CORE organic Plus

Improving health in native dual-purpose cattle

2-ORG-COWS

Aim of the project:

Comparison of dual-purpose cattle breeds with regard to novel functional traits in pasture based production systems.

Introduction

An evaluation of novel functional traits and associated environmental descriptors for the implementation of organic breeding strategies of local dual-purpose cattle kept in organic production systems.

An overall organic breeding index for the improvement of health, product quality, fertility, longevity and welfare of dual-purpose cattle kept in pasture based production systems shall provide helpful “breeding tools“ for farmers.

Background

Rather than an adaptation of the environment towards the requirements of the high yielding dairy cow, the principle of organic breeding is to adapt the cow towards the local and natural production system. The one-sided genetic selection, favouring increased milk yield, complicates feeding and management of modern Holstein genetics when confronted with the strict rules defined for organic milk production. This requires a reformulation of existing dairy cattle breeding goals, or the utilization of alternative and locally adapted breeds that historically emphasized functionality, robustness and longevity.

Main activities

- characterization of pasture based production systems
- novel data recording
- genetic evaluations
- optimized breeding program designs for dual-purpose cattle
- optimized dual-purpose cattle farm management in pasture based systems

Cattle breed, Simmental.
Photo from Swissherdbook.

Expected societal benefits of the project

The recording of environmental descriptors will allow the development of guidelines to improve farm management for dual-purpose cows in low input systems. Through the development of solutions adapted to low input organic farming and dual-purpose breeds, we expect to improve the durability of bovine production to enhance the use of agronomic resources (pasture, harsh environment) where there is no competition with human needs (crop production) and to preserve genetic resources (and the corresponding traditional ways to raise animals).

Expected results and impacts

An overall organic breeding value and organic indices for the improvement of health, product quality, fertility, longevity and welfare of dual-purpose cattle will be developed. Estimation of breeding values will be optimised by a detailed consideration of environmental effects. We will provide solutions for the impact of environmental effects on novel traits including suggestions to improvement of the overall farm management (feeding strategies, pasture management strategies, etc.). Economic optimsation of strategies and product prices, needed for high quality 'grass-milk', will be calculated.

From the research farm 'Frankenhausen' in Germany. Breed: DSN- deutsches Schwarzes NIederungsrind, a typical dual-purpose cow breed

Expected results and impacts

A better adaptation of dual-purpose cows to pasture based systems, organic farming in order to improve the robustness will enhance farm management- contributing to both aspects of animal welfare and working conditions of farmers. A uniform recording methodology for new traits shall be related to the working conditions of the breeder, animal welfare (health traits, behavior, longevity, fertility), environmental aspects (feed intake and greenhouse gas emissions) and the quality of products (milk and meat quality).

From the research farm 'Frankenhausen' in Germany

From Frankenhausen, Germany

How to reach target groups

- Publication of results in peer-reviewed journals
- Presentations of results at national/international scientific conferences
- End-of-study workshop on a Europe-wide level including administrative delegates (from the EU), dual-purpose cattle researchers, farmers, and breeding organizations

Cattle breed, Simmental. Photo from Swissherdbook.

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Further information

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Read more at the CORE Organic website: http://www.coreorganic.org/
and find publications from the project at
http://coreorganicplus.org/research-projects/2-org-cows/
and at: http://orgprints.org/view/projects/2orgcows.html