CONTEXT PROFILE

GERMANY

FARMER
Johannes Gruben

INNOVATION
DSN cows

Video

MAIN DOMAIN OF THE INNOVATION
Breeding advance

SOIL TYPE
Gley

FINANCE/INVESTMENT
Low

AGROCLIMATIC AREA
Atlantic central

MANAGEMENT
Pasture beef

MARKET
Local-rural

CLIMATE
Moderate rainfall

TECHNICAL
Easy

SOCIAL
Full-time farmer

All contents of this document are expert opinions of the G4AE Scientific Technical Working Group

CONTEXT PROFILE

GERMANY

Case Study: DE_12	Agroclimatic Zone								
Item (Key Innovation Elements)	**Alpine**	**Atlantic Central**	**Atlantic North**	**Atlantic South**	**Boreal**	**Continental North**	**Continental South**	**Mediterranean North**	**Mediterranean South**
Transition to low-input system based on grass; organic certified system (higher milk price)	+++	+++	+++	+++	+++	+++	+++	+++	+++
Holstein-Friesian replaced by the traditional dual-purpose German Black Pied cattle which show improved use of pastures (less milk)	++	++	++	++	++	++	++	+	+
Short sward grazing at the start of the season + full grazing in summer	++	+++	+++	+++	+++	+++	+++	++	++
Concentrates fed in winter only	++	++	++	++	++	++	++	+	+
Seasonal calving (Jan-May)	+++	+++	+++	+++	+++	+++	+++	+	+

+++ **Strong transferability** ++ **Slightly limited transferability** + **Very limited transferability** × **Generic information/not relevant**

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Implementation Gaps

- The German Black Pied cattle is an endangered local dual-purpose breed with a small population size of 2,500 cattle (Wolf, Manuel J. et al., 2023). The farmer could participate to genetic improvement programs and research studies to further improve the breed features in pasture use
- Which other breeds that do not receive premiums for the preservation (supported by the German government and the EU) could be used for grazing in extensive systems in that agroclimatic region?
- Switch from visual assessment to measurements of grass production

Research Gaps

- How to increase milk production and maintain the other advantageous traits of the breed (ongoing genetic studies)
- Adaptation to climate change of German Black Pied

Suggestions to Adapt

- Adapt seasonal calving to the grazing period of the agroclimatic zone;
- Use local dual-purpose breeds
- Apart from the organic farming, some cooperatives and industries pay more for high-quality milk
- Process milk at least partially on farm and sell cheese to retain a higher added value

Grazing4AgroEcology

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COST-BENEFIT ANALYSIS

INVESTMENT COSTS

Total initial investment costs at start up:	low
• Initial authorisation costs (e.g. sanitary, veterinary, etc.)	not applicable/not known
• Initial advisory costs	low
• Initial buildings and machineries	not applicable/not known
• Initial certification costs	not applicable/not known
• Initial working capital (personal qualification, marketing and promotion, etc.)	not applicable/not known

ON-GOING COSTS

On-going advisory costs	not applicable/not known
On-going certification costs	not applicable/not known
On-going buildings and machinery costs	not applicable/not known
On-going working capital	low

BENEFITS RELATIVE TO ORIGINAL SYSTEM

- **Economic**

Reduction in energy consumption (electricity; fuel consumption)	high
Reduction in input use (fertilizers; pesticides; feed) etc.	high
Payback period	high
Product value added	high
Additional farm income through agroecological/agri-environmental payment schemes	not applicable/not known

- **Environmental**

Animal feed self-sufficiency increase	high
Biodiversity increase	not applicable/not known
Improved nitrogen cycling	high
Soil regeneration	high
Animal health and welfare improvement	high

- **Social**

Workload reduction	high
Engagement of young generation	mid

Grazing AgroEcology 4.0
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Literature

English

- Wolf, Manuel J. et al. Genetic evaluations for endangered dual-purpose German Black Pied cattle using 50K SNPs, a breed-specific 200K chip, and whole-genome sequencing, Journal of Dairy Science, Volume 106, Issue 5, 3345 – 3358.
- Frontiers | Genomic Loci Affecting Milk Production in German Black Pied Cattle (DSN)
- https://www.encyclopediapratensis.eu/wp-content/uploads/2019/10/ITALY_Compartmented_short_sward_grazing_tl.pdf

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