

# Understanding the challenges in European cattle production systems

*Challenges and opportunities in dairy and beef farms*

## Problem

The need for resilient animal production systems is clear and increasingly urgent. In order to achieve an optimal trade-off between resilience and efficiency, tailored solutions to optimizing resilience and efficiency are needed. Different local livestock systems have social, economic and ecological characteristics, functions and dependencies, within which they display resilience and efficiency in various definitions.

## Solution

Across the sector, there is a clear requirement for cattle to efficiently convert resources into products, but it is less clear to what extent the perceived conflicts between resilience and efficiency are likely to hamper improvement strategies.

A GentORE survey was carried out with around 200 stakeholders varying from farmers and vets to breeders, consultants and scientists to identify the challenges (Figures 1 and 2) and genetic management methods of dairy and beef cattle systems.

Responses from stakeholders indicate that although there is high confidence in the ability of genetic improvement technologies to promote resilient and efficient production, our current selection criteria may not be optimal towards this goal (Figure 3).

Underlying this statement, we saw that further barriers to genetic progress stem from issues of phenotyping, perceived cost-effectiveness, uncertainty of future production circumstances and disagreement with the priorities from breeding societies. We also found differences in management actions perceived to be important for maintaining resilient and efficient production.

## Outcome

From results, we saw that stakeholder preference for traits in cattle breeding goals are quite similar across Europe, suggesting regional drivers of preference may not be so clear as originally thought. Furthermore, results suggest that, in stakeholders' perceptions, there are antagonisms between traits that support resilient production and those that support efficient production. This re-enforces the importance of considering efficiency over a period that is relevant to ensure gains are sustainable and appropriate to future production circumstances.

## Key results

- For maintaining efficient dairy production, the most important actions across the regions are the use of genetic improvement tools and culling the least adapted animals.
- For maintaining efficient beef production, the most important actions in Atlantic systems are to seek technical advice and the use of genetic improvement tools. Also important were culling the least adapted animals and utilising group calving patterns.

## Practical recommendations

- GentORE aims to develop on-farm decision support tools for farmers to be able to select animals with better resilience and efficiency traits.
- It is an opportunity for the breeding and herdbook organisations to support the use of these tools by providing easy-to-use apps and trainings to their members.

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## Keywords

- #Resilient and efficient animal production
- #Breeding for appropriate traits
- #Stakeholder breeding trait preferences
- #Breeding societies

## Illustrations

Figure 1: Challenges identified in the dairy sector



Figure 2: Challenges identified in the dairy sector



- Farm advisors and veterinarians can follow the GenTORE trainings that will be provided in 2021 and 2022 on precision livestock breeding and genetics

Stakeholders responded to the following questions: (a) The use of appropriate breeding goals offers substantial gains in terms of efficiency in European cattle production; (b) All of the traits that are important to efficiency are included in the breeding goal(s) of my region; (c) The use of appropriate breeding goals offers substantial gains in terms of resilience in European cattle production; (d) All of the traits that are important to resilience are included in the breeding goal(s) of my region.

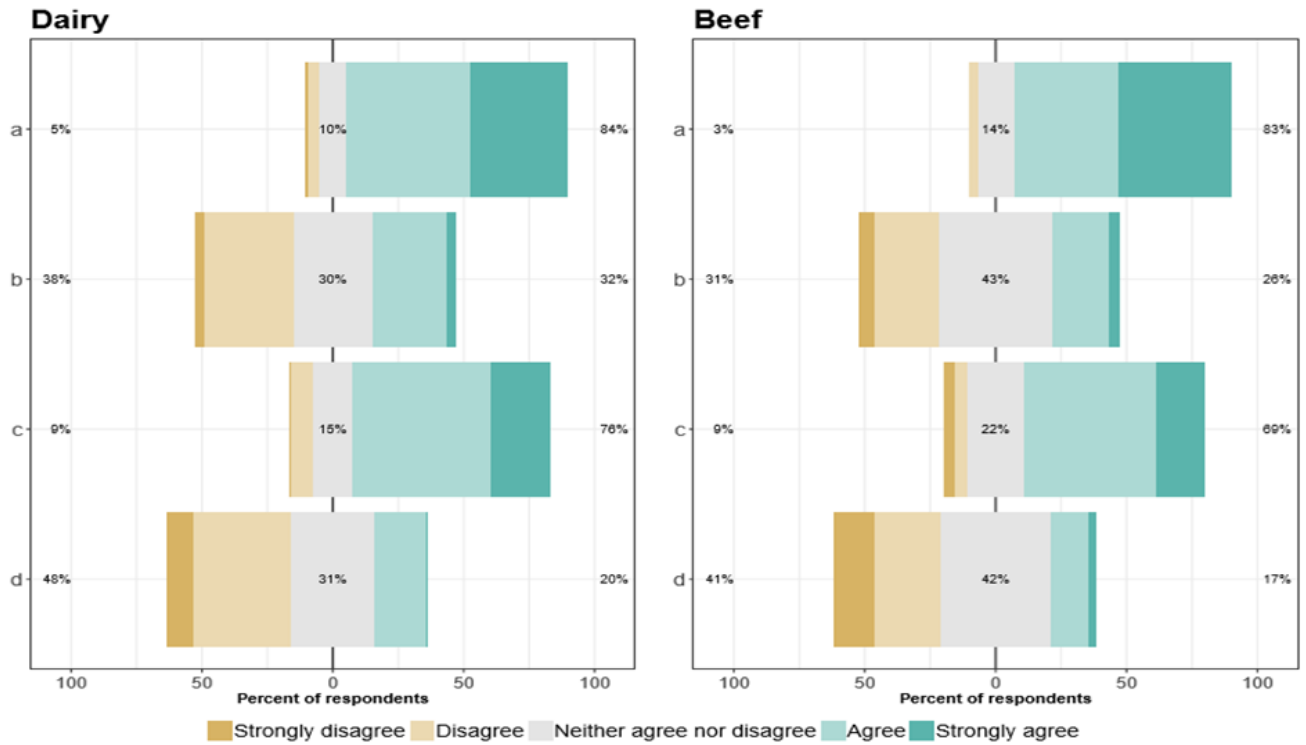


Figure 3 Questionnaire responses indicating attitudes to genetic improvement in dairy and beef systems

*“GENomic management Tools to Optimize Resilience and Efficiency - GenTORE”* is an H2020 project which aims to develop innovative genome-enabled selection and management tools to empower farmers to optimize cattle resilience and efficiency in different and changing environments.

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