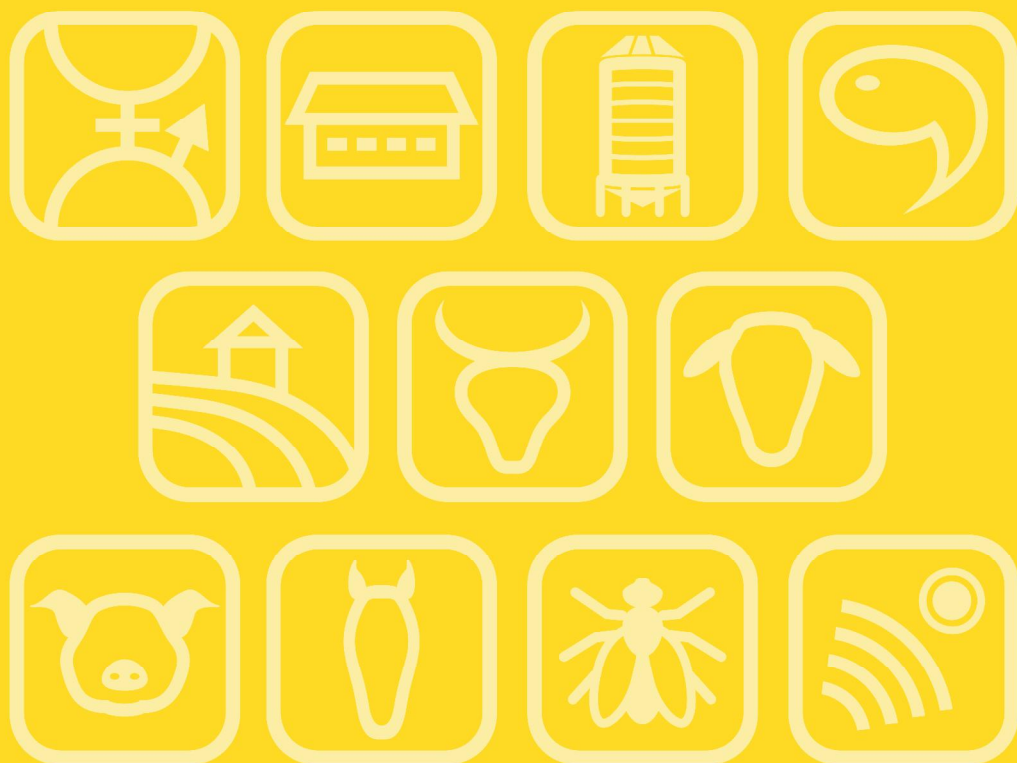


# Book of Abstracts

of the 75<sup>th</sup> Annual Meeting  
of the European Federation of Animal Science



**Book of Abstracts No. 34 (2024)**  
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Date: Wednesday 4 September 2024; 8:30 - 11:30

Chair: Frigga / Probo

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Multicriteria performance of five grass-based cattle farms along a gradient of stocking rate

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The debate on the sustainability of livestock farming is often polarized around greenhouse gas (GHG) emissions and land use, and the potential benefits of grassland-based ecosystem services in farm assessments are generally overlooked. Accounting for multiple ecosystem services (ES) may be further complicated by confounding effects of animal stocking rate and trade-offs between ES. We used life cycle assessment to assess environmental impacts of four “green options” for cattle production and a conventional dairy farm that are distributed along a broad gradient of extensification in the Atlantic area of Western Europe. We also applied an ES-multifunctionality assessment method to these five farms in which multifunctionality was defined and valued according to different stakeholder perspectives. We showed that relying on C sequestration in grasslands to fully compensate for ruminant GHG emissions would lead to farming at a very low stocking rate. The climate-neutral farm had 0.53 livestock units/ha of on-farm fodder area and produced 11 kg of human-edible protein (HEP)/total ha.yr. The sustainable intensification farm produced 124.5 kg HEP/total ha.yr and was also climate-neutral. Following a “land sparing” strategy, high-yielding cows grazed temporary grasslands and annual fodder crops, while carbon was sequestered in soil and woody biomass on the half of the farm area that was “returned to nature”. The types of biodiversity on these five farms differed as well as their cultural value. We discuss how the inclusion of stakeholder values in multi-criteria farm assessment provides valuable information for the systemic redesign of cattle production systems.

Agroecological transition may reduce the fat content of Fourme de Montbrison cheese

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The Fourme de Monbrison (FM) is a blue type PDO cheese from the French Massif Central area made with unskimmed milk. Since 2011, the dairy farmers are moving towards more agro-ecological practices, promoting in particular a transition from form Holstein to Montbéliarde (Mo) breed and from maize silage to herbage as forage base, maximizing grazing. In parallel, since 2018, the share of cheeses having a low fat in dry matter (F/DM) content (< 52% which is the minimum threshold in the specifications of FM cheese) increased and reached 10% and the milk fat content decreased by -0.25 g/kg milk per year, especially at the beginning of the grazing period. An experiment was set up in 20 FM farms to monitor the evolution of milk fat and protein contents and fat to protein ratio (FPR) during the grazing season, in relation to farming practices and herbage characteristics. Milk fat was negatively related to pasture energy content and organic matter digestibility ( $R < -0.37$ ) and positively to its fiber contents ( $R > 0.40$ ). Milk protein was positively related to pasture protein content ( $R > 0.35$ ) and negatively to the time elapsed since the beginning of the grazing season ( $R = -0.40$ ). This suggest that grazing at an early vegetative stage can depress milk fat content and FPR and therefore cheese F/DM content. The proportion of Ho in the herd was positively related to FPR ( $R = 0.33$ ) and negatively to milk protein ( $R = -0.57$ ). In order to tackle these issues, some farmers are willing to test corrective practices in their own farm in the frame of the EU H2020 INTAQT project’s “living-labs” activities.