = one couple and two employees)
- Specialised organic dairy farm
- 130 ha Agriculture Area
- 30 ha mixed cereals + protein crops
- 100 ha Fodder Area: grasslands
  - 80 ha rye-grass-legumes mixtures
  - 20 ha permanent grasslands +6 ha catch crops (sorghum)

### Innovations

- 100% grass based system in a maize based region, organic production since 2017
- Direct selling of part of the production (30,000L): raw milk and cottage cheese (on farm and with two wholesalers)
- 4 breeds rotational crossing since 2008 to improve longevity and hardiness
- Work organisation: simplification, building optimisation, planning of holidays (15 days per year + 1 Weekend in 3)
- Automation: automatic scraping + robot to deliver the feed with a fixed programmable mixer bowl
- Few machines in ownership: one 70 hp tractor (1988) and the haymaking equipment. Harvest and silage done by contractor. The rest of the machinery belongs to the local machinery coop
- Permanent search for forage self-sufficiency: maize silage stopped, sowing of new temporary grasslands with ryegrass and clovers, early cuts of grass silage, grazing 7 months out of 12, development of mixed crops for grain
- Educational farm welcoming schools

### Areas of interest/Aspirations

- Socio-economic resilience, Resource efficiency
- Search for forage self-sufficiency: redesign of pasture layout, early cuts of silage, decrease in the purchase of protein cakes.



## Jean-Marc & Jean-Michel Fournier

Gaec la ferme du fief  
Béthencourt sur mer  
Hauts de France  
2016

### The herd

- **247 dairy Livestock Units (LU)**
- **130 dairy cows**, 140 dairy heifers and 50 oxen
- **Breeds:** Holstein (100 %)
- **Calving** all the year round
- **Age at first calving:** 26 months
- **1,156,838 kg of ECM milk produced**
  - 100% sold
  - 3.89% fat and 3.32% protein
- 8,899 kg ECM/cow/year (milk yield)
- 16,526 kg ECM milk /ha forage area
- **Stocking rate:** 2.4 LU / ha forage area
- 300 g/kg ECM concentrate feed intake
- **Sleeping area on cubicle**
- **Herringbone parlour:** 2x8 double equipment

### Innovations

*“Anticipation leads management operation”*

- Upgrading carried out by Jean-Marc helped to install Jean-Michel without any additional construction
- **Additional employee hired** to deal with the retirement of Jean-Marc in 2019
- **Calving takes place throughout the year to optimise the existing structure**
- **85% of the workforce work only on dairy farming** for better herd follow-up
- Sowing and harvest carried out by a **contractor**
- **Sufficient manpower** to provide the time to invest in learning and development through agricultural institutions and training bodies
- Need to **consider societal expectations**, due to the proximity of the neighbourhood, and the agreement to let walkers on the pasture

### The farm

- **Workforce:** 3.6 WU (2.6 partners & 1 employee)
- **Mixed crop and dairy farm**
- **152 ha Agricultural area**
- **51 ha crops** (wheat)
- **101 ha fodder area:**
  - 50 ha grassland (65% FA)
  - 51 ha maize silage (33% FA)

### Areas of interest/Aspirations

Resource efficiency  
Socio-economic resilience

- *Improve the work efficiency*
- *Optimize the current tool without expansion*





**GAEC La Mélodie**  
85-Hébergement  
Pays de la Loire, France  
2016

### The herd

- **285 dairy Livestock Units (LU)**
- **206 dairy cows** and 151 dairy heifers
- **Breeds:** Holstein (100%)
- **Two feeding groups:** depend on stage of lactation and level of production
- **Age at first calving:** 26 months
- **1,873,600 kg of ECM milk produced**
  - 99% sold
  - 4.25% fat and 3.25% true protein
- 9,404 kg ECM/cow/year (milk yield)
- 14,133 kg ECM milk /ha forage area
- **Stocking rate:** 2.3 LU / ha forage area
- 268 g/kg ECM concentrate feed intake
- **Sleeping area on straw litter**
- **Herringbone parlour:** 2x14 simple equipment

### The farm

- **Workforce:** Six (4 partners & owners & 2 employees)
- **Mixed crop and dairy farm**
- **191 ha Agriculture Area**
- **56 ha crops** (wheat, barley, flax etc.)
- **136 ha fodder area:**
  - 48 ha grassland (33% FA)
  - 88 ha maize silage (65% FA)
  - 38 ha of grass silage between crops and maize silage

### Innovations

**Innovations mainly focused on cost efficiency and labour:**

- **2 groups of cows** to rationalise the diet of the cow without individual input of concentrates. Proximity of the calving area and the last calving cows. The two times of milking offer the opportunities to work inside the barn - it requires more labour to move the animals but it's a way to change the milker and rhythm.
- **Separator of manure mass (liquid and straw flour)** to reduce working time and comply with environmental regulations (period of breeding)
- **Improving protein levels in the fodder** with red clover to reduce the use of concentrates
- **Good skills and tools to communicate** among workers (milking, days-off, etc.)
- **Farm alliances:** Share farm equipment with other farms to have access to more powerful machines and monitor costs and work, especially in spring

### Areas of interest/Aspirations

**Resource efficiency,  
Socio-economic resilience**

- *Improve self-sufficiency by optimising and diversifying home-grown forages*
- *Build a completely sustainable system in sharing the daily work with versatility and minimal investments.*
- *Project to become organic*



## Philippe & Christine Le Vacon - Michael Philippe

GAEC Philippe & Le Vacon

Le Foeil

Brittany

France

2016

### The herd

- **127 dairy Livestock Units (LU)**
- **99 dairy cows** and 53 dairy heifers
- **Breeds:** Holstein (100%)
- **Seasonal calving:** all year round
- **Age at first calving:** 28 months
- **681,000 kg of ECM milk produced**
  - 100% sold
  - 4.27% fat and 3.18% protein
- 6,868 kg ECM cow<sup>-1</sup> year<sup>-1</sup> (milk yield)
- 9,403 kg ECM milk ha<sup>-1</sup> forage area
- **Stocking rate:** 1.7 LU ha<sup>-1</sup> forage area
- 119 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping area on straw litter;**
- **Herringbone parlour:** 2 desks x 24 stations - simple equipment

### Innovations

- **Gradually transfer their farm:** Five years before retirement, Christine and Gérard teamed up with a young farmer Michael. They wanted to share their experience, participate in the development of their farm and help their successor at the beginning of his installation to secure its future
- **Produce milk with energy and nitrogen balanced forages:** use only nitrogen corrector. This improves self-sufficiency;
- **Use the organic waste produced on the farm on forages:** decreases purchases of mineral fertiliser
- **Good work organisation:** simplification of tasks with good equipment, repartition of work, delegation of some of the field work.

### The farm

- **Workforce:** Three full time (Three partners)
- **Pig, cock and dairy farm**
- **77 ha Agriculture area**
- **5 ha barley**
- **72 ha fodder area:**
  - 36 ha grassland (50% FA)
  - 34 ha maize silage and 2 ha forage beet (48% FA)

### Areas of interest/Aspirations

Resource efficiency, Socio-economic resilience

- *Transmit an economically efficient production tool respecting environment*
- *have good working conditions and free time*
- *prepare for retirement and the installation of Aurelie the wife of Michael*



## O. Decultieux et D. Bruyère

Gaec Lestra-Clément  
St Clément les Places  
Rhône-Alpes  
France  
2016

### The herd

- **123 dairy Livestock Units (LU)**
- **83 dairy cows** and 82 dairy heifers
- **Breeds:** Montbéliarde (100 %)
- **Calving :** all year round
- **Age at first calving:** 29 months
- **721,000 kg of ECM milk produced**
  - 94% sold
  - 4.02% fat and 3.33% protein
- 8,703 kg ECM/cow year<sup>-1</sup> (milk yield)
- 8,824 kg ECM milk per ha forage area
- **Stocking rate:** 1.5 LU per ha forage area
- 266 g kg<sup>-1</sup> ECM concentrate feed intake
- **Sleeping on stalls with straw**
- **Automatic Milking System** (two boxes and one robot)

### The farm

- **Workforce: Two** (Two partners + 0.5 worker)
- **Specialised dairy farm**
- **99 ha agriculture area** (altitude 600 m)
- **17 ha crops** (wheat, barley, triticale)
- **82 ha Fodder Area:**
  - 58 ha grassland (71% FA)
  - 22 ha maize silage (27% FA)
  - 2 ha immature proteinaceous + crops
  - +25 ha catch crops

### Innovations

- **Good organisation of work to get free time.**  
Two weeks of holidays per year and One week-end off every two weeks
- **Several professional activities and responsibilities** to meet other farmers (learning session, meeting)
- **Employer alliances:** Share employees with other farms to provide cover for partners when off farm
- **New modern buildings and cowshed**
- **Automatic milking system and grazing:** they want to keep grazing for dairy cows
- **Most of the equipment have been bought together with other farmers in a co-operative (Cuma).** All the owners share their use, work with others, and have better equipment at a reduced costs
- **EU CAP engagements** signed with French state **to develop a self-sufficient system** towards proteins needs (reduce maize silage, concentrate and develop multisward pastures)

### Areas of interest/Aspirations

- Socio-economics resilience  
Resource efficiency /Biodiversity
- *Technical optimization of their intensive mountain system*
  - *Mindful towards labour issues*
  - *EU CAP engagement to fulfil and tomorrow, developp an orqanic system*



## Jean-Marc Burette

Fleurbaix  
Hauts-de-France  
2016

### The herd

- **101 dairy Livestock Units (LU)**
- **76 dairy cows (Holstein)**
- **Herd replacement rate: 36%**
- **Calving period:** From May to November
- **Age at first calving:** 25 months
- **681,000 kg of ECM milk produced**
  - 96% sold
  - 3.97% fat and 3.21% protein
- **Stocking rate:** 2.2 LU per ha forage area
- **Milking parlour** 2 desks x 5 stations
- **Strawed cubicles**

### The farm

- **Workforce: 1.5 WU**
  - One Labour Unit (farmer)
  - 0.5 LU (employee, farmers' wife)
- **Agricultural area: 67 ha**
  - Maize (silage): 26 ha
  - Grassland: 5.4 ha
  - Cereals: 30.5 ha
  - Fababeans: 4.2 ha
- **Rainfall: 600 mm per year**
- **Clay soil**

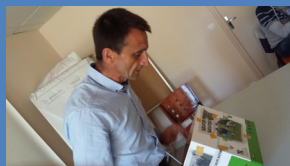
### Innovations

- **Cost control**
- **Improving the image of the farm:** communication, display of cow's on the edge of roads, open days, article in local newspaper, organic waste compost etc.
- **Commitments in favour of the environment:** reduction of antibiotics, reduction of plant health molecules, biodiversity, no-till etc.
- **Forecast of transmission:** 10 years in advance, son part-time employee on the farm, investment anticipation



### Areas of interest/Aspirations

Socio-economic resilience



## Emmanuel Plancq

Scea de la Duvalerie  
Saint Hilaire la Gérard  
Normandie – France  
2016

### The herd

- **132 dairy Livestock Units (LU)**
- **60 dairy cows**
- **Breeds:** Holstein X Brune des Alpes
- **Age at first calving:** 28 months
- **430,000 kg of ECM milk produced**
  - 100% sold
  - 4.12% fat and 3.58% protein
- 7,175 kg ECM/cow/year (milk yield)
- 4,288kg ECM milk /ha forage area
- **Stocking rate:** 1.0 LU / ha forage area
- 70 g kg<sup>-1</sup> ECM concentrate feed intake
- **Herringbone parlour:** 2 desks x 6 stations

### Innovations

*“Continue its economical production logic and further simplify its system”*

- **Very simplified and economical production system**
- **100% grazing** to require less work and less cost
- **Rustic animals:** cross breeds to get more rustic and resistant animals
- **Organic farm:** Produce organic milk to improve valorisation of milk and use less external inputs.

### The farm

- **Workforce:** 1.1 (one full time)
- **Specialised dairy farm**
- **127 ha Agriculture area**
- **100 ha fodder area**
  - 100 ha grassland (100% FA)
- **Organic farming**

### Areas of interest/Aspirations

Socio-economic resilience

- *Improve self-sufficiency by optimising home-grown forages*
- *Go to a completely sustainable system*
- *Organic farm*





**Rémi Gillet**  
 SCEA du Fond de l'anneau  
 Raillimont  
 Hauts-de-France  
 2017

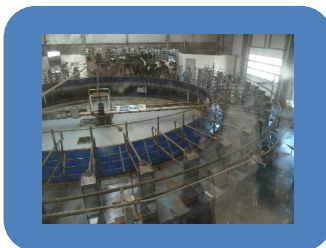
- The herd**
- **48 dairy cows** in strawed cubicles + 20 places in free housing on straw bedding
  - 22 heifers (35% replacement rate)
  - **Breeds:** Holstein (100%)
  - **Calving period:** August to December (peak reached in Sept-Oct).
  - **Age at first calving:** 24 months
  - **545,129 kg of ECM milk sold**
    - true PC: 3.22 g per l
    - FC: 4.04 g per l
  - **Stocking rate:** 1.75 LU per ha FA
  - 9,564 liters per cow per year
  - **Herringbone milking parlour:** 2x4 double equipment
  - **Milking robot:** purchased in September 2018

- Innovations**
- 30 meters of **stabilised concrete cow tracks** were created at the exit of the shed; 520 meters of tracks made of stones were also created to access the pastures. This was in order to:
    - Search for better valorisation of the grass available around the buildings
    - Increase the grazing period of cows
    - Increase the valorised yield of grasslands
  - **Equipment, investments and costs**
    - **Topsoil stripping**, placing 30cm of limestone and 5cm of sands (bluestone 0/2 mm)
    - 1,500 € per ha of grassland connected by the track (crane, limestone, stones, troughs, posts, fences)
    - 15 to 17€ per m<sup>2</sup> (around 40€ per m<sup>2</sup> for the concrete layer)
  - **Pay attention to:**
    - Sufficient width after exit of the shed (avoid cow concentration)
    - Sufficient width all along the track to allow machines to circulate and access fields
    - Have a sufficient slope to allow evacuation of rainwater

- The farm**
- **Workforce:** One + 0.4 employee
  - **Specialised dairy farm**
  - **54 ha Agricultural Area**
  - **54 ha Fodder Area:**
    - 40 ha grasslands
    - 12 ha maize silage
    - 2 ha fodder oat

**Areas of interest/Aspirations**  
 Resource efficiency,  
 Socio-economic resilience

- Better use of farm forage resources
- Decrease in feeding costs
- Maintenance of biodiversity thanks to grasslands



**Michel Welter**  
 SCL Lait Pis Carde  
 Airaines  
 Hauts-de-France  
 2016

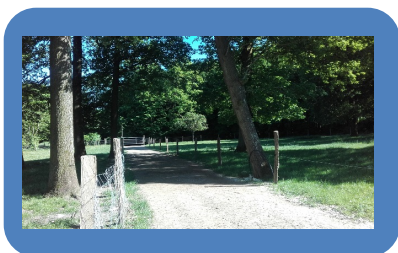
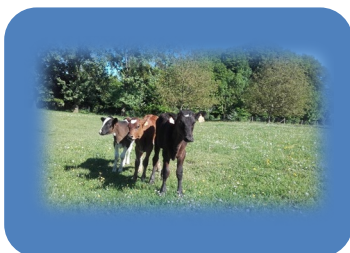
- The herd**
- **1,173 dairy Livestock Units (LU)**
  - **871 dairy cows** (62% Holstein and 38% crossbreds)
  - **Herd replacement rate:** 39%
  - **Calving period:** all year round
  - **Age at first calving:** 26 months
  - **Milk production:** 8,376,000 kg of ECM
  - **Quality :**
    - 3.56% fat and 3.23% protein
  - **Strawed cubicles**
  - **Stocking rate:** 2.2 LU per ha forage area
  - **Rotary parlour system** for 56 cows

- Innovations**
- **Costs controlled**
  - **Working protocols** for all staff
  - **Increased productivity of working hours**, 250 liters of milk per working hour
  - **Five milk producers** under the same shed
  - Improving the **image** of the farm: communication, farm visits
  - **Innovative model of financial management and workforce** with financial investors, farm manager and employees

- The farm**
- **Workforce:**  
22 Labour Units (only employees)
  - **Total farm area:** 960 ha
    - Maize (silage): 230 ha
    - Grasslands: 40 ha
    - Cereals: 370 ha
    - Sugar beets: 120 ha
    - Potato: 45 ha
    - Linen: 50 ha
    - Canola: 40 ha
    - Vegetables: 65 ha
  - **Rainfall:** 750 mm per year
  - **Clay soil**



**Areas of interest/Aspirations**  
**Socio-economic Resilience**



**Vincent Delargilliere**  
 Pierrefitte-en-Beauvaisis  
 Hauts-de-France  
 France  
 2017

### The dairy herd

- **90 milking cows** (100 calvings per year)
- **Converting to organic** since Sept. 2018
- **Replacement rate:** 40% (target: 25%)
- Implementation of **compact calvings in late winter** (milking stopped end of December)
- **Breeds:** crossbreeding Holstein with NZ KiwiCross
- **515,000 l of milk produced per year** before conversion (4.18% fat and 3.40% protein)
- **6,500 l per cow per year** before conversion with 800 kg concentrate (only rapeseed cakes)
- **Milking parlour:** 2x10 herringbone with automatic removal and electric dog
- **Housing:** deep litter straw bedding
- **Feeding:** self service at clamp
- **Concentrates:** automatic conc. feeder

### Innovations

- Implementation of a **pasture based system** based on grazing, with compact spring calvings
- **100% grass system** after stop of maize silage and concentrates. **Re-sowing of long term grasslands** on whole farm.
- Change in the genotype of cows with **crossbreeding with NZ KiwiCross**, better suited to compact calvings
- **Creation of paddocks and tracks for grazing:** 30,000 € invested (for the layout of 35 paddocks, water troughs, tracks and fences)
- Equipment: all **field work outsourced to contractor** except mowing (own mower)
- **Conversion to organic farming**

### The farm

- **Workforce:** One + one volunteer + 0.2 staff + replacement milker
- **Specialised dairy farm**
- **120 ha Agricultural area**  
 Forage area: 100%, 120 ha of "permanent" grasslands (ryegrass and white clover)
- **Rainfall:** 800 mm per year, low grass growth in summer

### Areas of interest/Aspirations

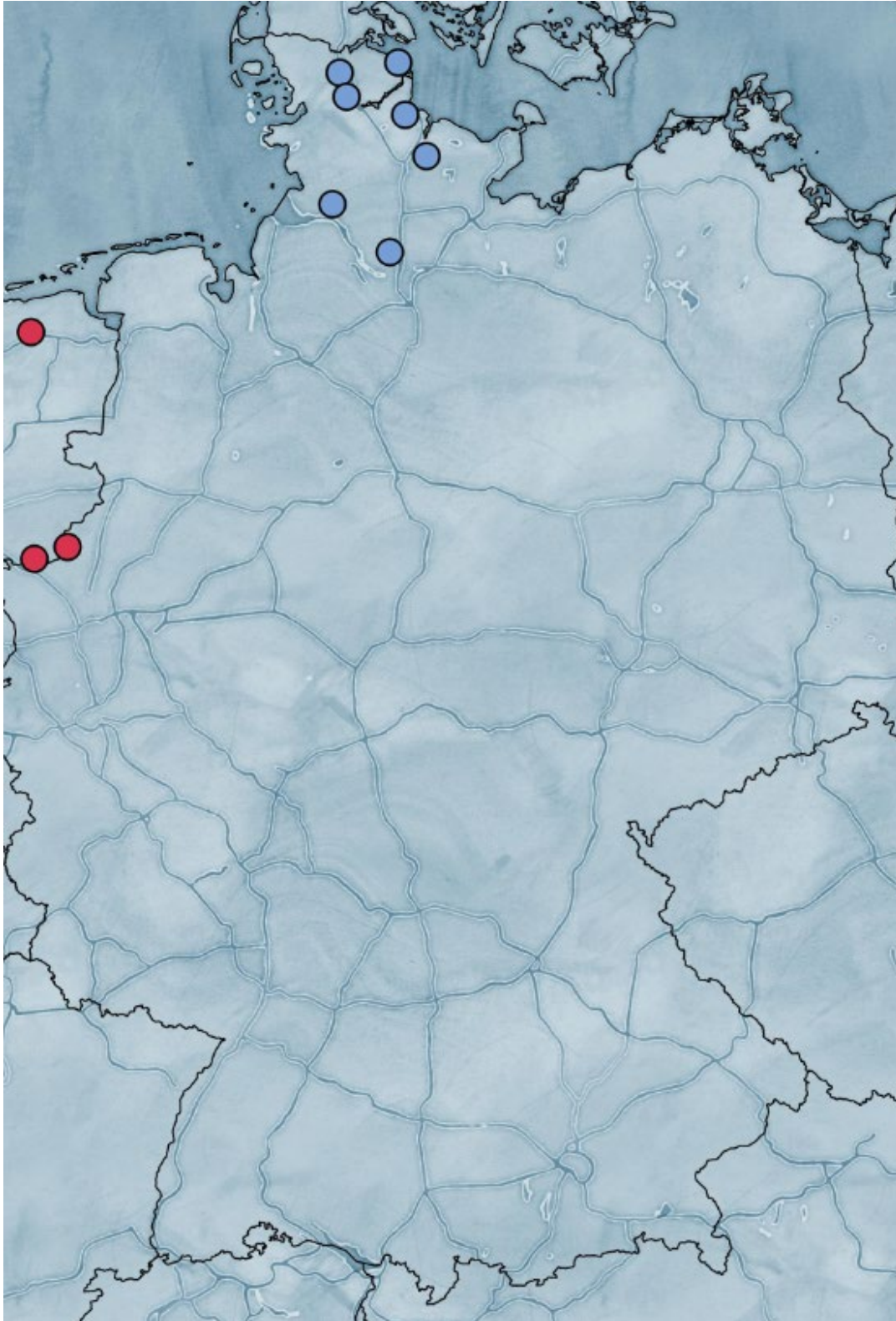
Resource efficiency,  
 Socio-economic resilience

- *Implement a system in link with citizens' demands, "to be proud to be a dairy farmer"*
- *Having a simple system to be easily replaced*
- *Having a low input system with a high profit*

# 6 Germany



Location of the Pilot farmers







## Christian Cordes

Kragsted 12  
24997 Wanderup  
Germany

### The herd

- **180 Holstein dairy cows + 90 heifers for restocking**
- **All year-round calving** (in transition to autumn block calving)
- **10,078 kg** with 4.01% fat and 3.32% protein = 727kg milk solids cow/year
- **First calving age: 25.0 month**
- **Cows housed in cubicle barn**
- **Winter feeding and fresh calved cows:**  
Forage: 50% silage maize + 50% Gras silage + concentrates depending on milk yield
- **Cows in the second half of lactation period: Full Grazing** from mid-April to mid-October + concentrates depending on milk yield 9 kg/cow/concentrates

### The farm

- **250 ha** for forage purpose
  - 40 ha silage maize
  - 55 ha permanent grassland
  - 25 ha arable grass leys for biogas production
  - 110 ha silage maize cash crop
  - 30 ha winter rye
- **Staff:**
  - 1 Farmer, 0.3 retired farmer
  - 2 employees
- **Additional activities:**  
own biogas power plant  
(2 units: 400 KW + 550 KW)

### Innovations/strategies

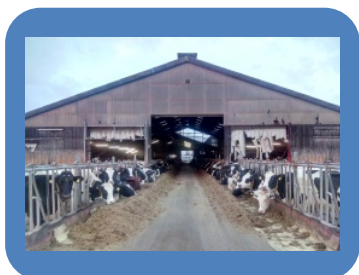
- **Member of EDF and EIP-Group: “Grazing-Manager-Schleswig-Holstein”** (Aim: Introduction + further development of management tools for grazing)
- **Building of a grazing-platform + Transition to autumn-calving** as an option to maximise grazing in a more continental climate. Strategy: high yields in the first half of lactation based on intensive winter feeding combined with low-cost full grazing in summer
- **Intensive use of a rising plate meter for grass budgeting**
- **Investment into 2 biogas power plants as diversification strategy, also to make use of slurry, solid manure and surplus silage**



### Themes of interest:

Resource efficiency  
Socio-economics  
Animal care





**Bent Jensen-Nissen -  
Olaf Jürgensen GBR**  
An de Beek 2  
24855 Jübek  
Germany

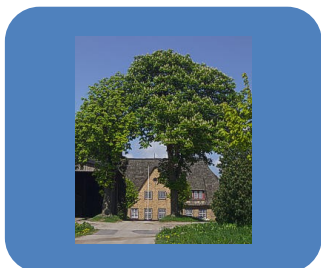
- The herd**
- **395 dairy cows** (350 Holstein, 45 Angeln-breed/All year-round calving)
  - **10,151kg** with 4.06% fat and 3.46% protein = 762kg milk solids cow/year
  - **Age at first calving: 27.0 months**
  - **Young stock: 120 heifer calves per year raised on own farm**
  - **Cows housed in cubicle barn**, bedding: separated slurry residuals mixed with lime stone
  - **All year indoors - feeding/TMR:**
    - Forage: 72% silage maize + 25% Grass silage + 3% straw
    - Concentrates: 309 gr. per kg milk

- Innovations/strategies**
- **Two farmers merged farms**, to become more efficient and to allow for a better family life
  - **Investment into a biogas power plant** with four other farmers to make use of slurry, solid manure and surplus silage
  - **Slurry separation to use as basic bedding material** with the aim to replace purchased straw
  - **Acting as contractor** to optimise utilisation of farm machinery
  - **Focus on animal health and optimal feeding** for robust cows and high milk quality

- The farm**
- **320 ha** Forage area
    - 120 ha silage maize
    - 85 ha permanent grassland
    - 45 ha arable grass leys
  - **Biogas production**
    - 40 ha silage maize
    - 30 ha whole crop silage rye
  - **Workforce:** 2 Farmers with their families, 2 farm trainees, 3 employees
  - **Additional activities / shareholding**
    - in agricultural contractor business
    - in biogas power plant



**Areas of Interest/Aspirations**  
Resource efficiency,  
Socio-economic resilience,  
Animal care



**Lindhof**  
**Sabine Mues/Keanu Heuck**  
 Bäderstraße 31  
 24214 Noer  
 Germany

### The herd

- **101 spring block calving dairy cows** (81 Jersey + 20 crossbreds) + 45 heifers for restocking + 45 heifers for low input beef production
- **5,168 kg** with 5.63% fat and 4.1% protein = 626kg milk solids cow/year
- **Age at first calving: 23.5 months**
- **Grazing from 1 Maf to 1 Nov**  
Full grazing from 15 Apr to 1 Oct
- **730 kg/cow/year own concentrates**
- **Organic farming, no silage maize**
- **10.6 tons of ECM** = 994 kg of milk solids per ha forage area
- **Loose housing with straw bedding**

### The farm

- **Organic mixed farm 182 ha** for forage production:
  - 55 ha grass clover leys
  - 6.9 ha perm. grassland intensive
  - 41.5 ha perm. grassland low input with management restrictions
 For home-grown concentrates:
  - 15 ha winter wheat + 7 ha lupins
- **Cash crops for human consumption**
  - 18 ha winter spelt, 16 ha spring oats, 4 ha potatoes (for farm shop)
- **Cooperation with neighbour organic all-arable farm:** receiving first cut grass clover paying with solid cattle manure
- **Work force:** One Farmer, two employees, one farm trainee
- **Additional activities:**
  - 100 fattening pigs, 5 sows, 100 laying hens, 20 bee hives
  - Organic farm shop

### Innovations/strategies

- **Member of 3 EIP-Groups:**
  1. **Smart-Grazing:** Monitoring of grass growth
  2. **“Grazing-Manager-Schleswig-Holstein”** (Aim: Introduction + further development of management tools for grazing)
  3. **“Potential of cover crops as additional forage source”**
- **Spring 11-week block calving** to maximise grazing
- **Use of rising plate meters for grazing management**
- **Introducing herbal leys** to support sward growth in drought
- **Self-sufficient milk production** based on grass clover and home-grown concentrates
- **Loose housing barn with focus on farm animal welfare**
- **Mixed farming** for optimal utilisation of plant nutrients



### Areas of interest/Aspirations

Resource efficiency,  
 Socio-economic resilience,  
 Animal care



## Grünhof Jörg Riecken

Zum Grünhof 1  
24245 Großbarkau  
Germany

### The herd

- **93 Holstein dairy cows + 90 heifers for restocking**
- **Autumn block calving** (four months)
- **Age at first calving:** 25 months
- **Cows housed in cubicle barn**, (new building started in 2018)
- **Grazing from April to October**
  - **Winter feeding:** forage: 50% silage maize + 50% Grass silage + 9 kg/cow/ concentrates
  - **Summer feeding:** full grazing + concentrates depending on milk yield  
forage: 50% silage maize + 50% Grass silage + 9 kg/cow/concentrates

### The farm

- **127.5 ha** Forage area:
  - 13 ha silage maize
  - 72.5 ha permanent grassland of which 13 ha are low intensity because of nature conservation
- **Cash crops:** 42 ha (50% wheat + 50% oilseed rape)
- **Work force:** One Farmer, 0.3 retired farmer, one trainee
- **Additional activities:** Housing of guest horses/photovoltaics contractor business, a biogas power plant

### Innovations/strategies

- **Member of 2 EIP-Groups:**
  4. **“Innovative building for farm animal welfare (Innobau)”**
  5. **“Grazing-Manager-Schleswig-Holstein”** (Aim: Introduction + further development of management tools for grazing)
- **Autumn-calving** as an option to maximise grazing in a more continental climate with typical higher building costs. Strategy: high yields in the first half of lactation based on intensive winter feeding combined with low-cost full grazing in summer
- **Intensive use of rising plate meters**
- **Building of a new barn with focus on farm animal welfare**



### Areas of interest/Aspirations

Resource efficiency, Socio-economic resilience, Animal care

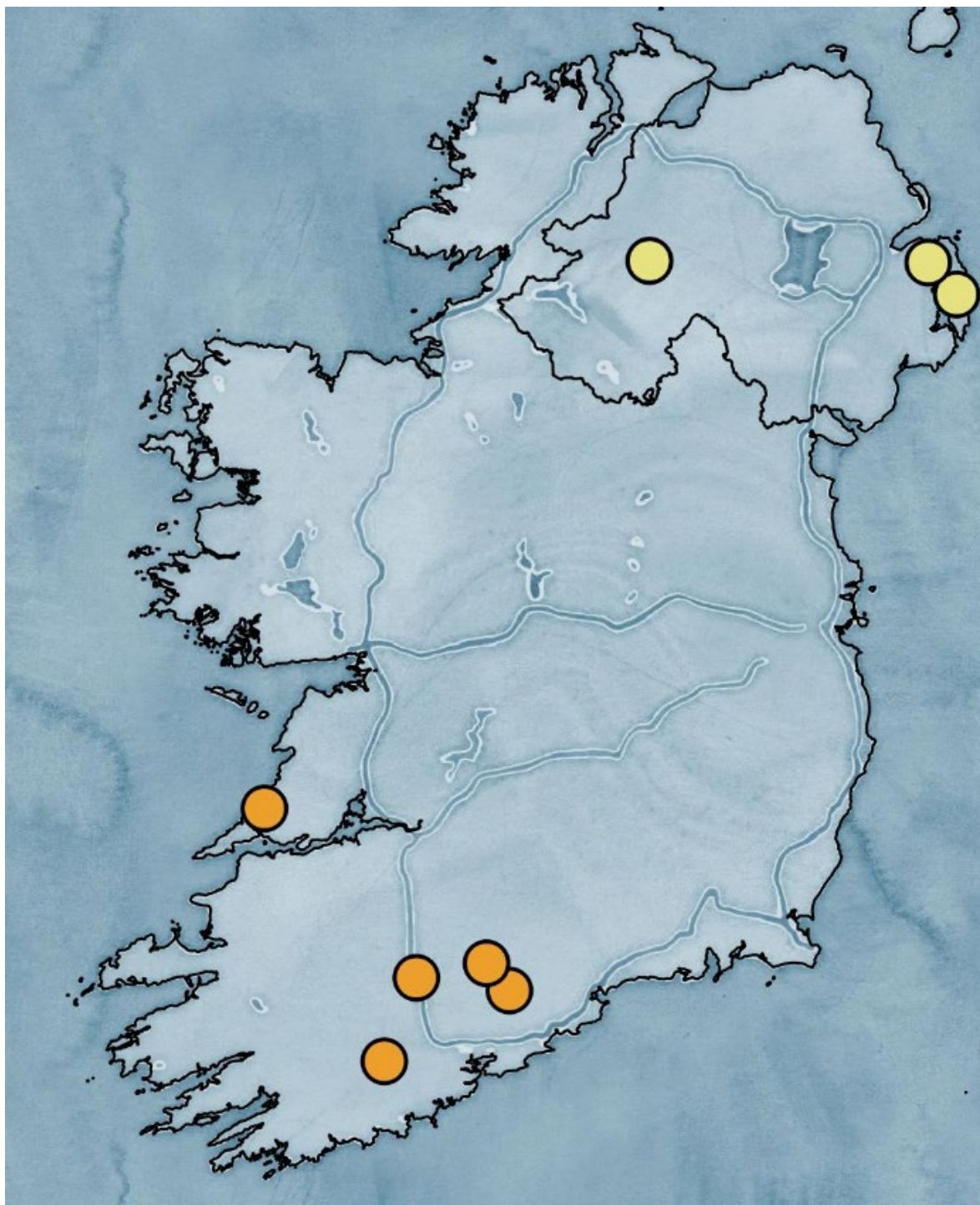




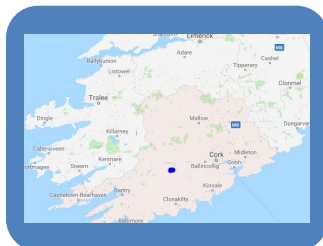
# 7 Ireland



Location of the Pilot farmers







**Shane Fitzgerald**  
 Ballynoe, Co. Cork  
 Republic of Ireland  
 2018

### The herd

- **267 Holstein Friesian & Jersey cross-bred cows**
- **Rotational grazing from 1<sup>st</sup> Feb – 1<sup>st</sup> December**
- **Milking 2 times / day**
- **4.56% fat and 3.73% protein**
- **812 kg of concentrate was purchased per cow**
- **Housed in free stall with mats**
- **Spring block calving**
- **Average age at first calving 23-24 months**

### Innovations

- **Cross breeding** – to achieve quality milk with high fat and protein percentage
- **Breeding for fertility, milk quality (fat and protein) and longevity**
- **Autumn planning strategy**
- **Herd health plan** – monitoring, vaccinating & soil sampling
- **Technology** to save labour and considering a rotary parlour to reduce labour further

### The farm

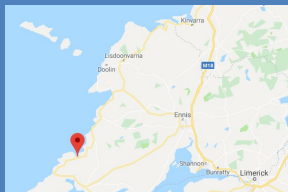
- **Specialist dairy farm**
- Has increased by **100%** since abolition of quota
- **Workforce:** 2 full-time family members & 1.5 hired labour units
- **152 ha grassland – 90 ha of which is rented**
- Ability to **grow 18 t / ha of grass**

### Areas of

#### interest / Aspirations

Resource efficiency / Biodiversity  
 Socio-economics resilience

- *Staff management*
- *Animal health and welfare*
- *Continuous planning*
- *Continue to improve profitability & resilience by planning & regularly reviewing budgets*



**William Hanrahan**  
Dunbeg  
Co Clare  
Republic of Ireland  
2017

### The herd

- 149 cow cross bred herd
- Rotational grazing from 1<sup>st</sup> Feb – 1<sup>st</sup> December
- Milking 2 times / day
- 4.39% fat and 3.64% protein
- 744 kg of concentrate purchased per cow
- Average age at first calving is 23 months
- All forage is made on farm for all livestock
- Rears all young stock on the farm

### Innovations

- **Autumn planning** to improve efficiency
- **Breeding for fertility, milk quality (fat & protein) and longevity**
- **Herd health plan** – monitoring, vaccinating and soil sampling
- **Technology; built a new milk parlour 20:20** to save labour
- **Cross breeding** – to achieve quality milk with high fat and protein percentage
- **Very active member in his local discussion group**

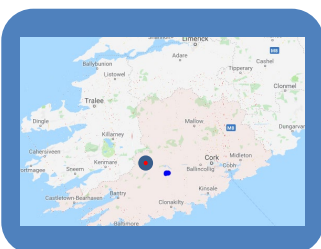
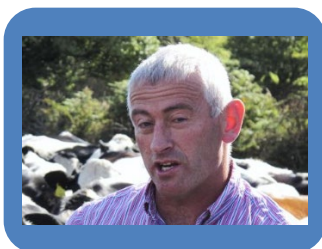
### The farm

- **Specialist dairy farm** located on the west coast of Ireland in Co. Clare
- **Farming on different soil types**
- **Workforce:** 2 family members
- **Total land area is 90 ha of which 13.2 ha is rented**
- **14 t / ha of grass grown**

### Areas of interest/Aspirations

Resource efficiency / Biodiversity  
Socio-economics resilience

- *Animal health and welfare*
- *Continuous planning*
- *Continue to improve profitability & resilience by planning & regularly reviewing budgets*
- *Improve Nitrogen efficiency*
- *Technology*



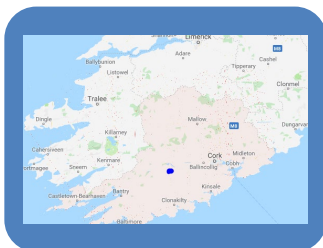
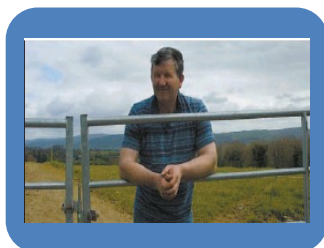
**Michael Murphy**  
 Macroom  
 Co. Cork  
 Republic of Ireland  
 2018

- The herd**
- **350 Holstein Friesian and Jersey cross-bred cows**
  - **Managed on 3 separate farms:** home farm, and two leased farms 3 and 13 miles away
  - **Rotational grazing** from 1<sup>st</sup> Feb-1<sup>st</sup> December
  - **5802 kg/cow/year spring herd** with **4.25% fat and 3.64% protein**
  - **Stocking rate 2.75 cows/ha**
  - **All winter feed** is conserved within the farm system and **800kg** of concentrate was purchased per cow.
  - **Housed in free stalls with mats**
  - **100 heifers and 100 heifer calves** are reared by a contract rearer

- Innovations**
- **Cross breeding**, Holstein Friesian and Jersey are crossed to achieve quality milk with high fat and protein percentage.
  - Breeding for **fertility, milk quality (fat and protein) and longevity**
  - Milking cows across **three farms where two are on a long term lease** (10 years)
  - **Grass budget** with **15 years** to ensure cows graze **excellent quality grass** all the time.
  - **Contract rearing** all replacement heifers with **4 years**

- The farm**
- **Specialist dairy farm**
  - Has been in the Murphy family for three generations
  - **Produce award-winning milk**
  - **Workforce:** 3 full time & 2 part-time
  - **130 ha grassland - 3 grazing platforms**

- Areas of interest/Aspirations**  
 Resource efficiency / Biodiversity  
 Socio-economics resilience
- *Continue to improve self-sufficiency and sustainability by optimising home-grown forages*
  - *Reduce the number of labour hours per cow to less than 20*
  - *Water efficiency measures*



**Tony O'Regan**  
**Mallow**  
**Co. Cork**  
**Republic of Ireland**  
**2018**

- The herd**
- **220 Holstein Friesian cross bred cows**
  - **Milking 2 times / day**
  - **Rotational grazing** from 1<sup>st</sup> Feb – 1<sup>st</sup> December
  - **Housed in free stall with mats**
  - **Average age at 1<sup>st</sup> calving is 24 months**
  - **754 kg concentrate purchased per cow**
  - **4.69% fat and 3.82% protein**

- Innovations**
- **Breeding for fertility, milk quality (fat & protein) and longevity**
  - **Cross breeding** – to achieve quality milk with **high fat and protein** percentage
  - **Autumn planning** strategy – allows to plan ahead for busy periods e.g. **calving**
  - **Monthly cash flow budgets** – target versus actual
  - **Chairman of the local discussion group** which meets monthly to discuss farm performance and currently issues

- The farm**
- Specialist dairy farm
  - Good dry free draining soil
  - **Workforce:** 2 family members and 1 hired labour unit
  - 99 ha Total permanent grassland
  - 56 ha are rented
  - Average 15 t / ha grass grown

- Areas of interest/Aspirations**
- Resource efficiency / Biodiversity  
 Socio-economics resilience
- *Continuous planning*
  - *Continue to improve profitability & resilience by planning & regularly reviewing budgets*
  - *Animal health and welfare*

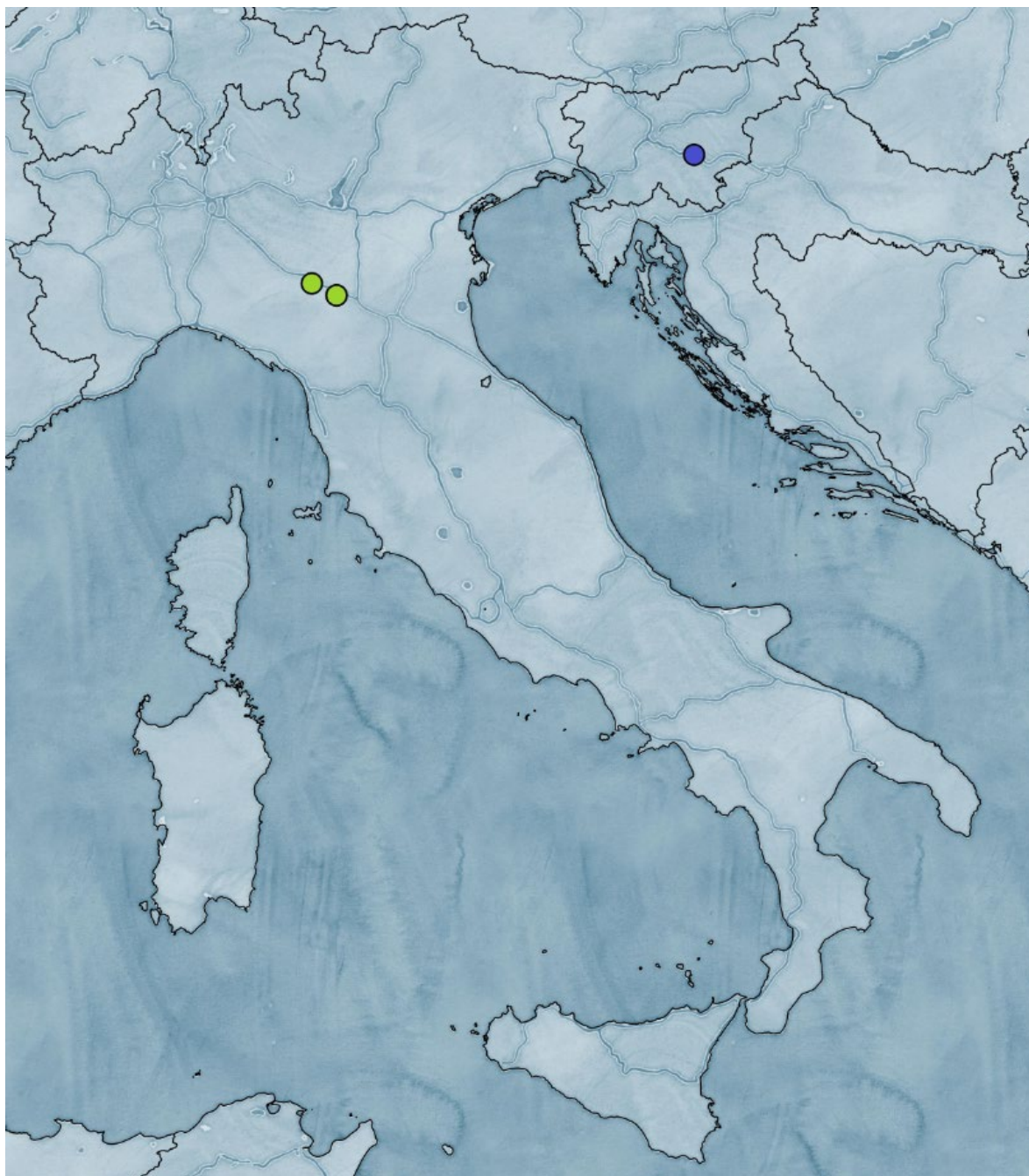




# 8 Italy



Location of the Pilot farmers





**William Bastardi**  
 Fratelli Bastardi  
 Emilia-Romagna  
 Italy

**The herd**

- 113 cows Holstein Friesian
- 55 young cattle
- 8,821 litres/cow
- 997,000 litres/year
- Milk to Parmigiano-Reggiano PDO cheese production



**The farm**

- Specialist dairy farm 88 ha of forage area
- Arable land for forage 51%
- Temporary grassland 49%



**Innovations**

- Produces electricity with a 50kW power **photovoltaic system**
- Likes to experiment, for example a device was inserted for **direct hydrogen injection into the engine of the mixer feeders**
- Practices the **reduction till** in his crop cultivations
- Cares about **environmental issues**, participating as partner in an operational group **measuring carbon footprint, water footprint and energy balance** (Metabolic model).

**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care



**Saverio Delsante**  
 Azienda Agricola Delsante  
 Parma Emilia-Romagna  
 Italy

- The herd**
- 139 Holstein Friesian cows
  - 134 young cattle
  - 8,086 litres/cow (ECM)
  - 1,120,000 litres/year (ECM)
  - Milk to Parmigiano-Reggiano **PDO cheese production**



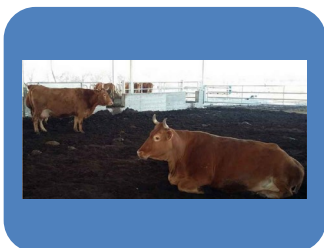
- The farm**
- Specialist dairy farm
  - 118ha forage area
  - Rented land 42%
  - Arable land for forage 92%
  - Permanent grassland 5%
  - Temporary grassland 3%

- Innovations**
- To create a short supply chain from field to cheese sale, to have direct contact with consumers
  - Participates in an OG to **sell cheese using social media platforms**
  - **Differentiates** the cheese and have **certificates of added value** such as the production of a **Halal cheese**
  - Caring about the environment and biodiversity and **takes part in local groups to promote Social Responsibility**



**Areas of interest / Aspirations**  
 Biodiversity, Resource efficiency, Socio-economic, Animal care  
 - *Planning to build a new barn with automated systems*





**Cesare Goldoni**  
**BIOGOLD**  
 Reggio Emilia -Emilia-Romagna  
 Italy

- The herd**
- 48 cows Reggiana Breed
  - 34 young cattle
  - 5,868 litres/cow (ECM)
  - 276,000 litres/year (ECM)
  - Milk to Parmigiano-Reggiano cheese production

- Innovations**
- Organic farm focusing on low input and low output
  - Breeding the Reggiana cow, a local breed to keep biodiversity.
  - Started an operational group to test the new housing “compost barn”
  - They have direct contact with consumers selling cheese directly or via a collective group of buyers



- The farm**
- Specialist dairy organic farm
  - 38 ha of forage area
  - Arable land for forage 72%
  - Permanent grassland 28%

**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
 Socio-economic resilience, Animal care





**Gianni Rossi, Graziano Rossi,  
Massimo Rossi**  
FATTORIA ROSSI  
Reggio Emilia- Emilia-Romagna  
Italy

- The herd**
- Dairy farm and pig farm
  - 164 Holstein Friesian cows
  - 110 young cattle
  - 6,517 litres/cow (ECM)
  - 1,069,000 litres/year (ECM)
  - Milk to Parmigiano-Reggiano PDO organic cheese production



- The farm**
- 100 ha of forage area
  - Arable land for forage 90%
  - Temporary grassland 10%



- Innovations**
- Organic farm focusing on low input and low output
  - Started a process to antibiotic free production
  - The farm uses renewable energy from solar panels providing 90% of the necessary farm energy
  - Most of the cheese production is sold in the farm shop
  - The direct contact with consumers is a crucial strategy of the farm
  - Opened a shop restaurant in Firenze to increase their business

**Areas of interest/Aspirations**

Biodiversity, Resource efficiency, Socio-economic, Animal care





**Aurelio & Ernesto Simonazzi**  
 Azienda Agricola Simonazzi  
 Reggio Emilia - Emilia-Romagna  
 Italy

**The herd**

- 130 cows Holstein Friesian
- 150 young cattle
- 9,993 litres/cow (ECM)
- 1,299,000 litres/year (ECM)
- Milk to Parmigiano-Reggiano PDO cheese production



**The farm**

- Specialist dairy farm
- 120 ha of forage area
- Arable land for forage 82%
- Temporary grassland 8%



**Innovations**

- The farm produces electricity with a 70kW power photovoltaic system
- Part of the slurry produced is used for feeding an extra – farm’s biogas plant
- Uses a solid liquid separator for manure management
- Cares about the environment - participated as partner in an operational group measuring carbon footprint, water footprint and energy balance (metabolic model)

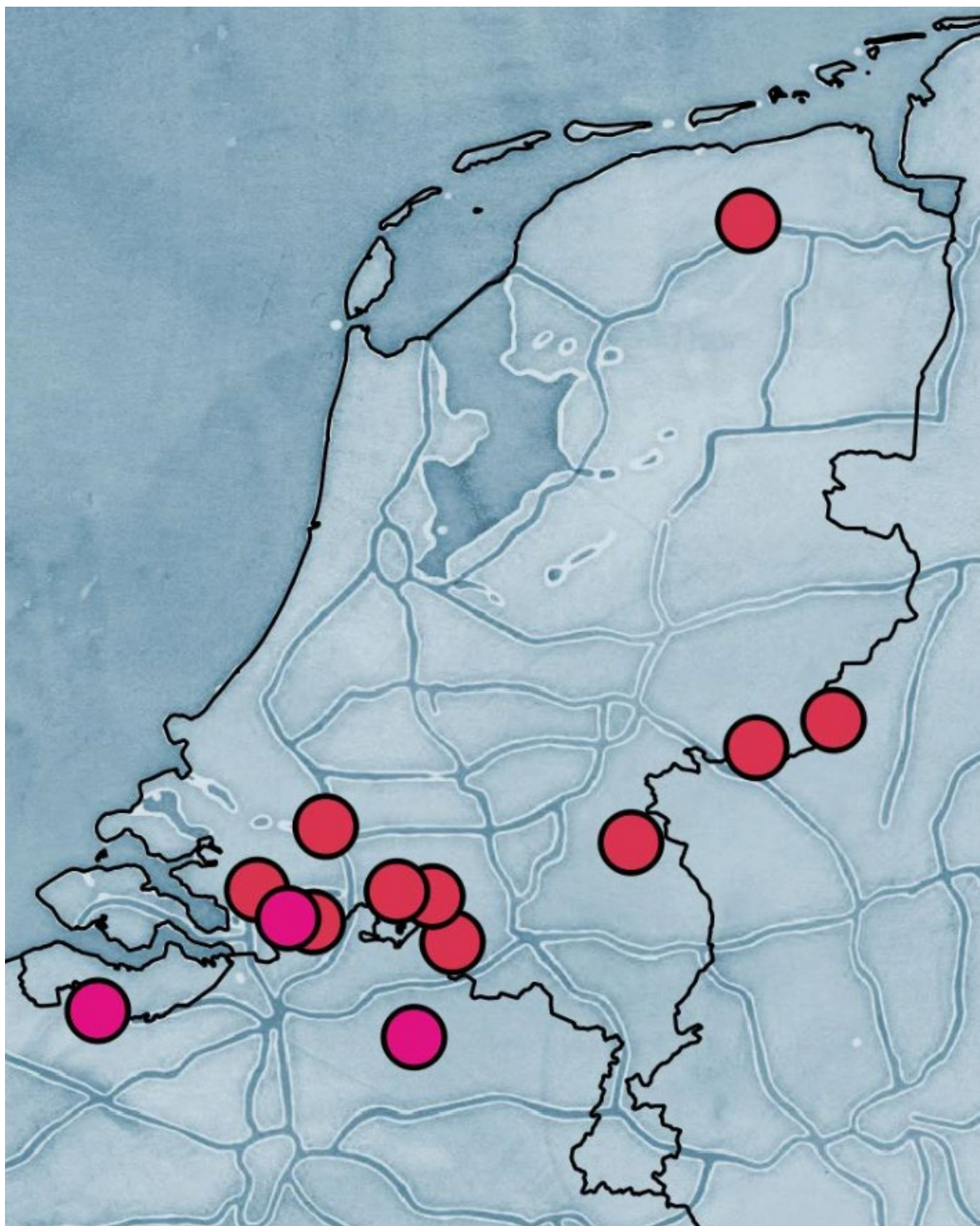
**Areas of interest/Aspirations**

Resource efficiency, Biodiversity  
 Socio-economic resilience, Animal care

# 9 Netherlands



Location of the Pilot farmers





## Marcel Derks

M.P.T.M. Derks  
Rijkevoort  
Netherlands

### The herd

- **52 milking cows with 46 young stock**
- 8.8 young stock per 10 milking cows
- **Holsteins**
- **8,346 litres per cow per year**
- **4.30% fat and 3.40% protein**
- **Age at first calving: 24.9 months**
- 14.122 litres per ha
- **Calving all year round**
- Traditional cubicle stable
- Robot

### The farm

- Interested in new topics
- **Runs farm by himself working a 50 hour week**
- **30.91 ha total**
- 20.40 ha production grass
- 7.47 ha maize
- 3.04 ha arable land

### Innovations

- **Focuses on efficient nutrient utilisation** as believes soil is the motor of the farm
- To enhance the quality of the **manure it is aerated in the storage tanks.**  
Avoidance of anaerobe conditions in the manure tank means optimum nutrient availability for the plant. Prefers to apply the aerated manure to the fields instead of artificial fertilisers
- The **maize is seeded in diamond seeding** allowing for a better nutrient use efficiency
- Aiming for a **reduction of nitrate losses by leaching**
- To get more support in the understanding and management of cows, he is **making use of sensors to monitor the cows behaviour.**  
Monitoring of cows behaviour leads to improved cows health
- Milking with a milk **robot** to get more data of his cows

## Areas of interest/Aspirations

Socio-economic resilience



**Jolle de Haan**  
Melkveehouderij de Haan  
Niekerk  
Netherlands

### The herd

- 130 milking cows and 73 young stock
- 5.6 young stock per 10 milking cows
- Holsteins
- 4.35 fat and 3.58 protein
- 9,040 litres per cow per year
- Age at first calving: 25 months
- 14,367 litres per ha
- Calving all year round
- Free range stable with sand cubicles
- Milking parlour

### The farm

- Jolle has a passion for **sustainable dairy farming**
- 81.80 ha total
- 81.80 ha production grassland

### Areas of interest/Aspirations

Animal care

### Innovations

- **Vision for sustainable dairy production and actively promotes nature inclusive farming**
- **Focuses on biodiversity and soil management.** Management of soil organic matter enhances CO2 storage in the soil. Soil organic matter promotes plant growth
- To improve utilisation of grass, participates in the **Amazing Grazing Project** where plant growth is monitored
- In summer makes hay of some paddocks with **suspended first cut** grass and herbs
- **Grass is not cut or grazed before 15 June to create habitat for wader birds, insects and herbs**
- **Borders of the high-productive paddock are kept free of fertilisers** and will be uncut till second cut, to prevent run-off of minerals to ditches and to provide shelter for wildlife.
- To accommodate natural behaviour of the cows built a **free range stable**
- **Calving interval is short as using the sensor Cowmanager for breeding cows**
- Uses wind and sun as a natural resource to generate electricity on farm with two wind mills and 732 solar panels



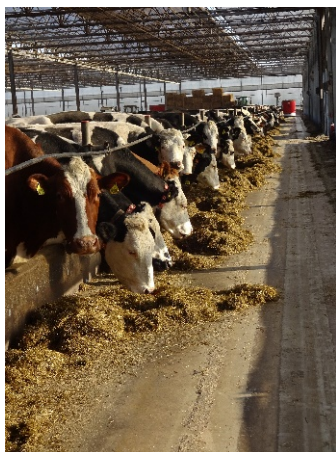


## Marc & Ingrid Havermans

Klaverhof  
Moerdijk  
Netherlands

### The herd

- **280 cows**
- 20m<sup>2</sup> per cow
- **Free walk barn**
- Composted straw bedding
- Large open resting area
- **Robots**



### Innovations

- **Free walk barn** as not satisfied with the different stable constructions. Before 80% of time was spent looking after cows not fitting into the system so chose an alternative housing system
- **Green house roof**
- **Focus at one thing at the time**
- **Mechanically stir the bedding with a cultivator once a day.** Good mixing and ventilation provide a clean and dry surface which prevents udder infections and digital dermatitis
- **Automatic systems** for: Milking System (Lely 5x), feeding, manure scraper, milk feeding therefore less labour input
- **Sensors** for heat detection milking cows and heifers

## Areas of interest/Aspirations

Animal care, socio-economic resilience





## Niels van Hooijdonk

Melkveebedrijf D' Hel

Achtmaal

Netherlands

### The herd

- **286 milking cows and 170 young stock**
- 5.9 young stock per 10 milking cows
- **Holsteins**
- **10,085 litre per cow per year**
- 4.05 fat and 3.56 protein
- **Age at first calving: 24 months**
- **23,961 litre per ha**
- **Calving all year round**
- Traditional cubicle stable
- **Laval robots and SAC milking parlour**

### The farm

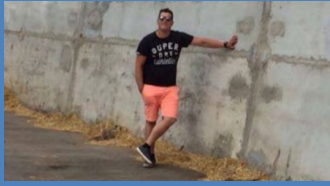
- Young farmer who is going to take over the farm
- **Work force:** Two full time and one part time family member and one full time and one part time employee
- **120,37 ha total in use**
- 29,31 ha production grass
- 41,31 ha maize
- 49,75 ha arable land

### Innovations

- **Independent farmer with affiliation for sustainable energy and innovative business models**
- While running the family farm with his parents, he is **actively seeking for new energy sources**
- Also do new construction and renovation of the buildings themselves
- Carry out all the land work themselves except for the pits of grass and corn
- As a shareholder he **owns windmills in a wind park** in the North of the Netherlands as well as establishing two windmills in collaboration with a companion
- Also **owns 2,300 solar panels on 9 locations in NL and BE**
- Businesswise he. **expanded his dairy farming business (2,200 dairy cows) with an arable farmer on 2,200 ha in Romania**

## Areas of interest/Aspirations

Animal care



**Robert Maas**  
Melkveehouderij Maas  
Moerstraten  
Netherlands

### The herd

- **105 milking cows and 77 young stock**
- 7.3 young stock per 10 milking cows
- **Holsteins**
- **10,838 litres per cow per year**
- **4.12% fat and 3.49% protein**
- **Age of first calving: 24 months**
- **19,270 litres per ha**
- **Calving all year round**
- Traditional cubicle stable
- **Herringbone milking parlour 2 x 8**

### The farm

- Young farmer who is going to take over the farm
- **Work force:** Three own people full time
- **59.17 ha total**
- 31.02 ha production grass
- 5.88 ha maize
- 22.27 ha grassland with management restrictions

### Innovations

- **The farm is versatile**, with different production branches to generate income and allowing for **efficient resource allocation on farm level**. The farm combines **dairy production with grazing and arable production**
- Part of **the manure is being used for biogas production**. The manure and digestate can be applied on different crops.
- Although his farm is excluded from derogation it allows a **high production of milk and crops**
- Tries to promote on farm **biodiversity**

## Areas of interest/Aspirations

Animal care



## Rick Meulenbroeks

Dennenburg VOF

Lage Mierde

Netherlands

### The herd

- **225 milking cows and 96 young stock at home**
- Other young stock at the young stock breeder
- **Red Holsteins**
- **8,929 litres per cow per year**
- 4.55% fat and 3.65% protein
- **Age at first calving:** 22.9 months
- **43,066 litres per ha**
- **Calving all year round**
- Traditional cubicle stable
- **Rotary milking parlour**

### The farm

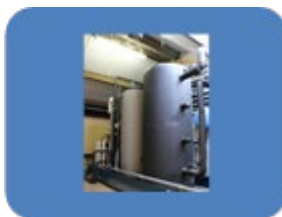
- Young farmer how is going to take over the farm
- **Work force:** Two own people full time, one part-time employee
- **46.67 ha total**
- 37.71 ha production grass
- 8.96 ha maize

### Innovations

- Works towards **optimising grazing system** in order to improve grass utilisation
- **Breeding with Red Holstein** for exterior  
This breed is robust with a good grass conversion for a high milk protein content
- **Expanding farm activities by making farm accessible to visitors**
- **Additional income is being generated by offering a location for congresses and meetings to companies**
- Also invites people who are interested and tourists to join his on **farm guided tours**

## Areas of interest/Aspirations:

Animal care



## Robert Oomen

Melkveehouderij de Heiweiden  
Gilze  
Netherlands

### The herd

- **182 milking cows and 159 young stock**
- 8.7 young stock per 10 milking cows
- **Holsteins**
- **10,280 litres per cow per year**
- **4.33% fat and 3.55% protein**
- **Age at first calving: 25.2 months**
- **23,792 litres per ha**
- **Calving all year round**
- Traditional cubicle stable
- Robots

### Innovations

- **Invested in cow welfare by building a stable with saw tooth roof.** This kind of roof allows for a better ventilation and air climate in the stable. On the roof he installed solar panels to be self-sufficient in energy production
- **Milks the cows with three milking robots.** The milk is kept on temperature with a heat pump (ECO200). **The surplus heat is fed into his houses heating system.**

### The farm

- **Entrepreneurial dairy farmer**
- **Work force:** Two own people full time and one part-time, one part-time employee
- **78.64 ha total**
- 63.80 ha production grass
- 14.84 ha maize

## Areas of interest/Aspirations

Socio-economic resilience



**Ronnie Schellekens**  
 Melkveebedrijf R. Schellekens  
 Goirle  
 Netherlands

### The herd

- 127 milking cows and 47 young stock
- 3.7 young stock per 10 milking cows
- Holsteins
- 8,633 litres per cow per year
- 4.27 fat and protein 3.50
- Age at first calving: 24.4 months
- 23,538 litres per ha
- Calving all year round
- Traditional cubicle stable
- Robots

### The farm

- Young farmer who is running the farm by his own
- Working week is 70 hours
- 46.58 ha total
- 28.25 ha production grass
- 6.87 ha maize
- 11.46 ha grassland with management restrictions

### Innovations

- Very automated farm - two milking robots and invested in a feeding robot to improve the feeding efficiency. The robot adds regular small portions, so fresh feed is available and stimulates the uptake
- In the stable a manure cleaning robot is installed with disinfection, this enhances the hygiene in the stable
- Cows performance is monitored with an activity meter, allowing for better control of the cow's health and performance. Especially during heat the farmer can take action immediately.
- Interested in biodiversity and landscape management. Therefore allowing higher plant biodiversity on field edges

## Areas of interest/Aspirations

Animal care





## Alfred Scholten

A en L Scholten-Oonk  
Winterswijk-Wood  
Netherlands

### The herd

- **159 milking cows and 63 young stock** at home
- Other young stock at the young stock breeder
- 8,224 litres per cow per year
- 4.55% fat and 3.66% protein
- **Age at first calving: 26 months**
- 19,919 litres per ha
- **Calving all year round**
- Traditional cubicle stable
- **Robots**

### The farm

- **Striving for feed and nutrient use efficiency**
- **Workforce** - One full time, one part time
- **93,53 ha total**
- 58,66 ha production grass
- 25,55 ha maize
- 5,80 ha summer barley
- 3,52 ha potatoes

### Innovations

- **Farm split into dairy and arable**
- For **cow management uses robots** for feeding, feeding efficiency and milking
- **Breeding target is a high fat and protein content in the milk**
- Paying attention to **biodiversity by assigning 9 ha to biodiversity and soil nitrogen management** with grass clover pasture
- Participates as a **pilot farm for the Dutch drinking water** company 'Vitens' to increase nitrogen utilisation and reduce N losses
- As a pilot farmer **applies manure according to the yield** and takes measurements of nitrate concentrations in the ground water
- For **improved nitrogen utilisation is planting the maize** in diamond shapes

## Areas of interest/Aspirations

Recourse efficiency



## Henry Steverink

Mts. Steverink-Raben  
Silvolde  
Netherlands

### The herd

- **109 milking cows and 22 young stock at home**
- Other young stock at the young stock breeder
- **Holsteins**
- **12,062 litres per cow per year**
- **4.29% fat and 3.48% protein**
- **Age at first calving: 24 months**
- **28,296 litres per ha**
- **Calving all year round**
- Traditional cubicle stable
- Robots

### The farm

- **Progressive farmer with focus on grassland utilisation**
- **Work force:** Almost two full time working on the farm
- **46.42 ha total**
- 37.23 ha production grass
- 9.19 ha maize

### Innovations

- **Promotor of grazing.** Tries to optimise grass utilization with **flexible grazing and grazing until late autumn** and, combines grazing with robot milking
- Management leads to a **high milk output at average costs of production**
- **Passion for biodiversity** and tries to create space and opportunities for biodiversity on his farm
- **Cubicles** in the stable are filled by a robot
- Bedding material for the cows is **dried digestate**

## Areas of interest/Aspirations

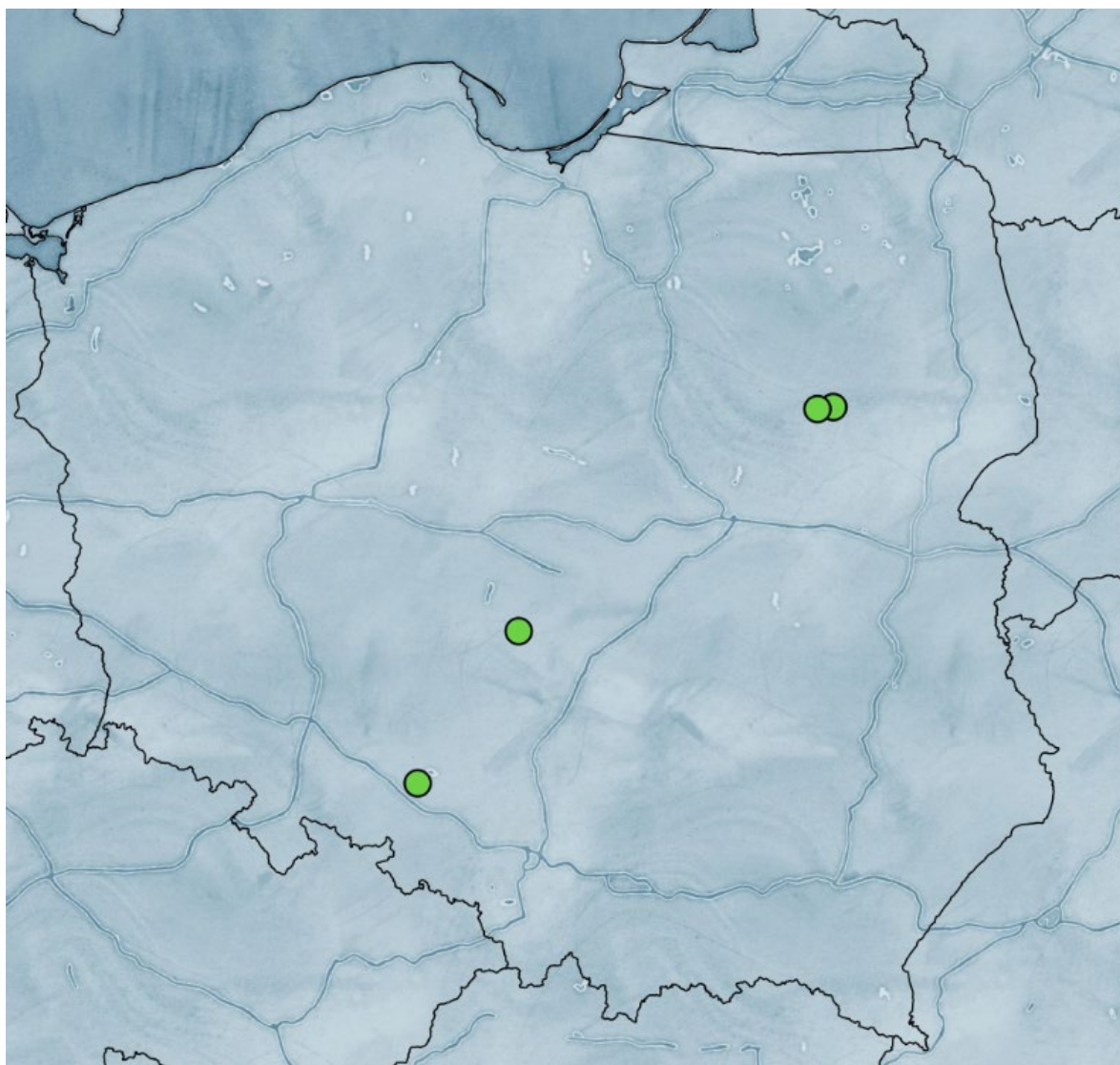
Resource efficiency



# 10 Poland



Location of the Pilot farmers





## Gospodarstwo Rolne Kaliszewscy

Długi Kąt  
Poland

### The herd

- **16 dairy cows**
- **Breeds:** Holstein-Simentaler, Jersey, CB
- **90,000 kg of ECM milk produced**
  - 100 % sold
  - 4,30% fat and 3.40% protein
- 5,500 kg ECM/cow/year (milk yield)
- 4,500 kg ECM milk per ha forage area
- **Tether system for keeping cows**

### Innovations

- **Rotational grazing** to get some rules to manage grasslands,
- **Low cost** of energy, fuels, employees,
- **1/2 calves** fed with mother's milk (two weeks)
- **Non GMO production**

### The farm

- **Workforce: Two + one** (Two full time)
- **Mixed crop and dairy farm**
- **22 ha Agriculture area**
- **2 ha crops**
- **20 ha fodder area:**
  - 18 ha grassland (65 % FA)
  - 2 ha maize silage (33 % FA)



## Areas of interest/Aspirations

Better genetics  
More mechanisation  
Conscious nutrition





**Jan Mrozek**  
Olszewka  
Mazovia  
Poland  
2018

### The herd

- **20 dairy Livestock Units (LU)**
- **16 dairy cows** and eight dairy heifers
- **Breeds:** Holstein (60%), cross-breeds of cows (Holstein x Simental x Montbeliarde)(40%)
- **Age at first calving:** 26 months
- **87,500 kg of ECM milk produced**
  - 4.00% fat and 3.30% protein
- 5,720 kg ECM/cow/year (milk yield)
- 2,653 kg ECM milk per ha forage area
- **Stocking rate:** 0.6 LU /ha forage area

### Innovations

- **Non GMO forage**
- **Rotational grazing** to get some rules to manage grasslands and improve their quality
- Cross-breeds of cows

### The farm

- **Workforce:** Three (2.5 full time) (Three family members)
- **33 ha Agriculture area**
- **25 ha grassland**

### Areas of interest/Aspirations

Resource efficiency  
Socio-economics resilience

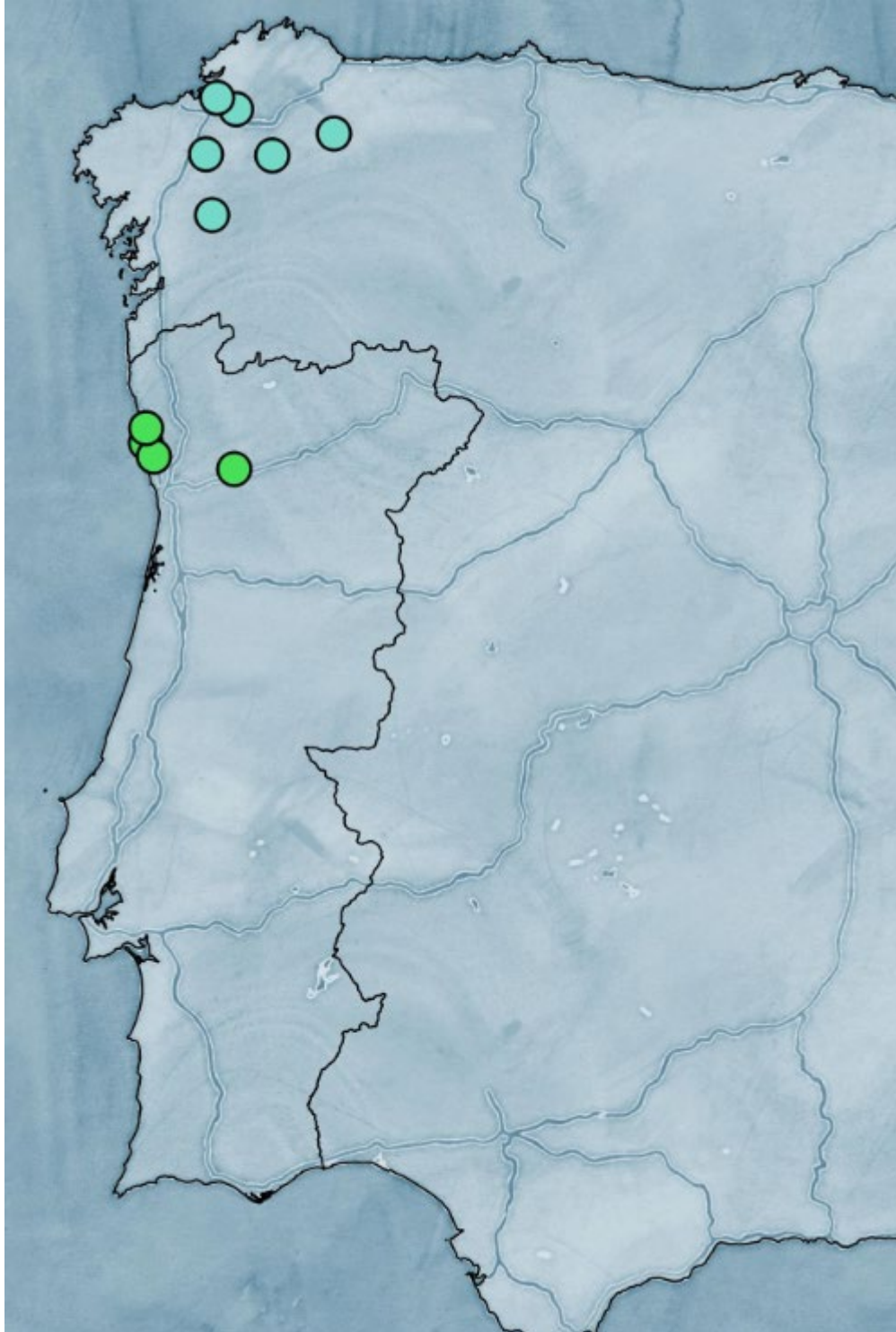
- *Improve self-sufficiency by optimising and diversifying home-grown forages*
- *Build a complete sustainable system*
- *Construction of a free-standing cowshed*



# 11 Portugal



Location of the Pilot farmers





## José Augusto Mariz Ferreira

Barcelos  
Carvahal  
Portugal

### The herd

- **125 cows**
- **1,188,00 l milk sold (2016)**
- **9,568 kg ECM/cow/year**
- 3.89% fat
- 3.29% protein
- **Age at first calving: 26 months**
- **Calving interval: 392 days**
- **Concentrate: 311 g/kg ECM**
- **Replacement rate: 32%**

### The farm

- **Farm area: 27 ha**
  - Forage: 25 ha
- **Stocking rate: 7.6 LU/ha**
- **Workforce: Three (family) + 1.3 (staff) Work Units**

### Innovations

- **Visits other farms** in different regions and countries in search of **alternative ways of working** and tries to adapt them to local reality
- Has a **good technical team** that supports the farm in the various areas: animal feed, veterinary services, agronomists to support decisions related to forage crops, etc.
- **Good animal management** - knowing the animals and land very well in order to eliminate black spots of the farm
- The **herd is planned** (including cows breeding) to obtain more litres of milk, protein and durability of the animals, and to get **more profitability and environmental efficiency per animal**
- Trying to **lower production costs in every way**
- **Diet management** is done by farmer and by a nutritionist whose goal is to use the largest possible amount of forage produced on the farm and reduce the concentrates
- The **welfare and health of animals is fundamental** in management **to reduce the replacement rate and young stock deaths** (dairy company has several rules of well-being and animal health, for ethical reasons and regular audits)

## Areas of interest/Aspirations

Resource efficiency,  
Animal care



**Filipe Gonçalves**  
**Sociedade Agropequária Estrela do**  
**Alto Minho**  
**Esposende**  
**Portugal**

### The herd

- **115 cows**
- **Breeds:** crossbreds
- **1,110,000 l sold (2016)**
- **9,602 kg ECM/cow/year**
- 3.9% fat
- 3.2% protein
- **Age at first calving:** 24 months
- **Calving interval:** 390 days
- Concentrate: 325 g/kg ECMilk

### The farm

- **Farm area: 30 ha** (60% rented)
  - Forage: 30 ha
- **Stocking rate:** 6.3 LU/ha
- **Workforce:** 3.5 workers (staff)

### Innovations

- Strict use of **the Procross system for the genetic breeding** of the herd with the objective to obtain high-fertility, healthy and robust cows
- **Veterinarian visits at least once a week** to be able to perform the diagnosis of gestation as soon as possible and if necessary induce estrus; as a result, **very short lactation intervals**
- **Very focused with well defined objectives**, such as reducing or even eliminating the consumption of antibiotics on the farm or producing milk A2A2
- Use of **software tools for technical management** of the farm

## Areas of interest/Aspirations

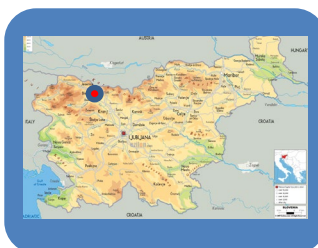
Resource efficiency,  
 Animal care





# 12 Slovenia





**Nejc Dolenc**  
4240 Radovljica  
Slovenia  
2017

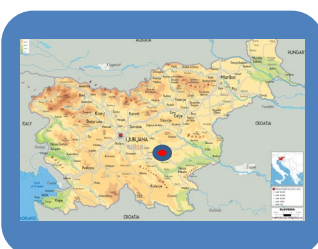
- The herd**
- 72 milking cows & 76 young stock
  - Holsteins
  - Calvings year round
  - 9,840 kg milk/cow/year
  - 4.30% fat and 3.41% protein
  - Average age at first calving: 32 months
  - 759 kg milk solids/cow
  - 254 g of concentrates per kg milk
  - Rotational grazing system from end April until end October
  - Traditional cubicle stable

- Innovations**
- Sustainable way of farming and use of all resources in efficient way
  - To maximise milk from grass with on-farm processing of milk and marketing of dairy products (via farm shop)
  - Care for animal welfare, animal health and longevity of cows
  - To bred show cows with high breeding value
  - High motivation of family members for farming, processing of milk and direct marketing

- The farm**
- Family dairy farm
  - Nejc is a young farmer – took over the farm from grandfather
  - 3.5 own people full time
  - 64 ha agriculture area
  - 48 ha permanent grassland (including grazing platform)



- Areas of interest/Aspirations**  
Resource efficiency / Animal care / Added value on-farm
- Optimize using of all available resources
  - Produce 10.000 kg high quality milk/cow annually with high content of proteins in milk
  - Processing of own milk to high quality dairy products and selling via farm shop
  - Planning to build new barn with high standards for comfort of animals with automated system
  - Breeding animals with high life production – show type



## Toni Kukenberger

8210 Trebnje

Slovenia

2017

### The herd

- **21 Brown-bred cows**
- 15 home reared heifers Brown bred
- **Calvings over all year**
- **8,570 kg milk/cow/year**
- **3.81% fat and 3.62% protein**
- **Average age at first calving: 27 months**
- **636 kg milk solids/cow**
- **232 g of concentrates per kg milk**
- Specialist **rotational grazing system** from early April until November
- **Stocking rate 1 LU/ha**

### The farm

- **Organic family dairy farm**  
Four generations get along well together on the farm
- **Workforce:** 2 full time + 1 milk processing
- **24 ha agriculture area**
- **4 ha grazing platform**
- **Furthest paddock 500 m** from the mobile parlour

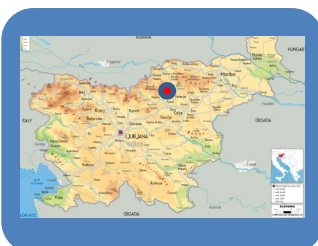
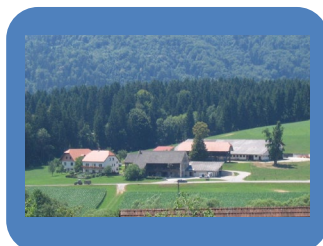
### Innovations

- Attention to **high quality of organic hay milk and dairy products** on the base of grass, hay, cereals (without silage)
- Care for **animal welfare** and **animal health** and **good working and life circumstances for family members**
- **Sustainable way of farming** and use of land
- To **maximise milk from grass with on-farm processing of milk and marketing of dairy products** (farm shop)
- Animals stay more than 6 months on day-and-night pasture
- **Mobile milking parlour** located close to grazing area
- Desired breeding traits include **productivity, high content and quality of milk, longevity, animal health**
- **High motivation of family members** for farming, processing of milk and direct marketing - personal contacts with consumers
- Their moto is '**simple and enjoyable** 😊'  
<http://www.ekosirarna.si/>

## Areas of interest/Aspirations

Resource efficiency / Biodiversity / Added value on-farm

- *Grazing management*
- *Optimize grassland productivity*
- *Produce 9.000 kg organic milk/cow annually with high content of proteins in milk*
- *Production of high quality organic dairy products on the base of organic hay milk produced and processing on own farm (no silage in the feed ratio)*
- *Marketing of on-farm processed high quality dairy products (organic & hay milk)*
- *Demonstration family farm with farm shop and knowledge transfer lecture room*



## Jakob Napotnik

3326 Topolšica

Slovenia

2017

### The herd

- **49 milking cows & 73 young stock**
- Holsteins & Brown
- **Calvings year round**
- **8,678 kg milk/cow/year**
- **4.26% fat and 3.33% protein**
- **Average age at first calving: 27 months**
- **658 kg milk solids/cow**
- **231 g of concentrates per kg milk**
- **Rotational grazing system** from end April until end October
- **Traditional cubicle stable**

### Innovations

- **Sustainable way of farming** and use of all resources in efficient way
- To **maximise milk from grass with on-farm processing of milk and marketing of dairy products** (via farm shop)
- Care for **comfort, animal welfare, animal health and longevity of cows**
- To bred top genetic / show cows with high breeding value
- **High motivation of family members** for farming, breeding, processing of milk and direct marketing (dairy products and breeding animals)

### The farm

- **Family dairy farm**
- Jakob is a young farmer – took over the farm from his parents
- 3.5 own people full time
- **32 ha agriculture area**
- **22 ha permanent grassland** (including grazing platform)



### Areas of interest/Aspirations

Animal care / Resource efficiency / Added value on-farm

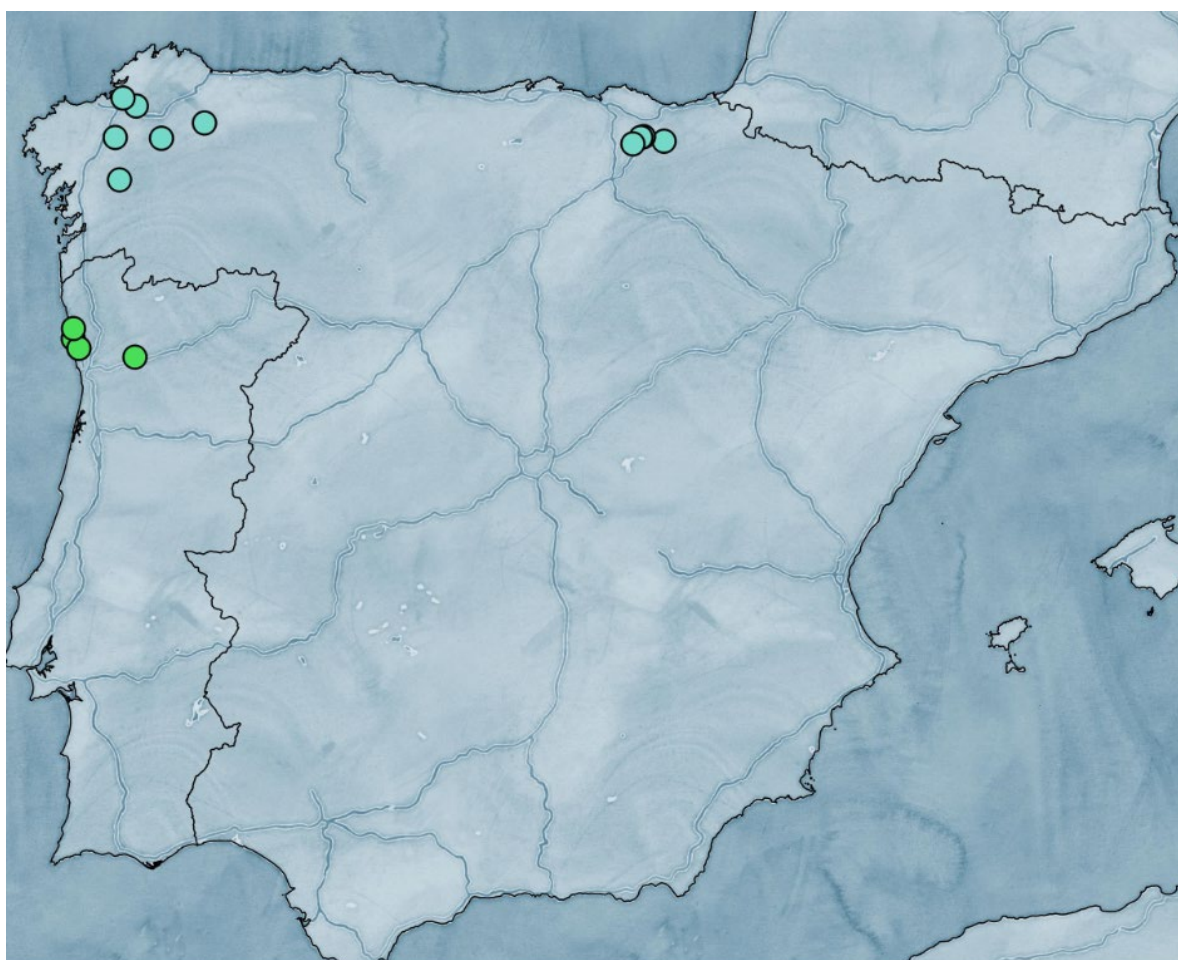
- *Breeding animals with high life production – show type – top genetic*
- *Optimize using of all available resources*
- *Processing of own milk to high quality dairy products and selling via farm shop*
- *Planning to build new barn with high standards for comfort of animals*
- *Producing hay milk with high content of proteins – to offer “A2A2 hay milk” on the market*



# 13 Spain



Location of the Pilot farmers





**CAP Coruña**  
 Granxa O Canelo  
 Miño  
 A Coruña  
 Spain

### The herd

- **91 cows**
- **Breeds:** Holstein
- **Age at first calving:** 25 months
- **Milking** three times a day
- **Milk to dairy:** 1,167,000 kg
- **12,819 kg ECM/cow/year**
- **2.8% fat and 3.3% protein**

### The farm

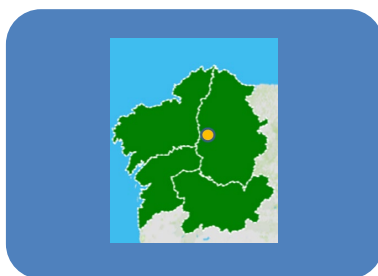
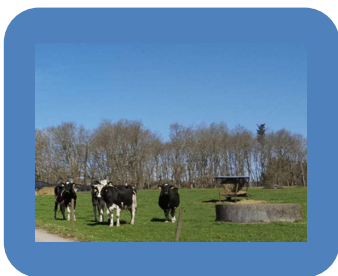
- **Specialist dairy farm**
- **Arable area** 35 ha of corn (silage maize) - cover crop (peas) rotation
- Growing heifers outside of the farm
- Use of cattle and pig slurry for **fertilisation**
- **Workforce:** 2.5 workers

### Innovations

- **Good working organisation**
- **Use of specific concentrates**, mixing with different raw materials (directly purchased)
- **Green manure use**
- **Good care of animals**
- **Added value productions** making ice-cream with direct sales
- **Original fundings** (cooperative)
- **Sharing knowledge** with other farmers. **Training**

## Areas of interest/Aspirations

Resource efficiency  
 Socio-economic resilience  
 Animal care



## Ángel Rivas Lamas Casa Codesal

Friol  
Lugo  
Spain

### The herd

- **55 cows**
- **Breeds:** Holstein and crossbreed with Montbeliarde and Sweedish Red
- **Milk to dairy:** 309,000 kg
- **6,000 kg ECM/cow/year**
- **Milk fat%:** 3.6% fat and 3.1% protein
- **SCC:** 104,480

### Innovations

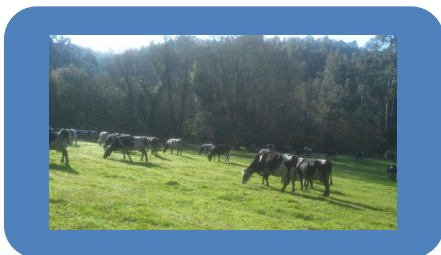
- Ecological grazing management with low concentrates input: 241 g/kg milk, through increasing land
- Good working and planning organisation
- Good animal management, with low SCC
- Improving milk fat with crossbreed
- Direct sale to another farm that packages organic milk and yoghurt

### The farm

- **Specialist dairy farm**
- **Organic milk** producer
- **Arable area** 57 ha on grass:rye-grass and clover
- Usually one grass silage cut plus grazing (35 ha) and only grazing (13 ha)
- **Grazing** every month of the year
- **Stocking rate:** 1.2 livestock unit/ha
- Use of cattle slurry and phosphoric rock for **fertilisation** (organic).
- **Workforce:** 2.5 family workers

### Areas of interest/Aspirations

Resource efficiency  
Socio-economic resilience  
Animal care



**Francisco Rodríguez Coira**  
 Gandeiría Coira SC  
 Irixoa  
 Coruña  
 Spain

**The herd**

- **56 cows**
- **Breeds:** Holstein
- **Milk to dairy:** 296,000 kg
- **5,300 kg ECM/cow/year**
- **3.8% fat and 3.2% protein**

**Innovations**

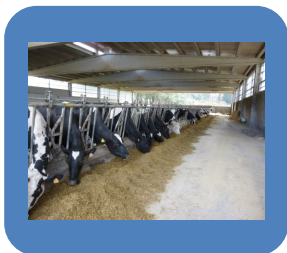
- **Grazing management with low concentrates input:** 285 g/kg milk
- **Practice simplification in animal management**
- **Use of slurry nutrients,** without use of phosphorus and potassium fertilisers
- **Good protein content** in forage using clovers (40% of clovers in grasslands)

**The farm**

- **Specialist dairy farm**
- **Arable area:** 44 ha of grass: rye-grass and clover
- 22 ha with grazing and 22 ha with 1 or 2 grass silage cuts plus 1 hay cut.
- **Grazing** every month of the year, 18 h/day
- **Stocking rate:** 1.7 livestock unit/ha
- Use of cattle slurry and only N mineral **fertilisers**
- **Workforce:** 1.7 family workers and one external worker

**Areas of interest/Aspirations**

Resource efficiency



## Pablo Boga Barreiro Ganadería

Boga Barreiro S.C.

Frades

A Coruña

Spain

### The herd

- **72 cows**
- **Breeds:** Holstein, Red Holstein
- **Age at calving:** 25 months
- **Milk to dairy:** 695,000 kg
- **9,763 kg ECM/cow/year**
- 4.3% fat and 3.5% protein

### Innovations

- Good management with budget tools
- Practices simplification in labour issues
- High yield in forage per hectare, increasing forage production
- Intensive production of forages with catch crops
- Sale of milk to cheese factory

### The farm

- **Specialist dairy farm**
- **Arable area** 27 ha, 80% of rotation corn (silage maize)-catch crop(vetch, oat and ryegrass), and 20% silage maize
- Use as main fertiliser cattle slurry with low use of mineral fertilisers
- **Workforce:** Three workers

### Areas of interest/Aspirations

Resource efficiency  
Socio-economic resilience





## César Valera / Helen GROOME

Vista Alegre Farm

Karrantza

Bizkaia

Spain

2018

### The herd

- **32 dairy Livestock Units (LU)**
- **27 dairy cows** and seven 7 dairy heifers
- **Breeds:** Friesian (100 %)
- **All year round calving**
- **Age at first calving:** 24 months
- **179,756 kg of ECM milk produced**
  - 56% direct sales as own farm dairy produce
  - 3.88% fat and 3.21% protein
- 6,500 kg ECM/cow/year (milk yield)
- 6,882 kg ECM milk per ha forage area
- **Sleeping area on mattress covered with straw**

### The farm

- **Workforce:** Six full time  
(Two partners and two 2 employees)
- **Grass based dairy farm**
- **25 ha grassland area**
  - Multispecies with 45% legume
  - No mineral fertilisation
- **Stocking rate:** <2.0 LU /ha forage area

### Innovations

*“Think sustainable for sustainable dairy economics, jobs and farm habitats”*

**Innovations mainly focused on milk production and marketing**

- **Gradual deintensification** of milk production resulting in **full organic certification** in 2013
- Focus on **quality of milk production** rather than quantity
- Better use of **farm forage resources**, improving pasture availability per cow
- Identification and use of semen from rustic Friesian land races closer to **traditional ancestry Friesian breed**
- **Environmental innovations to decrease use of petrol based energy**
- **On farm production of dairy products (pasteurised milk, natural yoghurt and four types of cheese)**
- **Marketing of farm products** by own workers in 100km radius
- **Trilingual website** for production transparency and **reconnecting farmers and consumers**

### Areas of interest/Aspirations

- *Minimise dependence on petrol based energy*
- *Increase grass-based proportion of dairy herd feeding*
- *Improve awareness and acceptance among consumers*



**Carlos Castro López**  
 Pol  
 Lugo  
 Spain

**The herd**

- **55 cows**
- **Breeds:** Holstein
- **Milk to dairy:** 398,000 kg
- **7,477 kg ECM/cow/year**
- **Milk fat%:** 3.9% fat and 3.2% protein

**The farm**

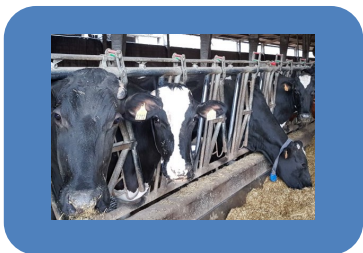
- **Specialist dairy farm**
- **Arable area:** 40 ha with rye-grasses. 30 ha with 2 grass silage cuts plus 1 hay cut and 10 ha of milking cows grazing.
- **Grazing** from March to September, 8 h/day.
- **Stocking rate:** 1.8 livestock unit/ha
- **Workforce:** 1.5 family workers and 1 external worker

**Innovations**

- **Grass silage based production with low concentrates input:** 285 g/kg milk
- **Transforming to grazing** - taking advantages of opportunities (land, good grass yield, increase of grazed milk market) and increasing economic resilience
- **Farm transfer, sharing knowledge**

**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economics



**SAT O Chope 1351 XUGA**  
 Silleda  
 Pontevedra  
 Spain

**The herd**

- **227 cows**
- **Breeds:** Holstein
- **Milking** with robots. More than three times/day.
- **Milk to dairy:** 2,522,000 kg
- **11,122 kg ECM/cow/year**
- **Milk fat%:** 3.8% fat and 3.2% protein

**Innovations**

- **Robotisation**, reducing workload and increasing time dedicated to the management
- Very good management with **budget tools**
- Partners in continuing **training**
- Taking advantages of opportunities through the **merge of two family farms:** machinery share, slurries use, high forage production etc.
- **Good collective working organisation**
- Environment: using **novel slurry applicator** to reduce ammonia emissions

**The farm**

- **Specialist dairy and pig farm**
- **Arable milk area** 97 ha, 60% of corn (silage maize) - catch crop (silage rye grass and clover) rotation and 40% of grass (silage rye grasses)
- Use of organic **fertilisers:** cattle, pig slurry and chicken manure with low use of mineral fertilisers
- **Workforce:** two; one family worker and 4/5 external workers

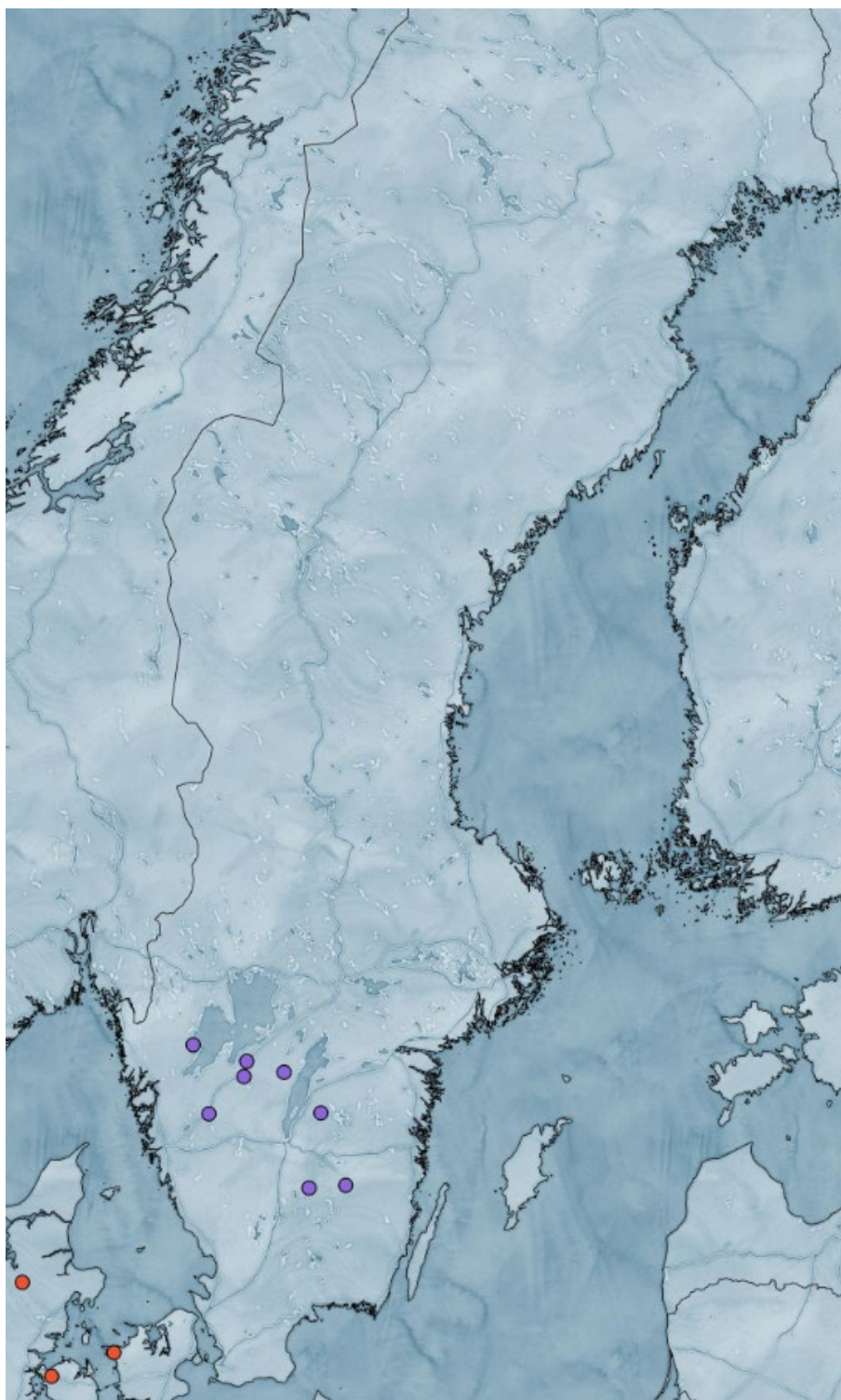
**Areas of interest/Aspirations**

Resource efficiency  
 Socio-economic resilience

# 14 Sweden



Location of the Pilot farmers





## Jan och Gunnar Andersson

Norra Ljunga  
Sävsjö  
Sweden  
2016

### The herd

- 427 head of dairy cows
- Milk yield per cow: 9,882 kg ECM
- 4,161 t ECM delivered to dairy per year

### Innovations

*"Big family operated dairy farm"*

- Highly efficient with **low labor input per cow**
- **Profitable dairy farm**
- **Most animals under the same ceiling**

### The farm

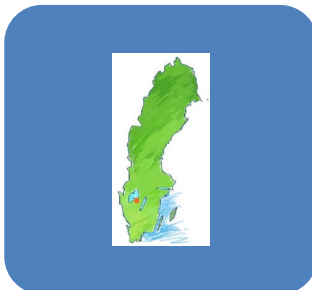
- Forage area per cow: 1.12 ha
- Grass yield: 7.5 t of DM per hectare
- Average field size: 4 ha
- Field to farm distance: 3 km
- Labour input: 29 hours per cow
- Buildings from 2002
- Cubicles with scratched corridors
- Carousel for 32 cows and four robots
- The farmers are cousins
- Arable land is 600 ha plus land with natural pasture



## Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience, Animal care





**Dag Arvidsson**  
 Lövåsa  
 Kinne Vedum Lövåsa  
 Götene  
 Sweden  
 2016

- The herd**
- 435 head of dairy cows
  - Milk yield per cow: 9,586 kg ECM
  - 3,920 t ECM delivered to dairy per year
  - Forage area per cow: 1.83 ha

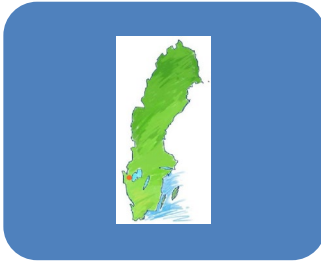


- Innovations**  
*"A whole-farm management perspective for sustainable farming"*
- Organic production
  - Good routines in calf management with grouping of animals
  - Management system directs the cows to pasture or to the calving pen
  - Pump the manure in pipes to transport 3 km and spreading in the field
  - Lime application before establishment of ley and sulfur fertilisation to the ley

- The farm**
- Grass yield: 5.5 t of DM per ha
  - Average field size: 9.3 ha
  - Field to farm distance: 4.7 km
  - Labour input: 27 hours per cow
  - Buildings from year 2013
  - Free stall
  - Six milking robots
  - Eight employees
  - 850 ha agriculture area

**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care



**Harm Geurtsen**  
Håltane Gård  
Mellerud  
Sweden  
2016

**The herd**

- 159 head of dairy cows
- Milk yield per cow: 9,085 kg ECM
- 1,429 t ECM delivered to dairy per year
- 1.06 ha, forage area per cow

**The farm**

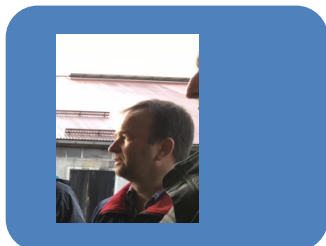
- Buildings from 2012
- Free stall
- Two milking robots
- 170 ha of agricultural area
- Grass yield: 10 t of DM per ha
- Average field size: 12 ha
- Field to farm distance: 0.5 km
- Labour input: 28 hours per cow

**Innovations**  
*“Efficiency in all parts of the farm gives low costs”*

- Low labour input
- Easy working routines
- Good animal health and welfare
- High forage quality with 4-5 cuts per year
- Low feed costs with much forage in the diet supplemented with concentrate, most of it produced on the farm
- Low machinery costs

**Areas of interest/Aspirations**

Resource efficiency,  
Socio-economic resilience, Animal care



## Johan Henning

Södra Notåsa

Tranås

Sweden

2016

### The herd

- **77 head of dairy cows**
- **Milk yield per cow: 8,072 kg ECM**
- **642 t ECM delivered to dairy per year**
- **Forage area per cow: 1.92 ha**
- **Labour input: 42 hours per cow**

### The farm

- **Grass yield: 6 t of DM per ha**
- **Average field size: 1.2 ha**
- **Field to farm distance: 2.5 km**
- Buildings from year 2007
- **Cubicles with scratched corridors**
- **One milking robot**
- **Organic production**
- **0.5 employees** other than the farmer
- **80 ha arable land**
- **70 ha natural pastures**

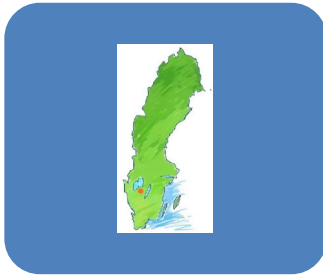
### Innovations

*"Family size dairy farm in Småland, in an area with small Swedish farms"*

- **Biodiversity where almost 50% of the farmland is high valued natural pastureland.**
- To complement dairy production there is also **steers for meat**
- **Very little owned machinery, farmer buys services from entrepreneurs in the surroundings**
- This way the farmer gets **extra help during work peaks without having to employ anybody**

### Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience, Animal care



**Clas Johansson**  
 Märene Mjölks AB  
 sk-åsaka Änkegården  
 Skara  
 Sweden  
 2016

**The herd**

- 209 head of dairy cows
- Milk yield per cow: 10,622 kg ECM
- 2,142 t ECM delivered to dairy per year
- Forage area per cow: 1.68 ha

**The farm**

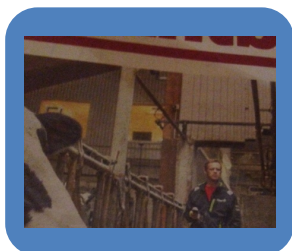
- Grass yield: 8 t of DM per ha
- Average field size: 30 ha
- Field to farm distance: 2 km
- Labour input: 42 hours per cow
- Milking parlour and AMS
- 3 employees
- All land, and some of the barns, are rented.

**Innovations**  
*“Healthy animals gives high yields and easy running system”*

- The farm is in **transition to become an organic farm**, believing organic milk is the consumer’s first choice in the future
- **Focus on breeding for health traits** gives healthy animals easy to care for
- Strong points are:
  - **high milk yield**
  - **low costs for purchase of feed and for buildings**
- Always looking for new inspiration, ready to adapt to changes coming from consumers, society and environmental challenges

**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care



## Kristoffer & Tobias Kullingsjö

Kullingsjö  
Vårgårda  
Sweden  
2016

### The herd

- **313 head of dairy cows**
- **Milk yield per cow:** 10,818 kg ECM
- **3,305 t ECM delivered to dairy per year**
- **Forage area per cow:** 1.37 ha

### The farm

- **Grass yield:** 8.7 t of DM per ha
- **Average field size:** 6.0 ha
- **Field to farm distance:** 3 km
- **Labour input:** 47 hours per cow
- **Organic production** since 2011
- Buildings from year 2004 - 2010
- **Milking parlour:** three times per day
- **13 employees**
- The farm has also **pig production**

### Innovations

*"It's the people on the farm that makes the success"*

- **Focus on the people:** Building a team with the farmers and employees, where every person is doing what they are best at, and having fun working together
- **Cooperation is success.** Working together, within the farm, with other farmers and companies, gives the farm **the right resources at the right time.**
- The farm is working with **LEAN-farming concept** for better efficiency and communication.
- Strong points:
  - high production
  - good animal health
  - low costs for buildings

## Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience, Animal care





## Per och Tore Larsson

Kårtorp Sörgården

Tibro

Sweden

2016

### The herd

- 205 head of dairy cows
- Milk yield per cow: 9214 kg ECM
- 1,810 ton ECM delivered to dairy per year
- Forage area per cow: 1.03 ha
- Labour input: 46 hours per cow

### The farm

- Grass yield: 6,7 t of DM per ha
- Average field size: 9 ha
- Field to farm distance: 1.5 km
- GEA system with 4 boxes
- Cubicles with scratched corridors
- Workforce: Six people
- 240 ha, plus 39 ha permanent grassland
- Replacement cattle are raised by another farm

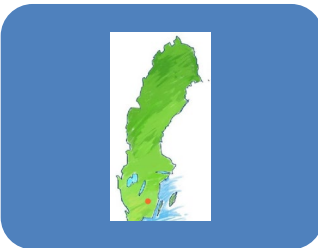
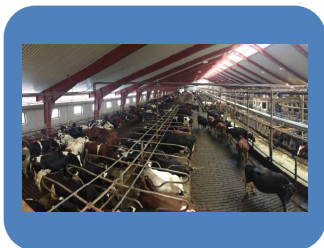
### Innovations

*"Good forage gives high milk yield and cuts costs"*

- A sustainable system with **organic production**
- Focus on production of **high-quality forage. Intensive forage production with irrigation and organic fertiliser.**
- **Intensive grazing** during grazing season
- Strong points are:
  - **high milk yield**
  - **less than average concentrate intake**
  - **low somatic cell counts**

## Areas of interest/Aspirations

Resource efficiency,  
Socio-economic resilience, Animal care



**Kjell och Per Sandahl**  
 Vasen Mjök  
 Nye  
 Sweden  
 2016

**The herd**

- 530 head of dairy cows
- 11,427 milk yield per cow, kg ECM
- 5,844 t ECM delivered to dairy per year
- Forage area per cow: 1.39 ha

**Innovations**

*“A big farm in an area where tradition is for small Swedish farms. A modern way to use this old farmland in a business that gives work and open landscape in the future”*

- **High production farm**
- **Involved in welfare issues** like “Ask the cow” presented in Belfast 2017
- Planning for complete **new light system** for cows and heifers 2018 together with Swedish University of Agricultural science for better welfare and economy

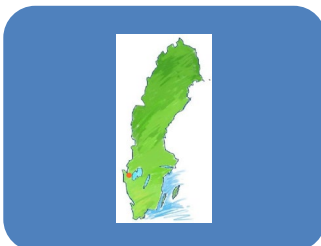
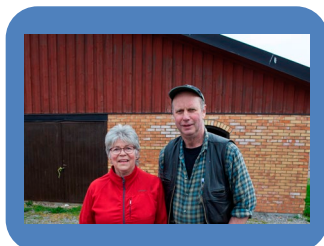
**The farm**

- **Grass yield:** 8 t of DM per ha
- **Average field size:** 2.5 ha
- **Field to farm distance:** 7 km
- **Labour input:** 44 hours per cow
- Buildings from 2002
- **Cubicles with scratched corridors**
- **Carousel for 32 cows**
- **10 employees** connected to dairy, total around 20 people with arable farming and buildings
- **600 ha arable land**
- **350 ha natural pasture**



**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care



**Bergs Säteri**  
 Ingemar Torstensson and Eva Olsson  
 Mellerud in Dalsland  
 Sweden  
 2016

**The herd**

- **236 head of dairy cows**
- **10,730 milk yield** per cow
- **2,451 ton ECM** delivered to dairy per year
- **2.11 ha forage area** per cow

**The farm**

- **Grass yield**,: 7t of DM per ha
- **Average field size**: 10.9 ha
- **Field to farm distance**: 8 km
- **Labour input**: 52 hours per cow
- **Buildings** from 1992, 2010 and 2016
- **Cubicles with scratched corridors**
- **Milking parlour**: twice per day
- **Seven employees**
- **650 ha agriculture area**
- **Organic production**

**Innovations**  
*“High-tech solutions and intensive breeding programme for sustainable farming”*

- **Organic production**
- **Genomic selection** for intensive animal breeding management
- **Good farming equipment** both in the field and in the stable
- **Dairy farm management system and activity sensors**
- **Preventing use of antibiotics by using a heat camera and early detection of subclinical mastitis**
- **Calving pen with sand bedding**

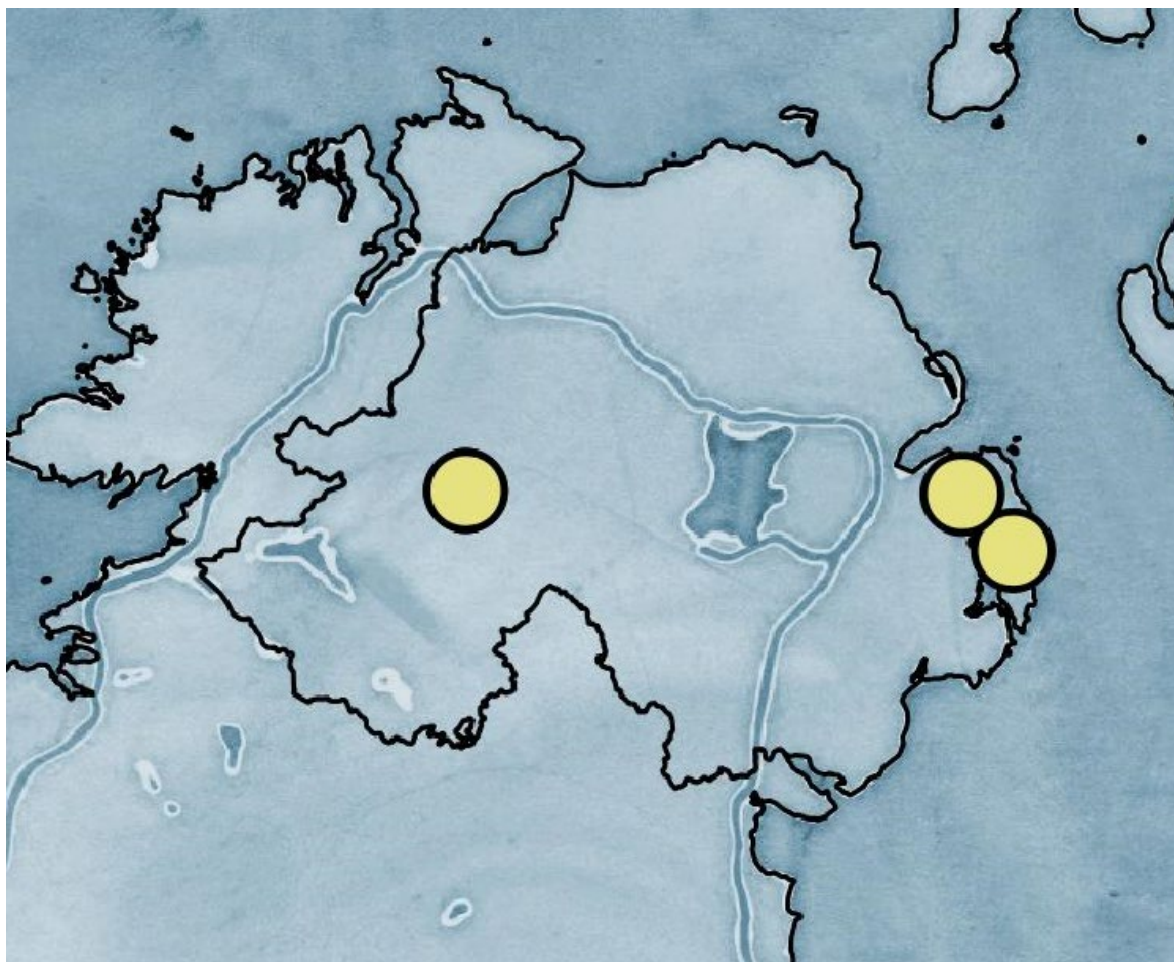
**Areas of interest/Aspirations**

Resource efficiency,  
 Socio-economic resilience, Animal care

# 15 Northern Ireland



Location of the Pilot farmers





**Reggie Alcorn**  
 Omagh  
 Northern Ireland

- The herd**
- **Specialist Dairy Cows**
  - **200 dairy cows**
  - **Breeds:** 100% Holstein
  - **8,935 litres/cow/year**
  - **Milking:** Twice a day
  - **3.88% fat and 3.26% protein**
  - **Summer grazing**
  - **Autumn through to Spring calving system**
  - **Turnout date:** late April
  - **Average age at first calving:** 24 months
  - **Parlour:** 32 x 32 GEA Herring bone

- Innovations**
- “An efficient, resilient and sustainable farming system whilst caring for the environment”
- **Closed herd with vaccination and protocol in place**
  - Participant of local BDG to network with other farmers on a regular basis to learn and improve farm performance.
  - Focus on **high quality multi-cut silage production system**
  - Concentrate Feed Efficiency – **cows feed to yield in parlour.**
  - **Focus on soil fertility** to improve grass production whilst comply NAP/ Derogation regulations
  - Land improvement – **drainage/ sward lifting** to improve grass utilisation
  - **Use of trailing shoe** – to maximise slurry nutrient utilisation
  - Calve heifers down 24 months
  - **Automatic heat detection**

- The farm**
- **Workforce:** Family run with one Full-time and one Part-time employee
  - **114 ha Agriculture area**
  - Heavy clay soils/ high rainfall



**Areas of interest / Aspirations**

Dairy cow housing,  
 Labour efficiency,  
 Calf health





**Drew McConnell**  
Newtownstewart  
Northern Ireland

### The herd

- **Specialist dairy herd with suckler beef and sheep enterprise**
- **150 dairy cows**
- **Breeds:** 100% Holstein
- **9,600 litres/cow/year**
- **4.04% fat and 3.38% protein**
- **50 cows indoor on a robotic milking system**
- **Rest graze outdoors Summer/Autumn time, milked twice daily in parlour**
- **Autumn/winter calving system**
- **Concentrate input:** 3.6 tonne/cow
- **Turnout date:** late April
- **Average age at first calving:** 24 months

### Innovations

*“The adoption of the newest and latest research practices on-farm is essential to maintaining a viable dairy business “*

- 100% of herd is bred to AI, the herd is **within top 1% of UK PLI herds**
- **Use of genomic bulls** for the past six years
- Use of **robotic milking system** to improve labour efficiency with **1/3 of the herd milked via robot**
- The farm constantly adapting **new innovations** and has been involved in a large number of **on-farm research programmes**
- Innovations include **dry cow management, and feed to yield cow diets** throughout lactation
- **Use of trial and shoe for slurry application**
- **Heat detection** for youngstock and dairy herd
- **Herd management software** to record all youngstock and milking herd records

### The farm

- **Workforce:** Family run farm with part-time labour
- **140 ha Agriculture area**
- **30 ha Grazing platform**

### Areas of interest

Labour efficiency  
Genetics





**Brian McCracken**  
 Craigantlet  
 Newtownards  
 Northern Ireland

**The herd**

- **Specialist dairy herd**
- **250 dairy cows**
- Breeds: **NZ Friesian and Jersey Kiwi Cross**
- **5,650 litres/cow/year**
- **4.45% fat and 3.63% protein**
- **Milking:** Two times a day
- **Spring calving** system
- **Turnout date:** late February
- **Average age at first calving:** 24 months
- **Parlour:** 30 point swing over

**The farm**

- **Workforce:** Family run farm, with one full and part-time employee
- **130 ha Agriculture area, 90 ha Grazing platform**
- 450-750 feet above sea level
- Shallow soil - drought prone in summer



**Innovations**

“Our aim is to turn grazed grass into high solids milk and run a profitable farm”

- **Highly innovative system low cost system with excellent technical efficiency**
- Target high quality pastures as grazed grass account for the majority of diet. Measures grass cover weekly
- Reed bed system installed 15 years ago to clean and recycle water
- Automatic heat detection for the herd
- Use batt latch automatic gate release timers to save labour at milking times
- Bulls selected from top 5% of daughter proven sires. Strong emphasis placed on fertility, milk solids and cow longevity
- Replacement heifers selected from cows calved in first four weeks
- Closed herd, with health and vaccination protocols in place
- **Networks with other farmers on a regular basis** to learn and improve his farm performance

**Areas of interest/Aspirations**  
 Cow genetics, fertility, calf health



**Thomas Steele**  
Kircubbin  
County Down  
Northern Ireland

### The herd

- Specialist dairy herd
- 500 dairy cows
- Breeds: Holstein Friesian (100 %)
- 10,000 litres/cow/year
- 3.99% fat and 3.24% protein
- Intensively fully housed
- Milking: three times a day
- Autumn through to Spring calving
- Average age at first calving: 23.5 months
- Parlour: 60 point rotary

### The farm

- Workforce: Five full-time (Five relief milkers)
- 303 ha Agriculture area
- 200 ha Grassland
- 48.5 ha Maize
- 10.1 ha Lucerne
- 44.4 ha Wheat and Barley



### Innovations

*“Increasing efficiency and productivity of the herd through good attention to detail on nutrition and genetics”*

- High emphasis placed on the **use of technology to reduce labour**
- **Fullwood rotary** abreast milking parlour installed in 2009 to reduce man hours in parlour
- **Lely silage robot** – used to keep feed pushed up in front of cows
- **Conductivity assessed** to allow early detection of E coli and mastitis cases
- Cows are **weighed and body condition scored every milking**. This information along with milk yield and stage of lactation allows each cow to be fed according to its needs
- Aim to produce best forage and diet to meet cow requirements and ensure maximum productivity
- Use of **pedometers** to monitor cow activity and heat detection
- All breeding is based on **selection of bulls with good functional traits** e.g. fertility, SCC, udder and leg characteristics

### Areas of interest/Aspirations

- *Use of technology to reduce labour and improve efficiency*
- *Production of quality forages and diets for an intensive dairy system*







