

## ***Ex situ* efforts to conserve Simmental cattle across European Countries**



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## **Introduction**

- Simmental is one of Europe's major transboundary cattle breeds.
- Overall, 36 national populations around the world are connected to this transboundary breed name.
- Simmental cattle is adapted to pasture in mountain areas, hence suitable for extensive production systems.
- Dual-purpose use: milk and meat.
- Increasing specialization and in some populations conservation efforts.
- Need for coordinated actions?



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## *SIM ad hoc action*

- **20 national populations** of Simmental/Fleckvieh cattle from **12 countries** were analysed.
- In some countries (Czechia, Slovakia, Denmark, Switzerland), the names Simmental and Fleckvieh refer to two phylogenetically related, but recently separated breeds. Like in Czechia (Český strakatý vs. Beef Simmental), Slovakia (Slovenský strakatý vs. Beef Simmental) and Denmark.
- In these countries, exchange of animals between Simmental and Fleckvieh population and subsequent mating is considered crossbreeding.

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## About the questionnaire

1. Population Information Section
2. Breeding Programme Information
3. Performance and Recording
4. Phenotypic and Productivity Characteristics
5. Breed-Related Products

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## Ex situ efforts

- ex situ (e.g., genebank) strategies.
- Entities involved in ex situ conservation (e.g., AI stations, public banks).
- Criteria and data for selecting donor animals.

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## Type of the material

- The *ex situ* conservation efforts for the Simmental breed across Europe predominantly focus on the storage of semen samples, with limited initiatives involving embryo or DNA material.
- For the original Český strakatý population, approximately 596 embryos have been collected.

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Table 1: Ex Situ Conservation Programme Status by Country

Country/breed name	Ex situ programme	Custodian of samples	Year of first collection	Pedigree data available
Austria/ Fleckvieh, Simmental	yes	Austrian Gene Bank of Farm Animals	1988	Yes
Czechia/Masný simentál	no	n.a.	1999	n.a.
Czechia/Cesky strakatý skot	no	n.a.	1999	yes
Czechia/Cesky strakatý skot - original	Yes	Public genebank	1999	yes
Serbia/Simmental	No	AI stations and commercial use only		yes
Switzerland/Simmental (Swissherdbook)	Yes	Private AI stations	1975	Yes
Switzerland/Beef Cattle Switzerland	Yes	Private AI stations	1975	Yes
Switzerland/Swiss Fleckvieh	No	n.a.	n.a.	n.a.
Poland/ Polish simmental	No	public genebank	2009	Yes
Slovakia/Mäsový simentál	No	Private AI stations	n.a.	n.a.
Slovakia/ Slovak Spotted	Probably not	Private AI	n.a.	yes
Denmark/Simmental	n.a.	Private AI	n.a.	n.a.
Romania/"BĂLȚĂȚĂ ROMÂNEASCĂ, ROMANIAN SPOTED – SIMMENTALTYPE"	No	n.a.	n.a.	No
Italy/Pezzata Rossa Italiana	Yes	Italian Simmental Association conserve the semen of all Italian Bulls Used for Artificial Insemination	1980, but there are also bulls that are born in the previous years	Yes
Croatia/Simentalac, Simmental	yes	public genebank	2014	yes
Latvia/Simmental (beef)	no	n.a.	n.a.	yes
Germany/Fleckvieh-Fleisch (Fleckvieh-Simmental)	no	n.a.	n.a.	n.a.
Germany/(Deutsches) Fleckvieh	yes	AI centres on behalf of the state	1975	yes
Germany/Ansbach-Triesdorfer Rind	no	Private AI stations	1990	yes

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## Donors criteria

- The most common approach is selection of AI bulls
- A few countries (e.g., Croatia, Germany) apply broader phenotypic or strategic breeding criteria.

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Type of storage	Number of countries	Comments
Public	7	Predominantly in countries with strong governmental support for animal genetic resource conservation (e.g., Austria, Croatia, Poland).
Private	8	Common in countries where the private breeding sector (AI stations, breeding companies) plays a leading role (e.g., Switzerland, Slovakia, Germany).
Unknown/Unclear	5	In several cases, data are incomplete or conservation is not formally organized.

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## Key Challenges

- Narrow focus of ex situ collections.
- Selection criteria not standardized.
- Overemphasis on production traits.
- Insufficient conservation (where needed)



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## Strategic Recommendations

- Expand ex situ collections.
- Implement standardized donor selection protocols.
- Preserve functional traits (fertility, disease resistance).
- Support existing in situ conservation programmes with complementary ex situ collections.