



Alberto Menghi  
CRPA

## Second International Workshop CASEUS:

“the adaptation strategies of Italian and European dairy farmers to the climatic and economic crises of the new millennium”



# DAIRY WORLD IS EVOLVING QUICKLY!

## News from World Dairy Summit in India

India's milk production is expected to jump three-fold to 628 million tonnes in the next 25 years with an average annual growth of 4.5%

The country's milk production was 210 million tonnes in 2021. Milk production in India is projected to grow at a CAGR of 4.5% to reach 628 million tonnes (three-fold) in the next 25 years

India's share in global production is estimated to nearly double to 45% in the next 25 years from 23%.



# Alberto Menghi

## CRPA

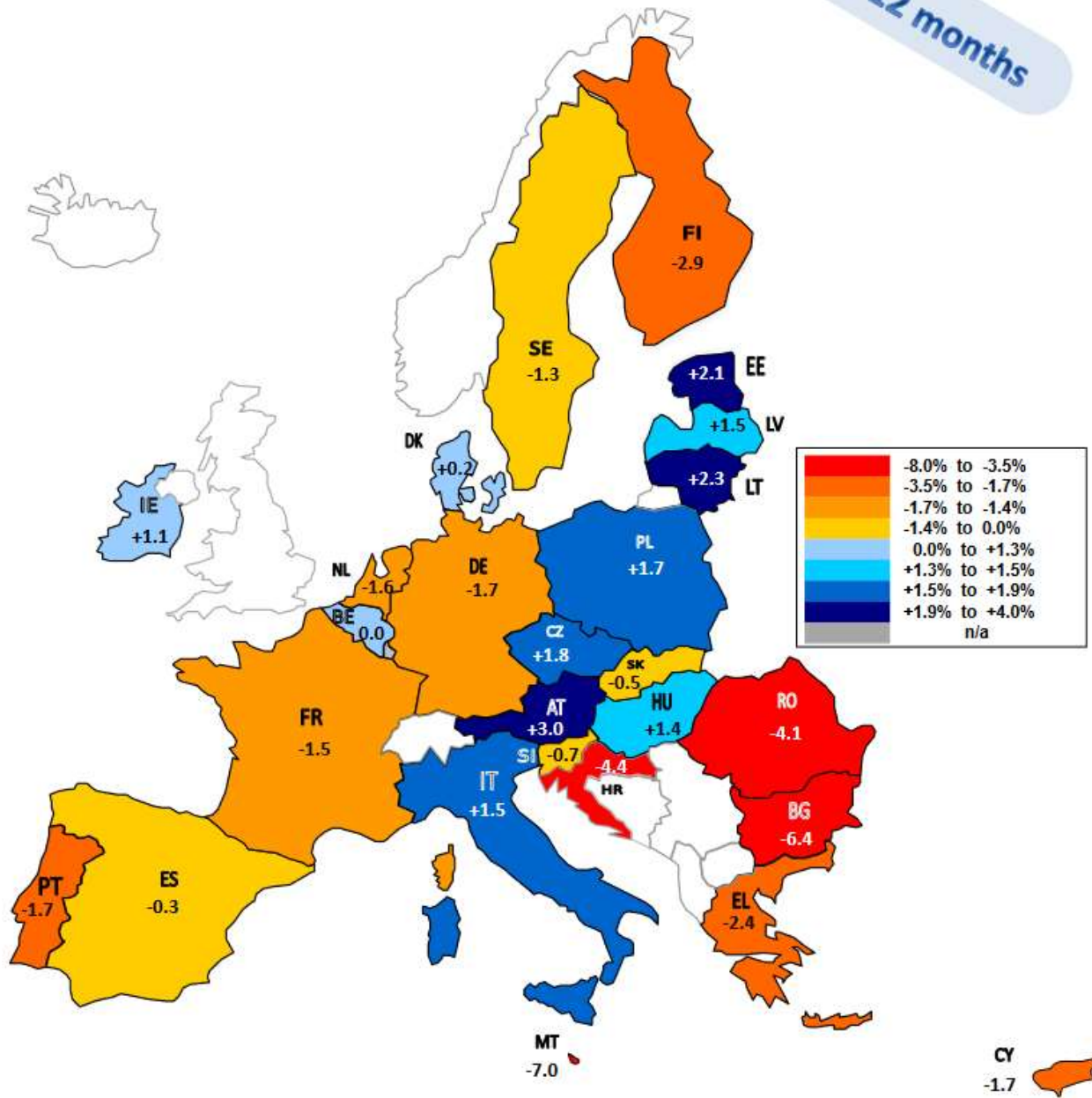
**Thanks to the collaboration with R4D project, to the organizers and the sponsors:**

**This morning we will have a quick look across Europe in 6 countries:**

**Italy**  
**Slovenia**  
**Germany**  
**Hungary**  
**Poland**  
**Luxembourg**

(Aug 2021 - Jul 2022 / Aug 2020 - Jul 2021)

Last 12 months



- 0,5% Milk  
Delivered in EU



**Alberto Menghi**  
**CRPA**

**Country**  

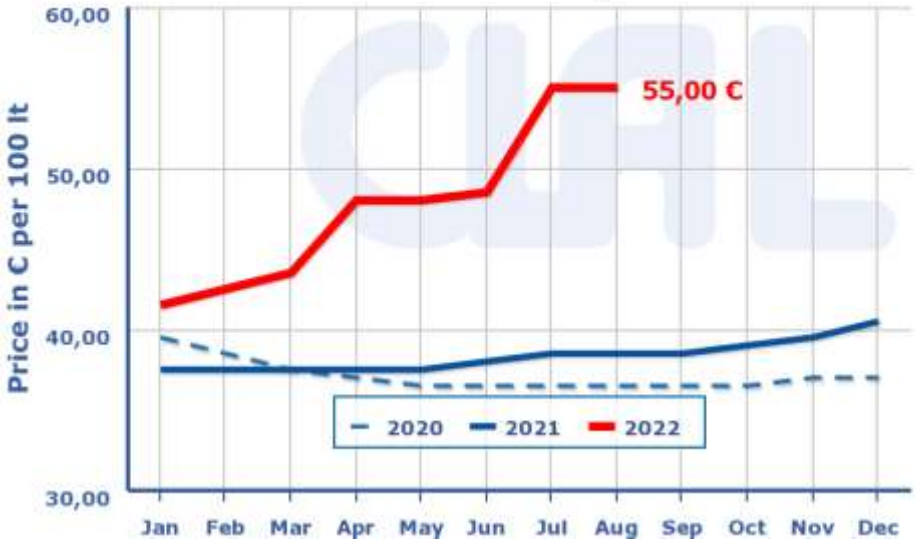



## DAIRY COUNTRY SITUATION ITALY

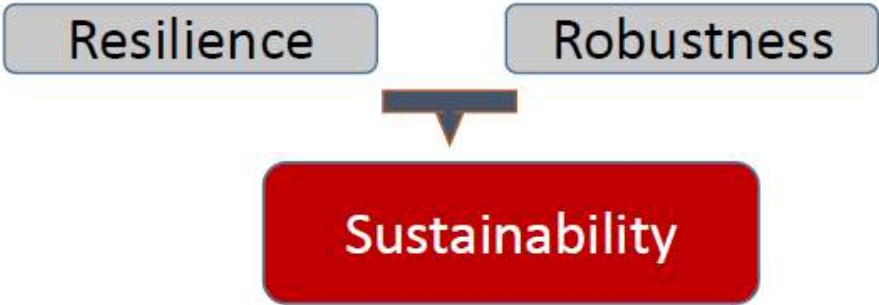
- Italian milk production (13 million tons 2021 + 3,4% in 2021). Only +0,36 by June 2022.
- Higher cost inputs (feed and energy )and very dry and hot summer
- Farms are decreasing
- Milk price increase

**Lombardy - Average prices of farm-gate milk**

Processed by CLAL



## General objectives of R4D TN



3 expertise areas (3 Knowledge Areas KA) =

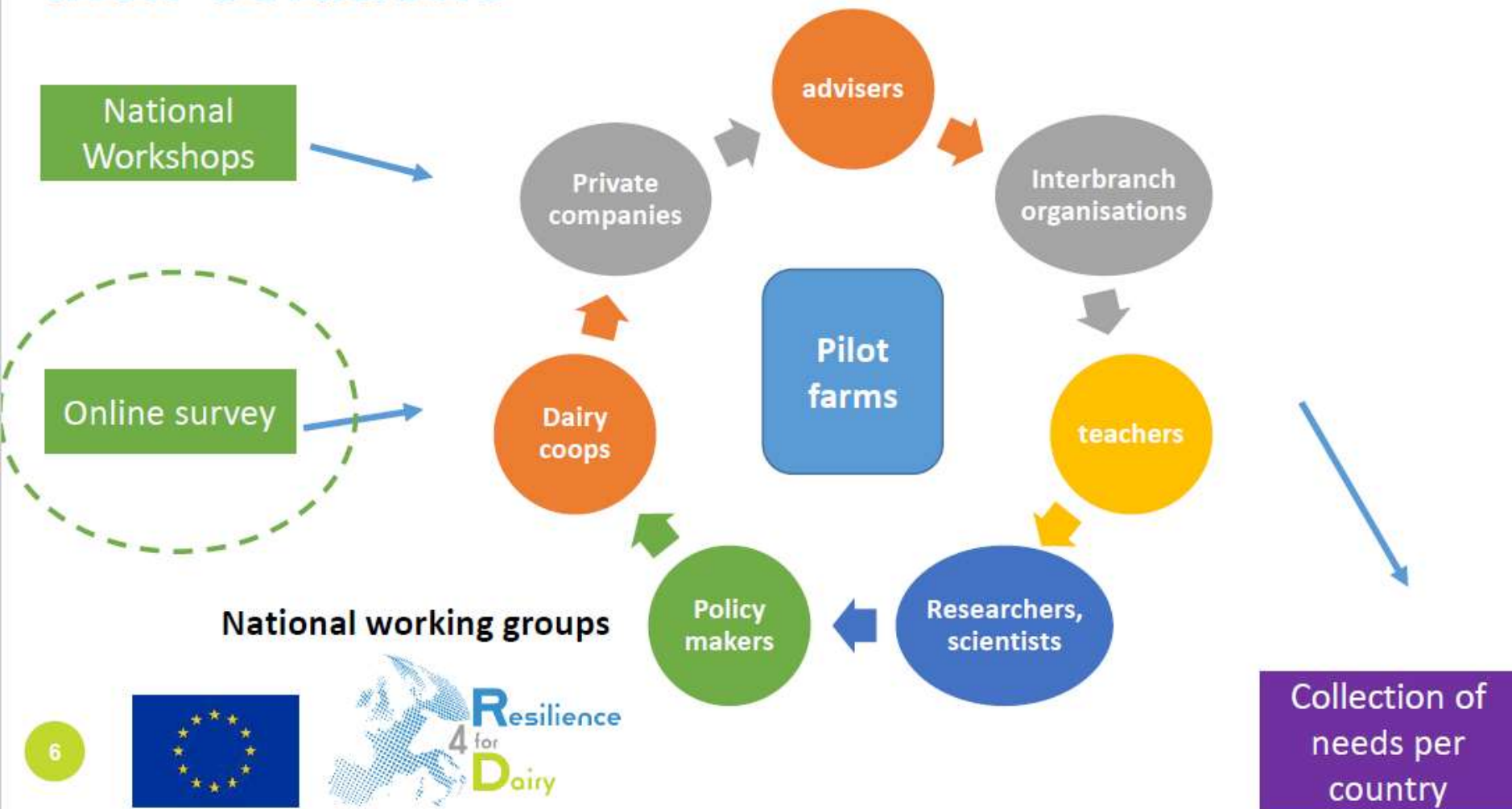
**Economic and social resilience**

**Technical efficiency**

**Environment, welfare and society**



# Two ways to capture the farmers' needs and their solutions



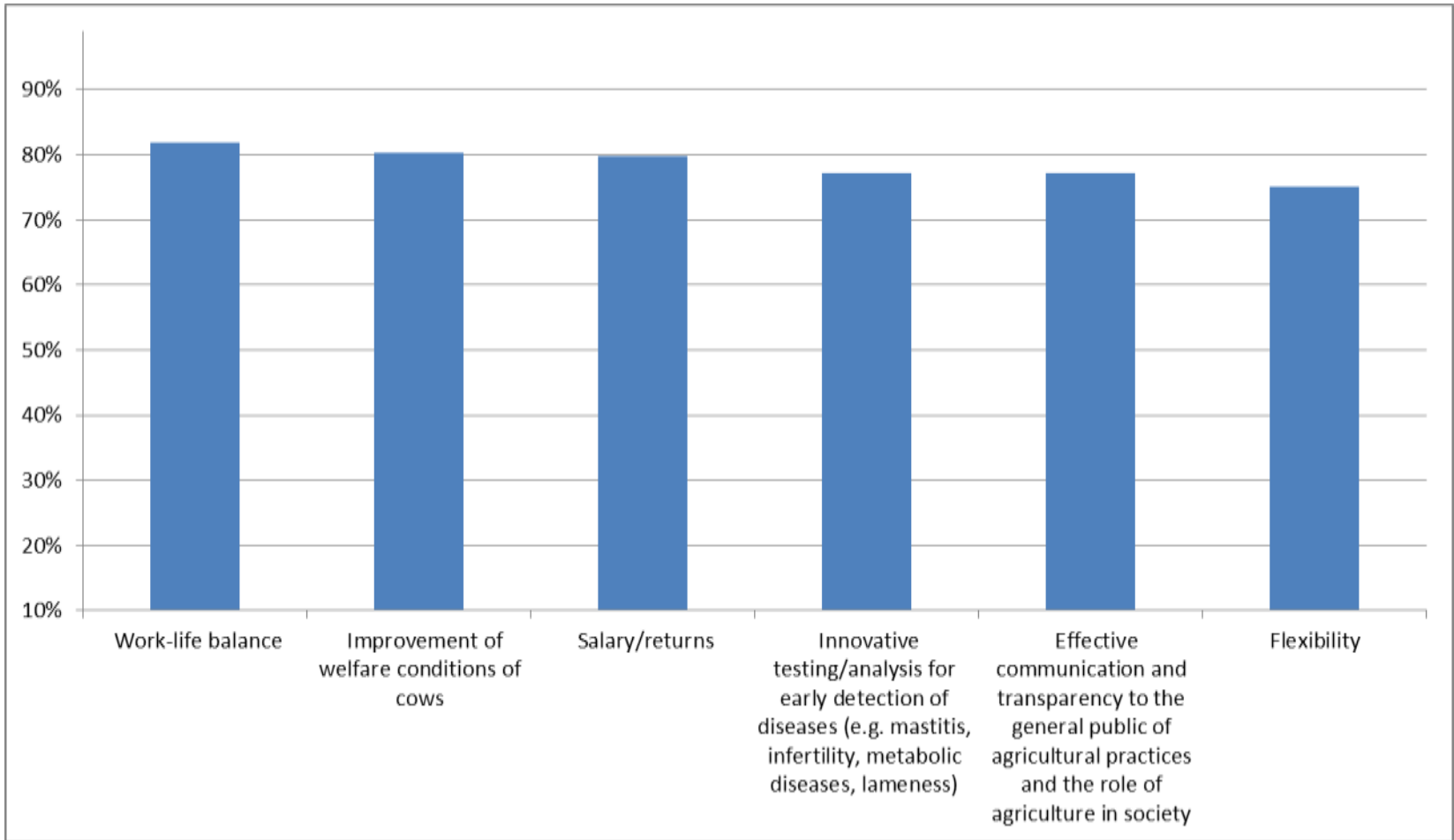
National working groups





# ONLINE SURVEY RESULTS ON FARMER'S NEEDS

## TOP 5 on 478 answers in 14 EU countries

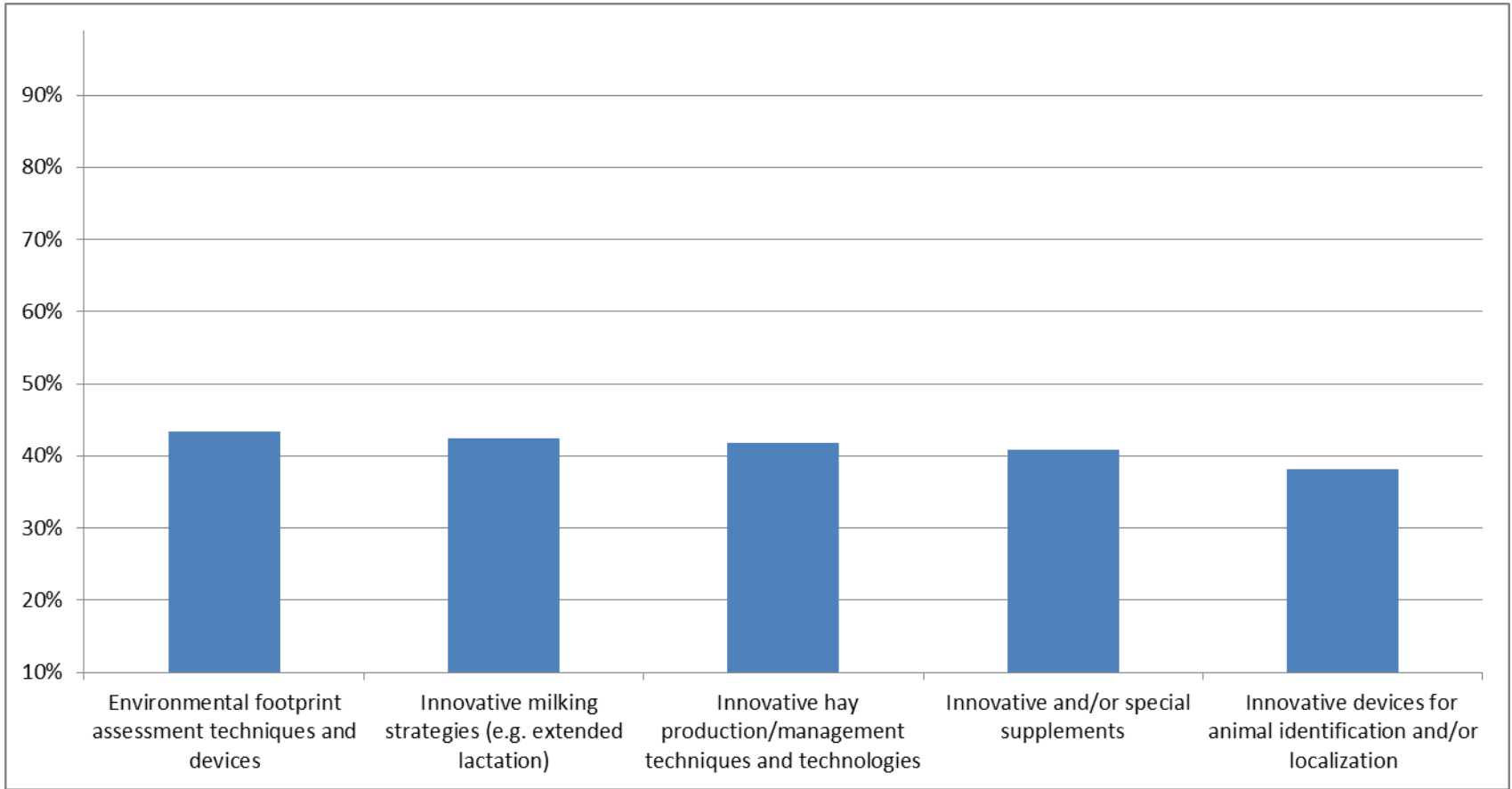






# ONLINE SURVEY RESULTS ON FARMER'S NEEDS

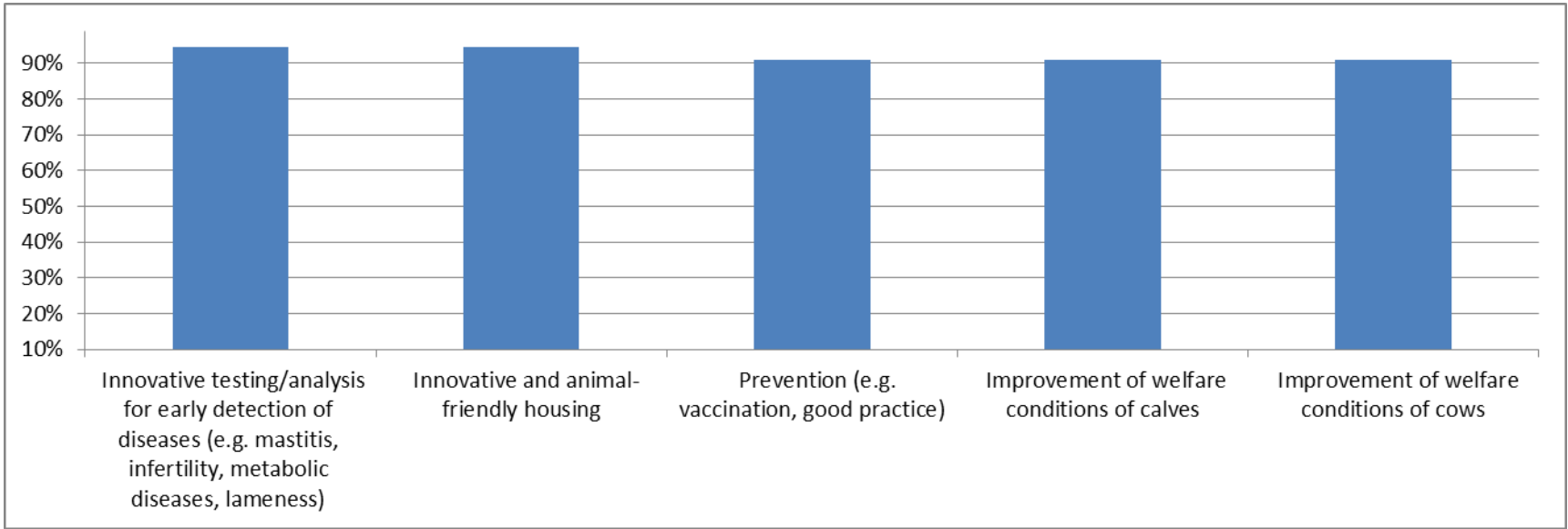
## **BOTTOM 5** on 478 answers in 14 EU countries





# ONLINE SURVEY RESULTS ON FARMER'S NEEDS

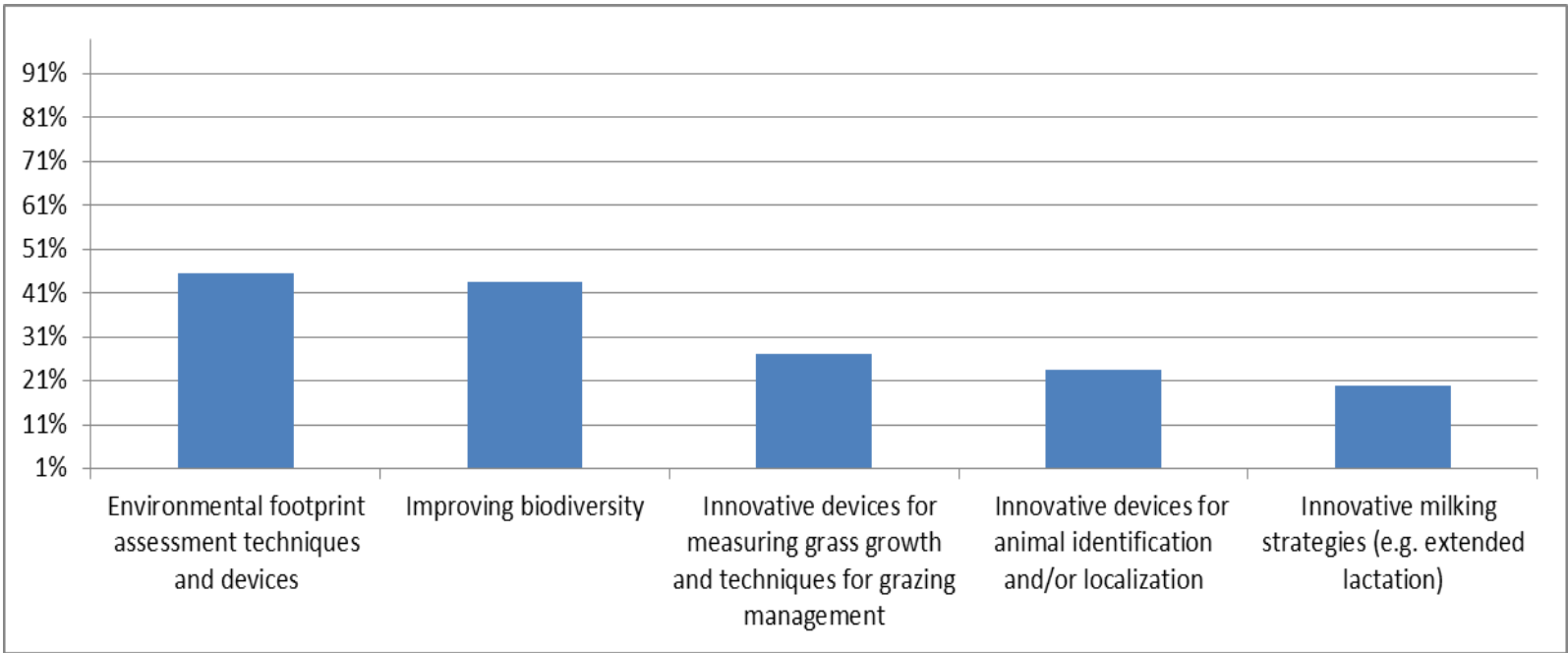
## TOP 5 on 55 answers in ITALY





# ONLINE SURVEY RESULTS ON FARMER'S NEEDS

## **BOTTOM 5** on 55 answers in ITALY





## Some general remarks

**There are several needs to be addressed by the farmers across Europe**

**Some of them are more relevant than others**

**Farmer's involvement is necessary to understand the most urgent needs to be addressed**

**The needs are different from Country to Country, but they all aim to improve dairy farm resilience.**

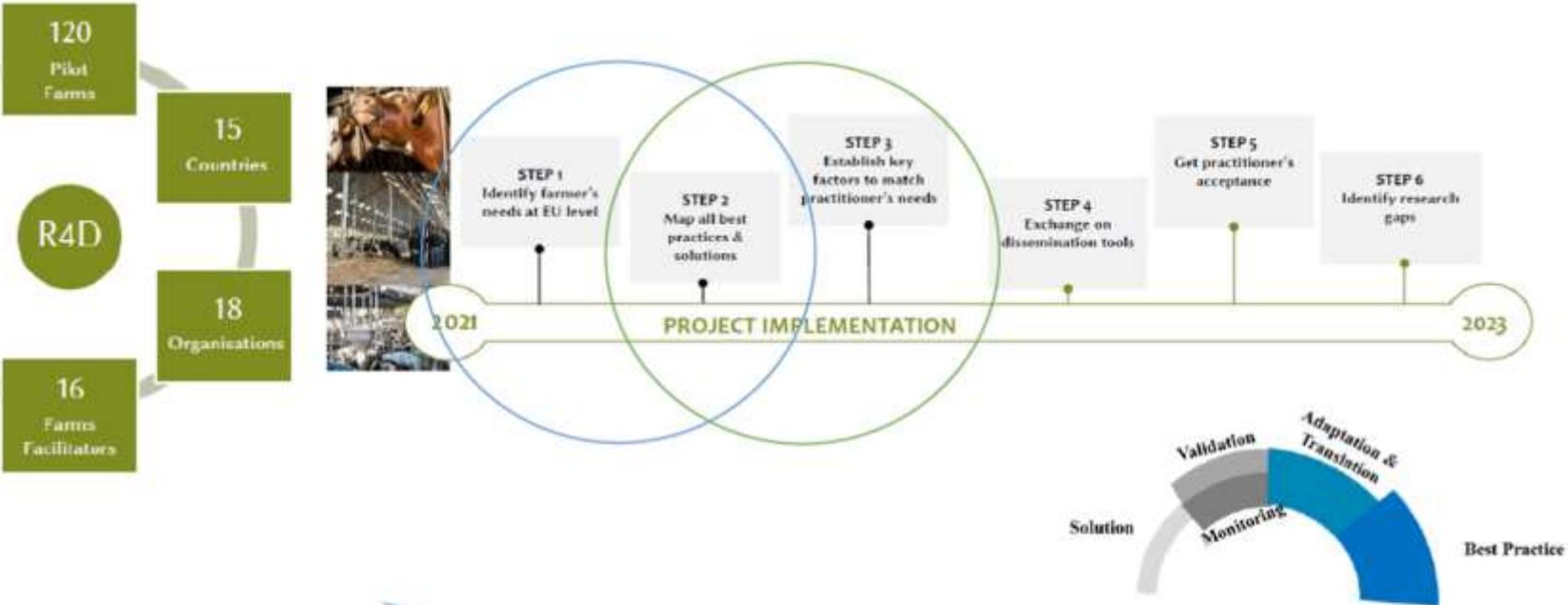
**Many different solutions are ready to face several of the needs identified.**

**The solutions can be different from Country to Country.**

**We need to select the best solution adaptable to a specific Country situation**

# In R4D project we will identify 100 best practices ready to use and share

## From farmers needs to Ready-to-use Best Practices





**GRAZIE!!!**

**Alberto Menghi**  
**CRPA**



Resilience for Dairy (R4D) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000770



# R4D Resilience 4 Dairy

1<sup>st</sup> January 2021 – 31<sup>st</sup> December 2023



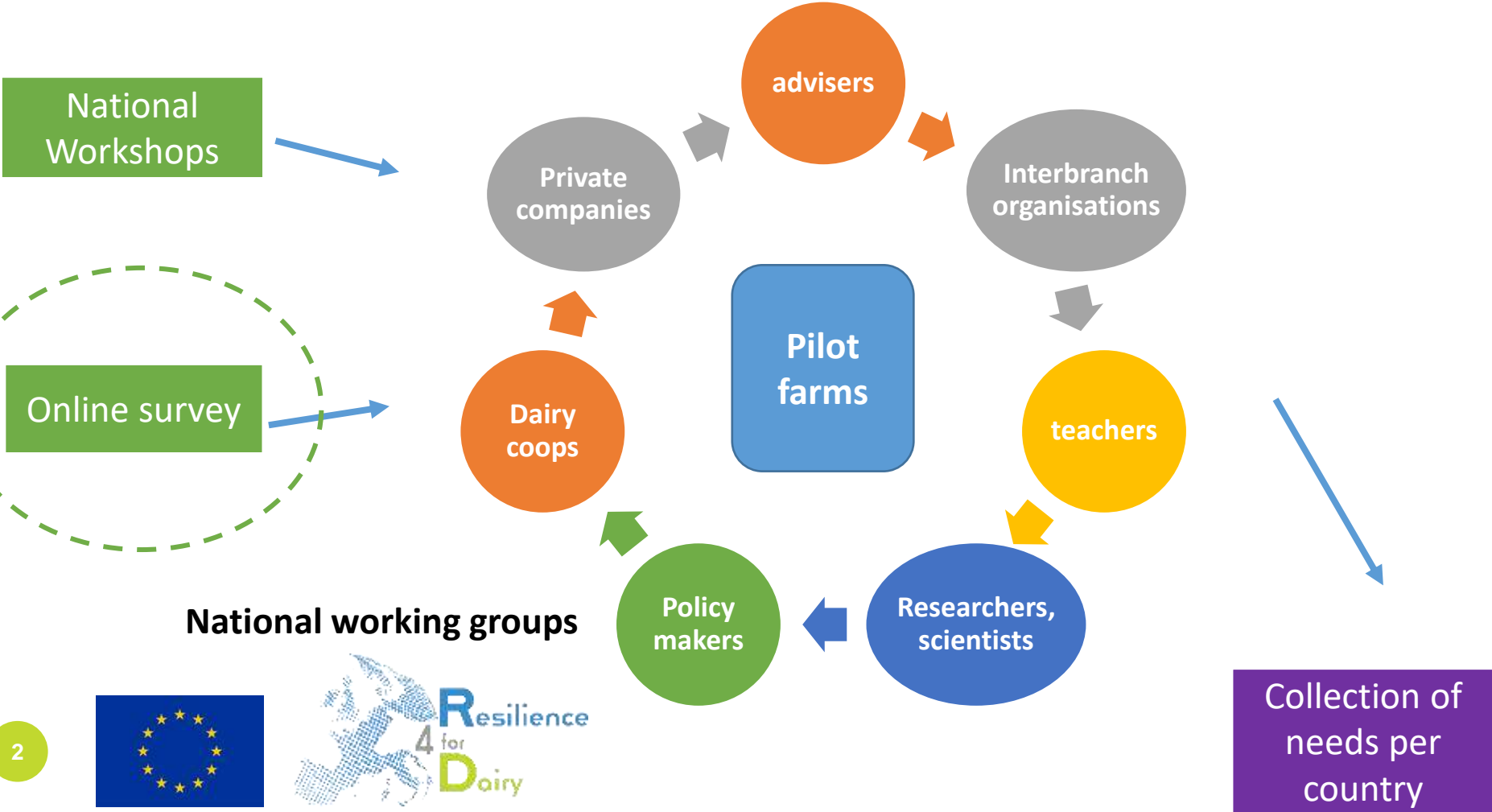
**Valérie BROCARD, Idele – FR**



**Elisabeth CASTELLAN, Idele, FR**



# Two ways to capture the farmers' needs and their solutions



**National working groups**



Collection of needs per country



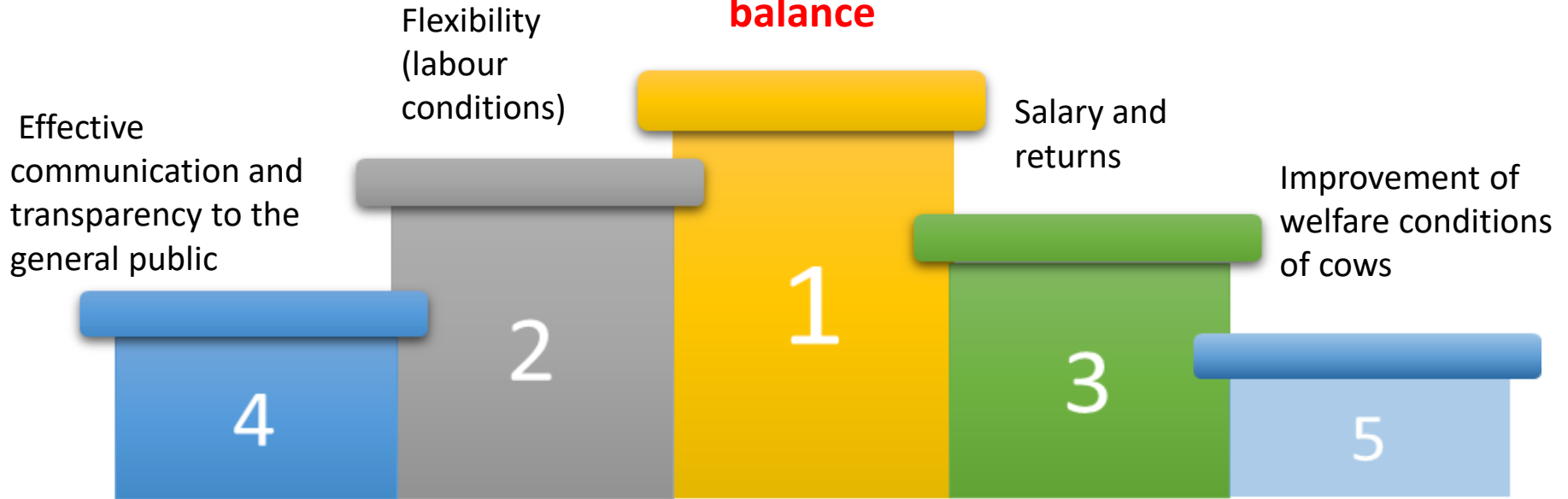
# Online survey on farmers' needs - France



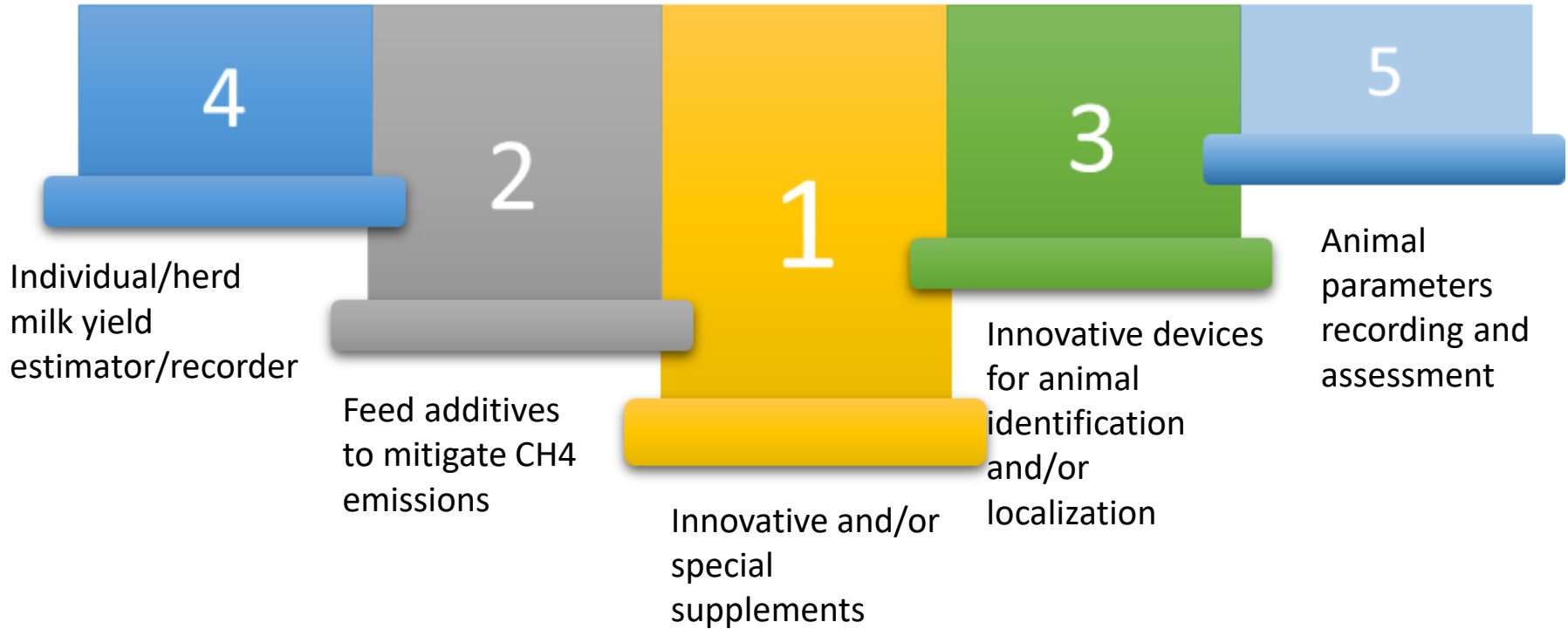
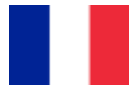
TOP5



**Work life  
balance**



**BOTTOM 5**





# Valérie BROCARD - Idele FR



## Future or potential shocks and threats **2021**

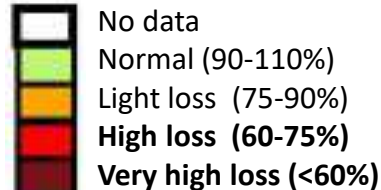
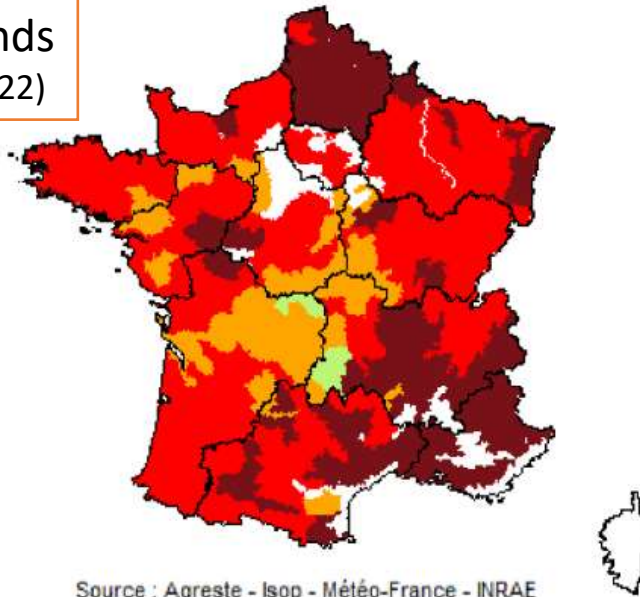
- At whole chain level, world prices (**milk** and **inputs**)
- Generational renewal, attractiveness of dairy farming
- **Climate change (forage production)**
- Animal diseases



# 2022 Challenges for the French Dairy Farmers – Experts view

1 – Facing climate change and hazards  
 Increase water use efficiency

Yield of grasslands  
 (total growth 20 08 22)



Lack of forages  
 (but stocks from 2021)

Absolute records of  
 temperature- July



2- Increasing protein self-sufficiency

3- Decreasing costs of inputs and energy in the current system

No soja  
No N fertiliser  
No fuel



France imports 1.5 M tons of soya cakes

44% are fed to ruminants (mainly dairy cows)



1 ha of grasslands produces as many proteins as 1 ha of soja



# 4- Decrease in organic milk consumption (and price)

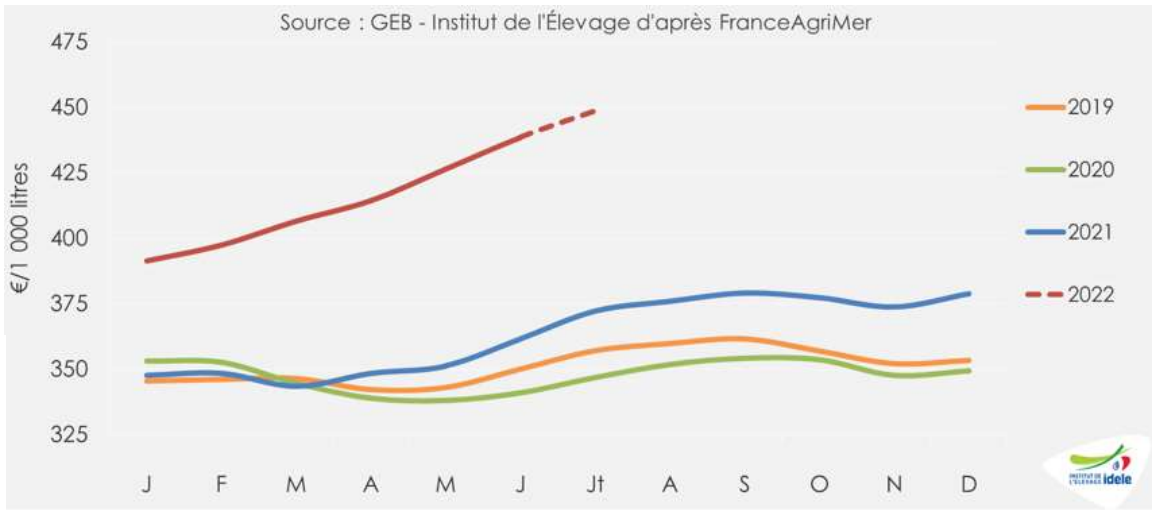
# 5- Increase in milk price (conventionnal)

Milk	-7%
Butter	-20%
Yoghourts	-6%
Cheese	-14%
Desserts	-20%

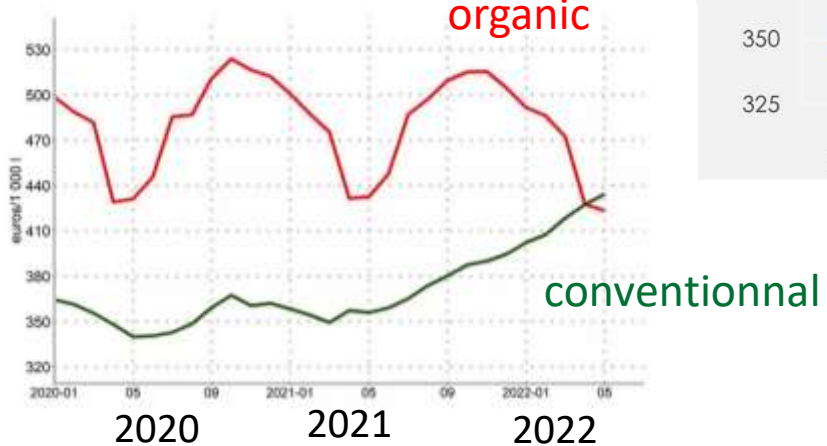
(T1 2021 / T1 2022)

2022: increase in milk margin  
2023???

(€ / 1,000 l)



(€ / 1,000 l)



Neighbouring countries

National dairy companies



# Question N#1 = attractiveness of the jobs (farmer and staff)

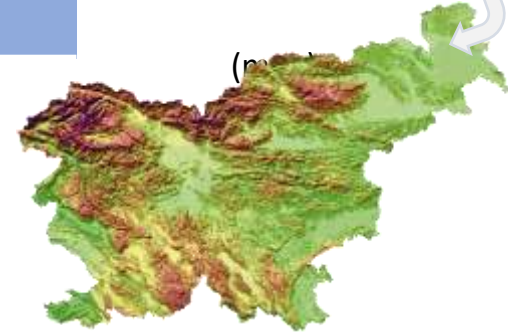




# Slovenia



20,273 km<sup>2</sup>  
2,1 mio people



**Marija Klopčič**

University of Ljubljana

Biotechnical Faculty

Depart. of Animal Science

Cattle breeding & Farm management



## DAIRY + GRASSLAND/FOREST COUNTRY

- 📉 97.686 dairy cows on 5,182 farms
- 📉 No of dairy cows/farm: 18,9 // in MR: 26,0
- 📉 Milk price: 08\_2022: **47,13 €ct / EU: 51,89 €ct**  
(from 40,14 €ct in Portugal to 62,99 €ct in Belgium)
- 📉 Milk price: Avg (9 yr): **31,50 €ct / EU: 34,90 €ct**  
(from 29,06 €ct in Latvia to 56,86 €ct in Cyprus)
- 40 % raw milk export to IT, CRO, ex-Yu
- PDO cheeses: Tolminc, Mohant, Bovec cheese





# Key challenges for dairy sector in Slovenia

- ➔ High prices and low availability of inputs (energy, fuel, concentrates, fertilizers, ...)
- ➔ **Climate changes** - longer droughts, downpours, storms, ...
- ➔ **Pressure** from the public and non-governmental organizations (vegans, nature conservationists, animal protectors)
- ➔ **Negative attitude of the public** towards animal husbandry - especially towards cattle breeding
- ➔ Lack of agricultural land and other resources in agriculture
- ➔ **Lack of motivation** to breed dairy cows in the younger generation of farmers - too much work - dairy cow breeders are becoming modern slaves
- ➔ **Lack of useful knowledge** to be efficient and successful with farming
- ➔ **Cooperation - Networking – Exchange of experiences**



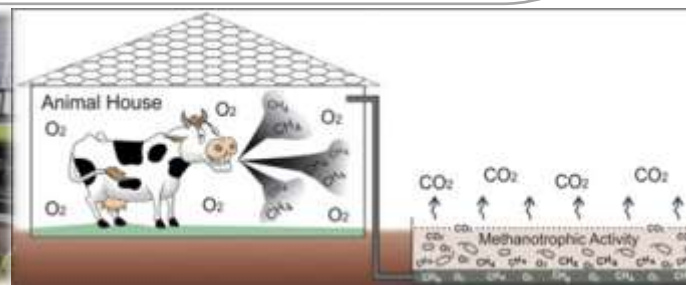
## Needs identified in dairy sector in Slovenia

- ➔ Better economic situation on dairy farms - higher purchase prices for milk and meat / lower input costs
- ➔ **Investments in the modernization of housings systems for dairy cows and young stock**
- ➔ Access to agricultural land - priority should be given to active farmers (big competition with non-farmers – future investors / speculators)
- ➔ Coping with extreme weather conditions
- ➔ Improving society's attitude towards farmers - especially to animal breeders
- ➔ Well-being of farmers (work-life balance, economy, family and generation relations, working conditions, ...)



# Solutions for dairy farmers in Slovenia

- **Improvement** of welfare conditions of dairy cows and youngstock
- Innovative feed production and storage technologies - **protein self-sufficiency**, legumes, ...
- **Reduction** of GHG (Green house gasses) and Ammonia emissions
- **Improvement of grassland and grazing management** on farms with permanent grassland
- Farming on protected areas (Natura 2000, water protected areas, Karst regions,...)
- **Solutions for farmers** where they have problems with wild animals (pigs, deers, ...) and predators attacks
- **Diversification and added value** for small farms in hilly and mountain regions (processing of milk/meat, other agricultural activities, agro-tourism, wood processing, services, direct marketing)





## Innovations in the dairy sector in Slovenia

Environmental & animal friendly housing systems – separation of urine & faces  
Reducing of emissions & stink, Adaptation to climate changes  
Automatization (robots, sensors, virtual fence, drones, ...), Digitalisation  
Niche market (A2A2/hay/organic milk), Added value, Diversification

## Future or potential shocks and threats

Big competition for agricultural land (farmers, industry, roads, energy..),  
Stop using Tie-stall housing system for rearing cattle,  
Climate care (reducing of emissions of GHG/NH3, water quality), limitations  
Consumers and Society opinions – Green Deal (?)  
Profitability, Economic results, Lack of motivation for farming





Thank you for your attention!



### Dr. Johannes Thaysen, formerly Chamber of Agriculture Schleswig Holstein

- Senior advisor and lecturer for forage conservation/ dairy and horse feeding
- Main field of activities:  
Silage additive testing,  
Harvest techniques,  
Grazing technologies

### Dairy Sector in Germany (D) 2022

- **53.700** dairy farms keep **3.7** Mill cows which produce **31.2** Mill t milk (**8488** kg ECM/cow), huge variations
- D is both: largest EU producer + market for milk products
- Degree of self sufficiency with milk products **118 %** (cheese **129 %**)
- So far 1 % increase in milk production per year since 2000 but until **2030** expected **10 -15 %** decrease in production because of trends towards more environmental friendly production (depending on upcoming political decisions)
- average dairy farm size increases, while 30% of farms will shut down in future
- Creameries shift portofolio to 30% plant based products
- Milk price: in future co-existence of different pathways  
a) premium products + b) mass production for the world market



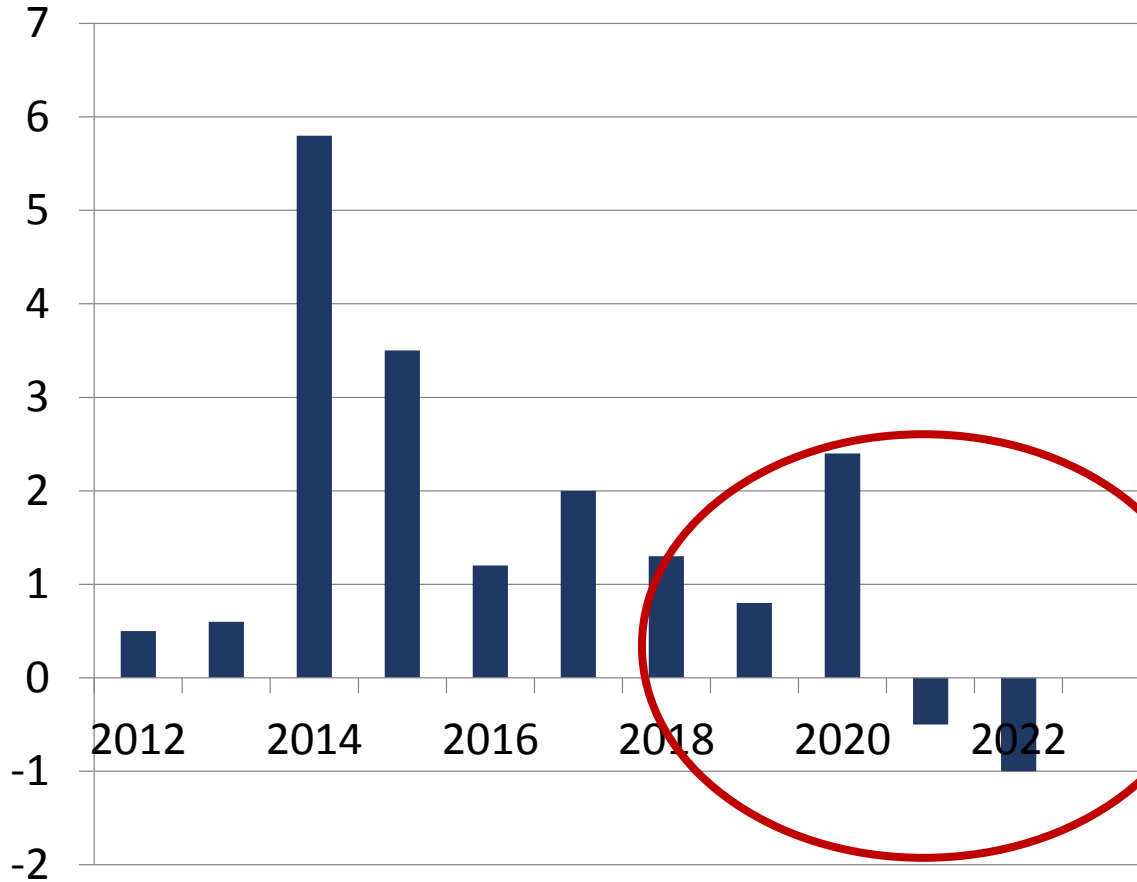


# Schleswig- Holstein Northern Germany

Country

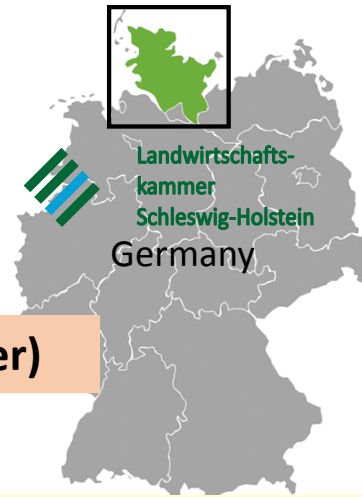


## Growth of EU-Milk supply is going down

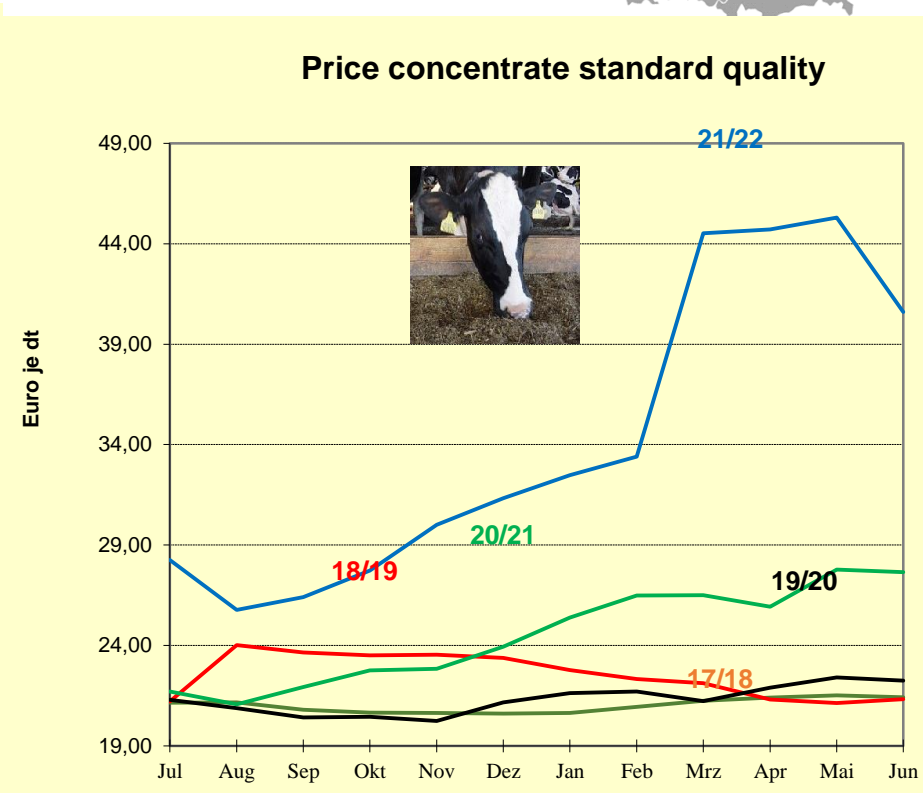
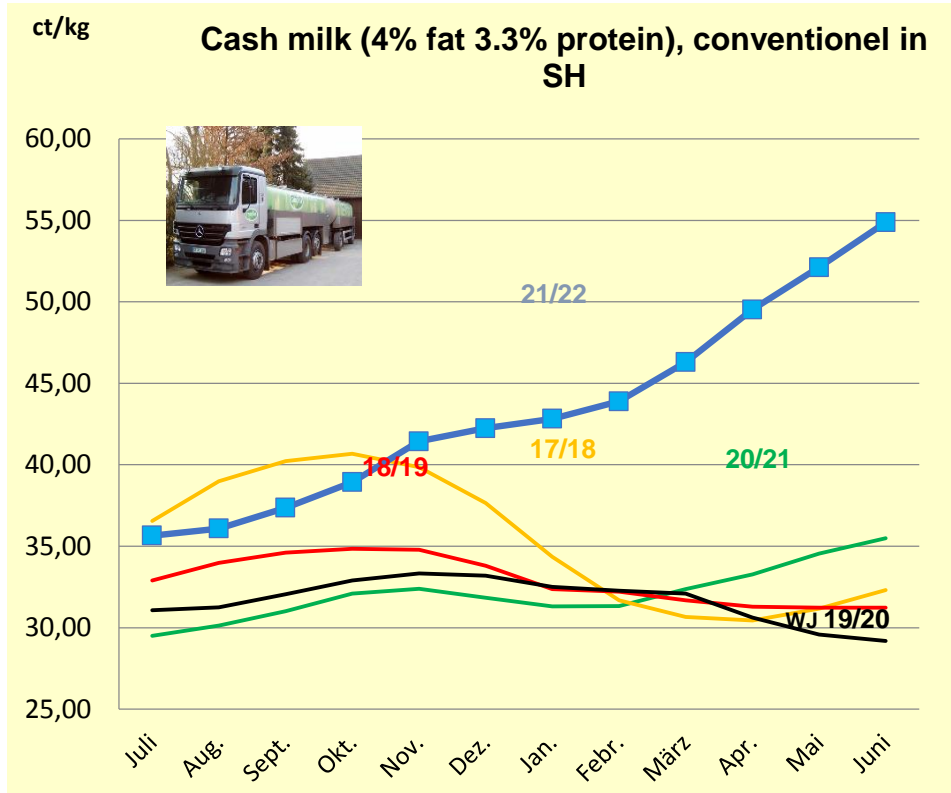


■ Change to year before in Mill. T

EU Commission  
DLG 8/2022



**Higher milk prices but also higher cost (concentrates, diesel, fertilizer)**







### Less difference in milk prices between conventional and organic production

Erzeugerpreise\* für biologisch/ökologisch und konventionell erzeugte Milch, 4,0 % Fett und 3,4 % Eiweiß, ab Hof, in Ct/kg, ohne MwSt.



\* Einschließlich Nachzahlung.



## Actual developments and challenges in the value chain milk since Putins war

### Production farm level

- Costs for energy, feedstuffs and fertilizer still rising
- High competition of skilled workers
- Negative reputation of animal husbandry
- Higher risks in forage production due to climate change
- Higher demands on animal welfare
- Excess of nutrients in same region = material flow balance 2023
- Uncertainty about further development



### Production milk plant level

- Costs for energy (gas), additives and packing material still rising
- Interruption of delivery chains, lack of transportation capacity due to lack of drivers
- Uncertainty about further gas supply

### Market level

- Consumer reaction of rising prizes: less demand of organic products (higher prized)
- Security of supply is very important
- Lower purchasing power leads to lower import quantities of milk products
- Higher requirements due to refugees from Ukraine



**Johannes Thaysen**  
**Germany**

**Country**



Country Farmer's strategy for a "resilient" dairy system

- Reduction of feeding costs: more (cheap protein from) forage, grazing and cash crops
- Sustainable forage production:
- Maize is strong on yield but lowers humus content in the soil (crop rotation)
- Clover, alfalfa, soy beans and beans need no nitrogen fertilizer
- fertilization according withdrawal
- reduction of losses (silage additives, TMR-stabilizer)
- Forage production according environmental conditions (Sorghum, Cover crops, WCS)
- Cooperation between different farms and farm types = real mixed farming:  
 introduction of (grass based) forage crops on arable farms
  - contracts to export excess manure from dairy to all-arable farm
- Use of all renewable energy sources:
  - Input of residual organic materials (manure, straw) in AD (biogas) plants
- Farm strategies:
  - dairy products produced and sold from the farm
  - farm shop, cooperative farm shops in cities, delivery services, self vending machines



Johannes Thaysen  
Germany

Country



## Innovations in the dairy sector in Germany



- **Longterm contracts** between creameries and dairy farmers with respect to price boundaries and amount of milk to be delivered in the contract period
- **New premium price milk products** offering possibilities for higher prices often in combination with increased environmental and animal welfare benefits
- **Digitalisation and improved sensors** for optimisation of farm management and animal health
- **Diversification**, self-processing and direct selling of milk and other farm products
- **Cooperation between farmers**: mixed farming / sharing of machines





## Future challenges for the dairy sector in Germany

- **Increasing land prices** due to investments and parking of money from industry and because of land–use change: photovoltaics and reduction of intensity on peat soils
- **Economic sustainability:** To cover full production costs 15 ct/kg milk is needed as a margin...
- **Financial pressure, stress, high workloads for farmers and their families in combination with low acceptance from society**
- **Lack of skilled workers, lack of willingness to cooperate with other farmers**
- **Higher requirements with respect to animal welfare, environmental emissions and biodiversity (Green Deal) in contrast to, that the majority of customers are not willing to pay for it:** Everybody wants cows on pasture. Pasture milk is on the shelves of all German supermarket chains, but as a matter of fact it can be a fake...except it is produced organically



**Region:**  
Western Pomerania  
**Country:**  
Poland



**Dr Ewa Kołoszycz, West Pomeranian University of Technology in Szczecin**

- assistant profesor at the Faculty of Economics (lecturer + researcher)
- cooperation with organizations in the field of agricultural economics
- Economics of milk production, farm management



**SITUATION ON THE MILK MARKET IN POLAND**

- Milk production: 14,7 mil t (trend +1,9% per year)
- Number of dairy cows: 2,0 mil heads (trend -1,6% per year)
- Milk delivered: 12,1 mil t (trend +2,8% per year)
- Number of farms with cows: 202 thous. (trend -7,8% per year)
- Self-sufficiency in milk: 122%
- Milk price 2021: 32,95 EUR/100 kg  
June 2022: 50 EUR/100 kg
- Polish cooperatives buy almost 90% of milk delivered
- Export (73% EU country): cheese & cottage (40%), milk & cream (22%), condensed and powdered milk (13%), ice cream (10%)
- Semi-finished products, lack of well-known brands on the European market





## Main strategies of Polish farmers for a "resilient" dairy system

### The most common:

- **Increase of efficiency:** Building/machinery/equipment investments – less or easier **work**, better animal **welfare** condition, higher **milk yield**, improvement of **feed quality** etc.
- **Sustainable investing:** using credit as little as possible
- **Cooperation between farmers:** machinery sharing, export manure or feed etc.
- **Diversification of income source on farm:** machinery services, direct row or processed milk sales





## Innovations in the dairy sector in Poland

- **The spread of automated milking and feeding systems** - a shortage of people to do the work on farm, a greater desire of the younger generation to have more freedom with their time
- **Cooperation between farms** - machinery, by-products, knowledge exchange
- **Agreement with society** - socially responsible, transparent farms, doing more for society, animals or the environment than required by law
- **Diversification of production (at/near milk production)** - energy production, machinery services, production of breeding heifers, direct sales of milk and dairy products, etc. -







## Future or potential shocks and threats

- **Climate changes** – long periods of drought, decline in forage quality, extremely high temperatures
- **Unstable regulations on milk market (Polish and European)** – frequent changes in regulations, failure to inform farmers about planned changes in regulations (e.g., regulations related to limiting Co2 emissions in Poland)
- **Lack of employees with sufficient skills** – Low social status of the farm worker, poor qualifications of available workers, government-regulated minimum wage level





**Region**  
**Luxembourg**

**Country**




**PERSONAL INTRODUCTION**

**Caroline Braquet, LTA**  
 → Coordination of agricultural projects and of the national pilot farm network

**DAIRY SECTOR IN LUXEMBOURG**

- **Grassland location** (51%), but not relevant for dairy sector anymore
- No milk quota since April 2015:
  - **Number of farms decreased**, but the average number of cows per farm increased to 91 in 2021 (cf.: 66 in 2015)
  - **Number of cows increased**, +8.000  
→ 54.828 cows in 2021
  - **Number of cows milked in a milking robot has doubled**, >22.000 cows in 2022
  - **Milk performance increased**, +700kg  
→ 8.085 kg/cow/year in 2021
- **milk price: 0,34€** for milk with 3,7% fat and 3,3% protein
- Main dairy is **LUXLAIT**: all kind of milk products
- Large part of the milk produced is exported (e.g. ARLA, Hochwald)





## Country Farmer's strategy for a "resilient" dairy system

- No common strategy; grow bigger or remain small
- **Modernisation** by investing in technologies to reduce workload and save manpower
- **Diversification** of the farm to have several pillars, not only the dairy pillar
- Maximum self-production of the food
- Increase efficiency





## Future or potential shocks and threats

- Competition for land → **less land available** for agriculture → **increasing landprices**
  - **New agricultural law** in 2023
  - **Increasing production costs**
    - **Climate change**
- **«expensive» generation changes or farm closings** → e.g. many siblings are just interested in «their money, their building land, ...» = **their own profit**

## Innovations in the dairy sector in Luxembourg

- Maximize **forage performance** (management)
- **Preventive concept milk samples** (MastDecide)
- **Disciplined supply** of colostrum (management)
- **Automatisation of work**
- **Sustainability tool** (Convis)



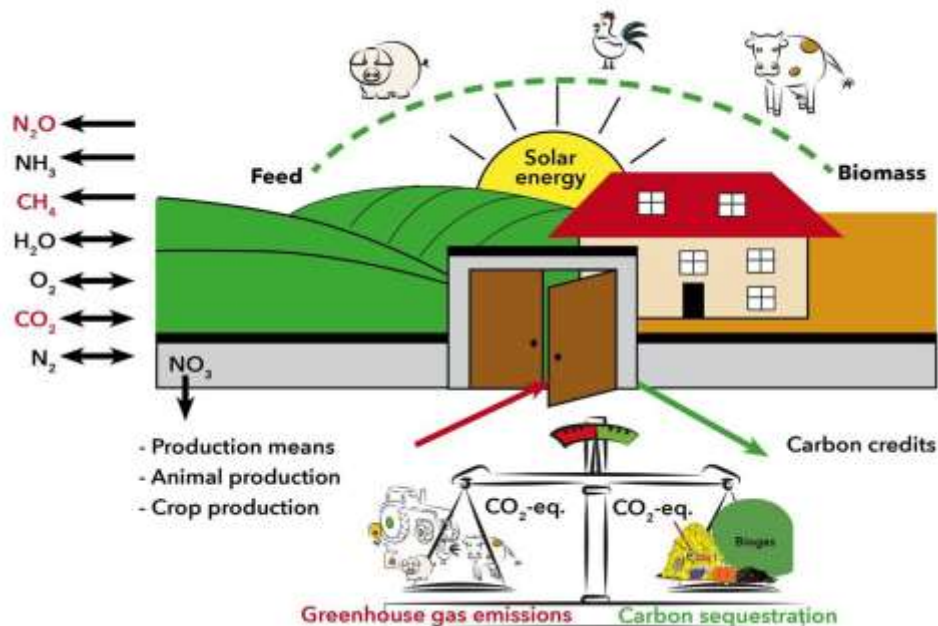


## CONVIS sustainability-tool



- Nutrient balance
- Organic matter balance
- Feed stuff autarchy
- Energy Balance

CO2 eq. balance  
per hectare / per kg of milk / meat



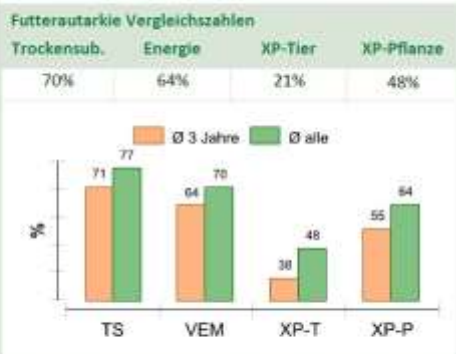


## CONVIS sustainability-tool



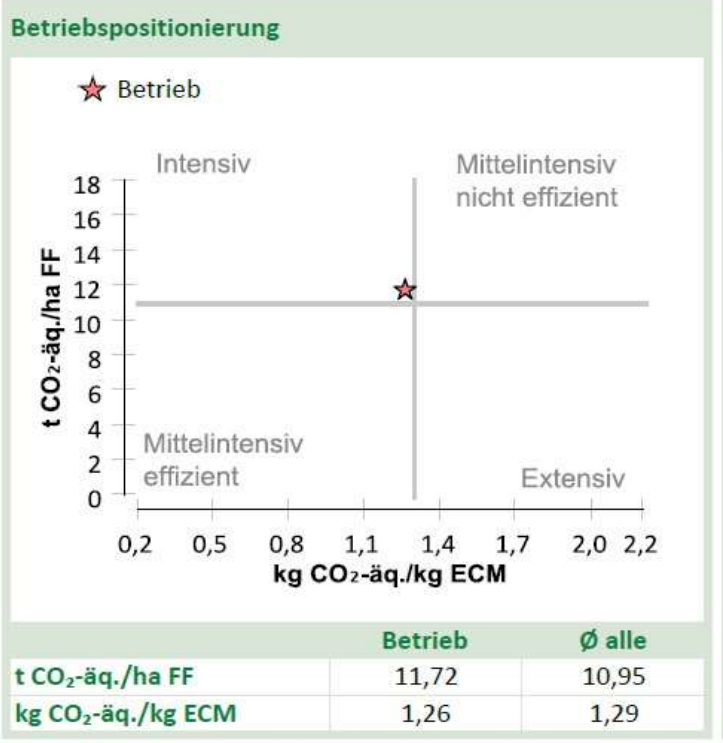
### Milchviehhaltung und Milchproduktion

Kennzahlen	Betrieb	Ø alle
Futterfläche gesamt (ha)	84,4	85,7
Eigengetreide (ha)	1,9	7,6
Silomais (ha)	14,5	17,1
Andere Ackerkulturen (ha)	1,3	0,6
Grünland inkl. Feldfutter (ha)	66,6	60,4
Anzahl Milchkühe	78,7	86,6
Jungvieh	83,3	94,2
GVE/ha FF	1,4	1,6
kg Milch/Betrieb	704.598	680.809
kg Milch/Kuh	8.953	7.890
kg Milch/ha	8.349	7.914
kg LG Fleisch/ha	214	232



Verbrauch pro dt Milch	KF ges. dt	KF < 25 % XP dt	Eiweißkonz. dt	Strom kWh	Medikamente €	Wasser m <sup>3</sup>	Diesel l
Betrieb	0,31	0,15	0,17	8,23	1,32	0,76	2,04
Ø alle	0,35	0,27	0,08	6,09	0,98	0,40	2,18

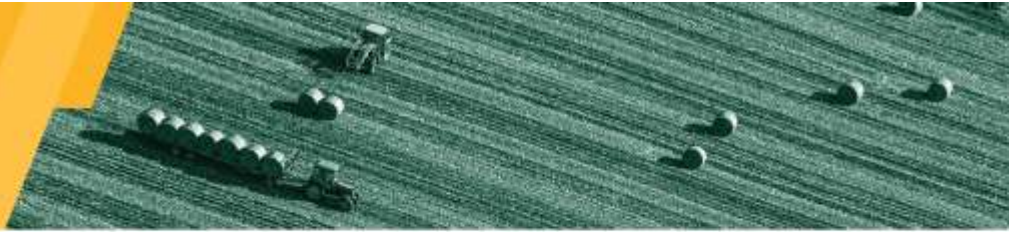
### LCA-Daten Milchproduktion



# Debrecen



**DE** MEZŐGAZDASÁG-,  
ÉLELMISZERTUDOMÁNYI ÉS  
KÖRNYEZETGAZDÁLKODÁSI KAR







# Region East Hungary

# Hungary




**SHORT PERSONAL INTRODUCTION**

Levente Czegledi  
 head of Animal Science Department  
 University of Debrecen  
 czegledi@agr.unideb.hu

**DAIRY COUNTRY SITUATION**

**Stock**

- 475 000 cows (increased in the last decade)
- 300 000 dairy cows (the same in the last years)
- Dairy breeds: 97% Holstein, 3% Jersey, Brown Swiss

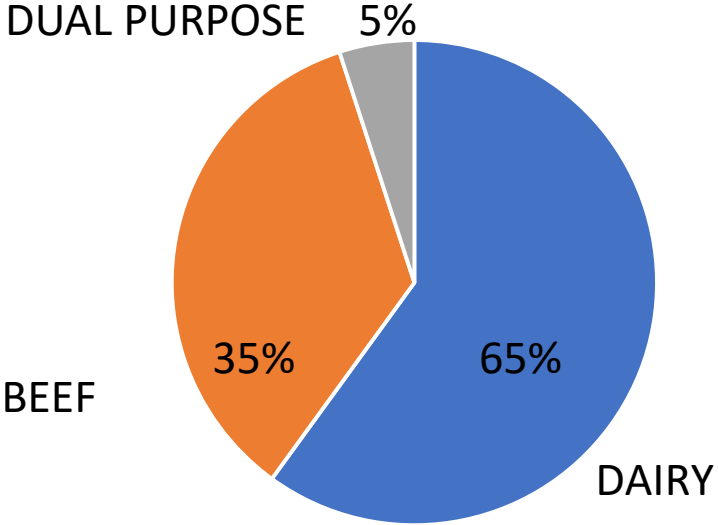
**Yield**

- Holstein: over 10 000 l/year
- Jersey: 5500 l/year, 5.5% fat
- Brown Swiss 8300 l/year
- Simmental 6000 l/year

**Economy**

- Milk price: 0.3 EUR (last years) to 0.45 EUR (2022)
- Feed cost is 60-65% of total cost

*Profitable in 2022!*



Distribution of cows in Hungary

# Region East Hungary

## Hungary



No. of cows in a farm	farms (%)	cows (%)
1-50	11	1
50-300	41	22
300-500	25	31
500 <	23	46
<b>Sum</b>	<b>435</b>	

### DAIRY COUNTRY SITUATION

#### Trends

- Slight increase in farm size
- No change in number of dairy farms

#### Milk processing companies

- Alföldi Tej (owned by >100 dairy farms)
- Sole-Mizo
- Friesland
- Lactalis





## Country Farmer's strategy for a "resilient" dairy system

- Build and apply new technology: housing of milking cows and milking parlour




laying box instead of deep bedding



- Improve genetics: bulls with genomic breeding value
- Biotechnology: embryo transfer
- Smaller farms produce and sell dairy products
- Increase milk yield!!



## Innovations in the dairy sector in Your Country

- Changing climate: dry summer  new plants, new roughage, technology, harvesting time
- Technology: slurry instead of farm yard manure, aquabed
- Automatization to decrease labour requirement
- Sensors: feed consumption, rumination, rument pH, heart rate, calving indicator
- A2/A2 casein milk
- GMO free milk



## Future or potential shocks and threats

- Low yield of grasslands: average is 1.5 tons of hay / hectare
- Large dairy farms are ltd. or shares: they are not owners of the land, but they rent the land
- Lot of contracts are not long term
- The price of concentrate, especially the protein feed





# Levente Czeglédi University of Debrecen



## Cheese from Hungary

