



View of farmers on GHG and ammonia emissions by survey in eight countries

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Introduction



Technological
development

Environmentally-
friendly practices



Transition to
sustainable food
production



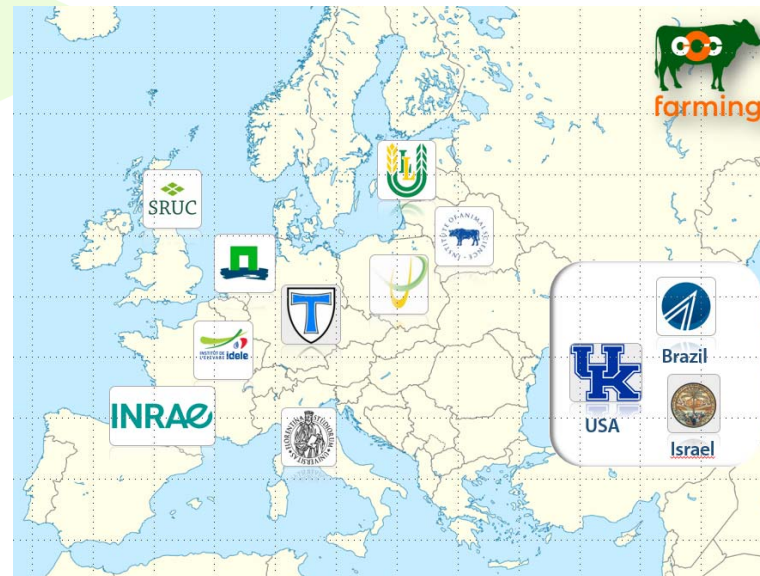
Introduction



- Develop farming practices and innovations reducing GHG and NH3 emissions
- Investigating mitigation practices in all aspects by measuring and modelling farm emissions

www.cccfarming.eu

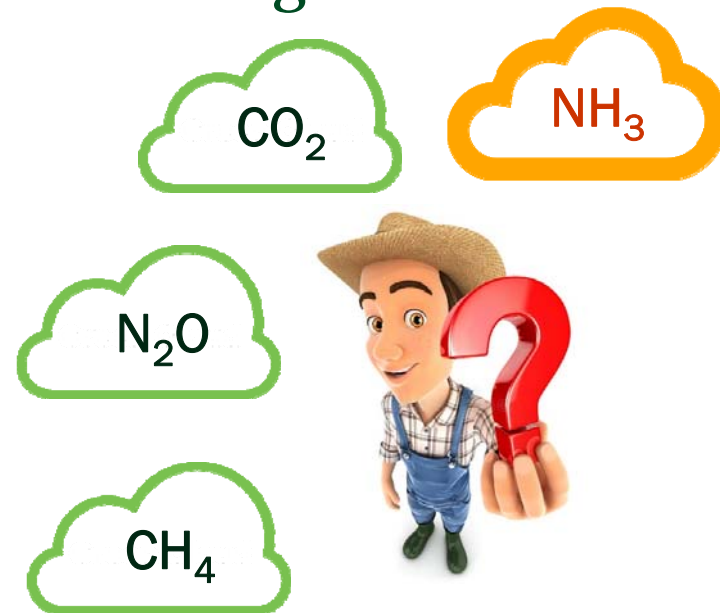
The project explores how much farmers have engaged with environmental issues and what changes they have made or planning to make on their farms.



Objective



- Investigate practices adopted by farmers to reduce their GHG and NH_3 emissions
- Unveil farmers' knowledge, perception and goals about this topic



Materials and methods



2020

Interviews with the ~8 participating farmers in each country (data referred to 2019)

Mixture of closed & open-ended questions on:

- Characteristics of the farm and the farmer
- Their information sources
- Their future expectations and plans
- Past, future and abandoned actions to reduce GHG and NH₃ emissions



- Germany
- Italy
- Lithuania
- Latvia
- The Netherlands
- Poland
- Scotland
- France

	DE	IT	LT	LV	NL	PL	SC	Full sample
Sample size	3	7	4	8	8	8	7	45



Materials and methods



78 questions:

- Farm background (N=8)
- Farmer background (N=20)
- Changes on the farm (N=10)
- GHG mitigation measures (N=20)
- Farm practices (N=1)
- NH3 mitigation measures (N=10)
- Support for environmental action (N=5)
- GHG and NH3 knowledge (N=4)



Lands, employers, payments, age profile, consultants

Implemented changes, motivations

Changes for GHG emission mitigation

Adoption of mitigation strategies

Technical and scientific aspects of greenhouse gases and ammonia emissions

Incentives to adoption of mitigation strategies

Changes for NH₃ emission mitigation

Materials and methods

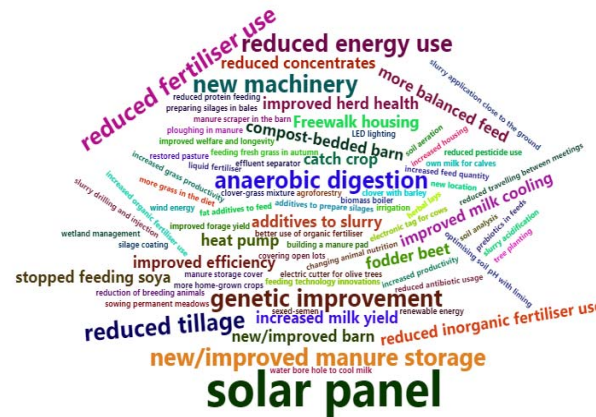


Answers were codified and merged in an overall dataset

Closed questions

- % of farmers giving a specific answer
- Or
- Average score for each question

Open-ended questions

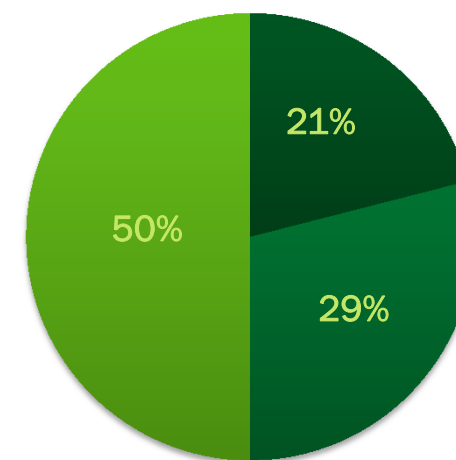


Results: farm and farmers background



- Farm size ~50-900ha, work force usually up to 10 people (some more than 50)
- 87% co-op or farmers' union member and 57% have tertiary education
- Almost all receives CAP direct payment, most CAP greening payment
- Agricultural diversification not common and off-farm income is less than 20% on the majority of farms

Owned lands



■ Up to 33% ■ 34-66% ■ More than 60%

Results: farm and farmers background



- Younger age profile than EU average
- On average 25 years in farming
- Only $\frac{3}{4}$ owner/occupier

close to research

environmentally “forward thinking”

Overall, similar characteristics

large farms

willing to try new technologies

middle aged and well educated farmers

Results: farm and farmers background



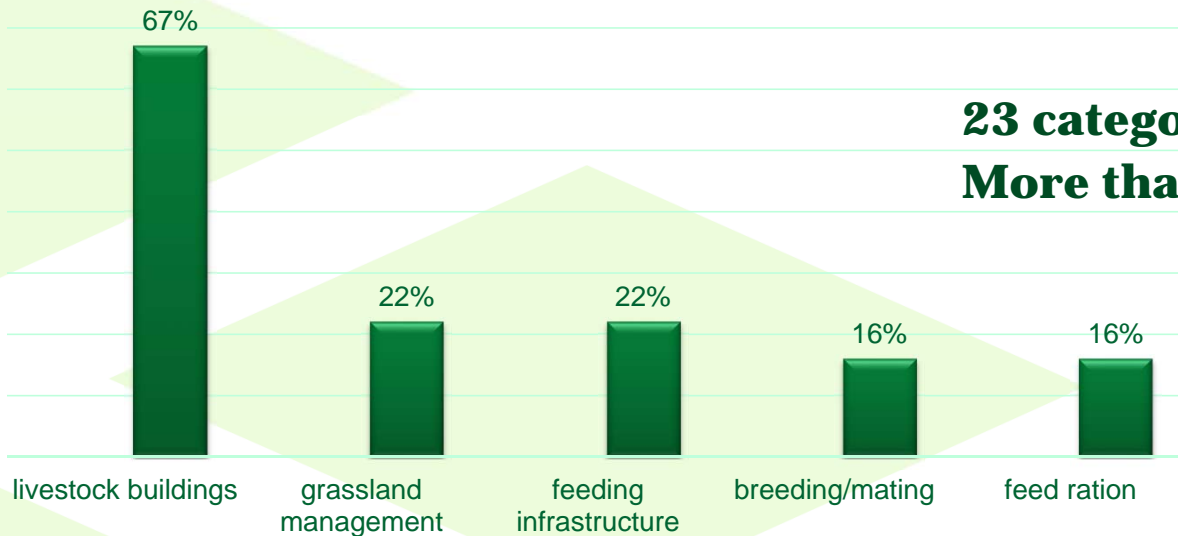
- In 2019, median 15 meetings with professionals
- Only 3 events on sustainability



Results: changes on farms



Main past changes



23 categories mentioned
More than 1 answer per farm

improving animal health/welfare (38%)

reducing costs (29%)

increasing productivity (29%)

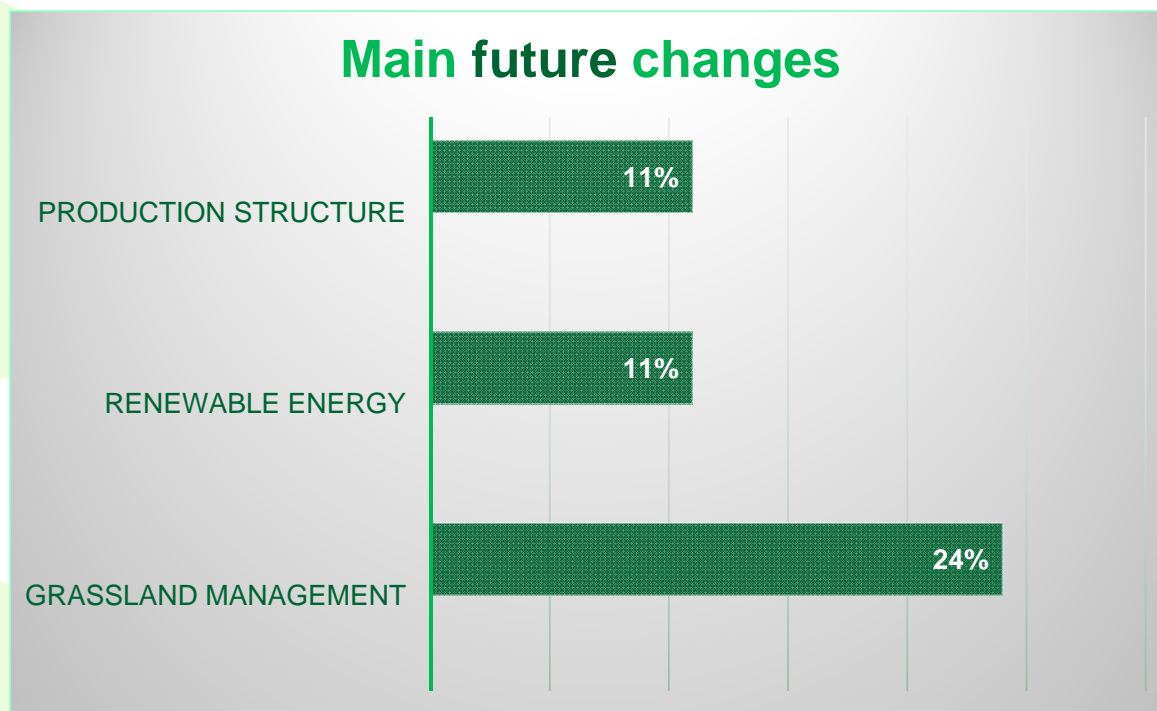
increasing efficiency (22%)

reducing environmental impact (24%)

Results: changes on farms



Main future changes



28 categories mentioned

More than 1 answer per farm

Much lower future activity than past

policies (62%)

climate change effects on farm (31%)

macroeconomic changes (29%)

Results: reducing emissions

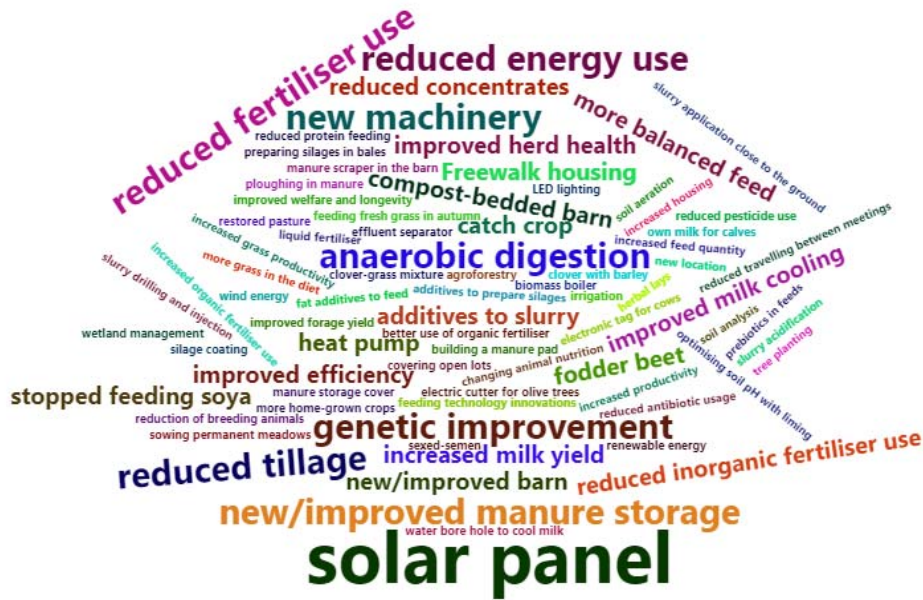


	DE	IT	LT	LV	NL	PL	SC	Full sample
Changes made to reduce GHG emissions (past 5 years)	100%	57%	75%	75%	100%	86%	86%	82%
Changes made to reduce NH ₃ emissions (ever)	100%	66%	100%	71%	100%	71%	86%	81%
Considered changes to reduce GHG but abandoned the idea	33%	43%	25%	25%	88%	50%	86%	49%
Considering changes to reduce GHG in the next five years	100%	71%	50%	50%	100%	71%	86%	75%
Considering changes to reduce NH ₃ in the next five years	100%	83%	75%	57%	100%	57%	86%	76%

Results: reducing GHG emissions



PAST



FUTURE

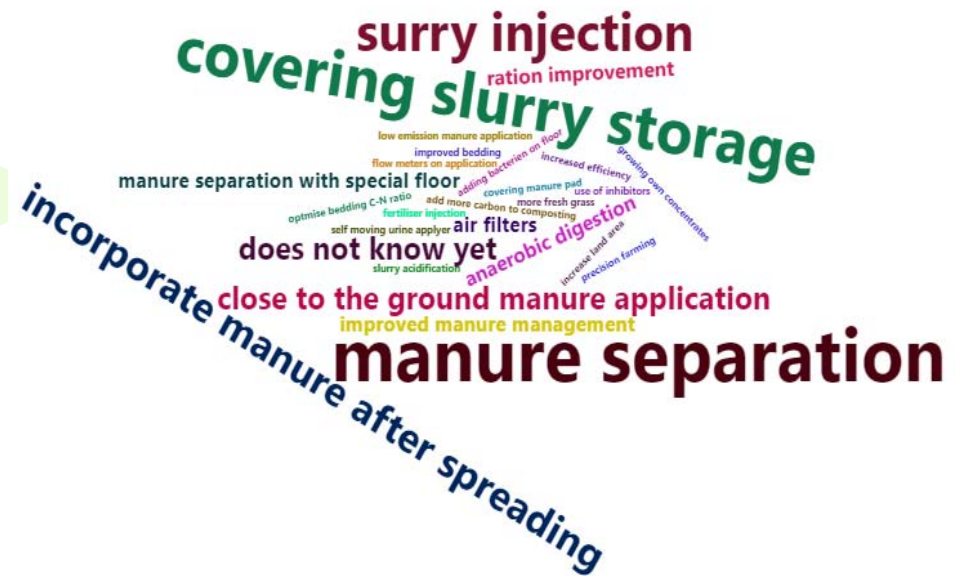


Results: reducing NH₃ emissions



PAST

FUTURE



Results: sustainability activities and opinions



	Full sample
Farmers have the obligation to contribute to environmental protection as much as possible	2
I am willing to take environmental protection measures on my farm even if it is at the expense of revenues	2
The negative environmental effects of farming are often overestimated by the public	1
An individual farmer cannot do anything to reduce greenhouse gas emissions	4,5
Climate change impacts are already noticeable	1
Sustainable farming practices can create business opportunities	2

Agreement to statements (mode) (1: strongly agree, 2: agree, 3: unsure, 4: disagree, 5: strongly disagree)

Conclusions



- Reduction of N-losses (and ammonia) in the recent past.
- Changes related to improve manure management in the whole chain and energy use.
- Considering adopting further measures (use of renewable energies, changes in feeding, and improvements in manure management and livestock housings).
- Practices related to reducing GHG emissions (especially CH₄) were less clearly articulated and often overlapped with those related to NH₃ reduction.
- Are methane reduction practices actually known in the field?
- Reasons behind the adoption of practices: improvement of farm economy and efficiency, besides environmental outcomes.



Thank you for your attention!

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