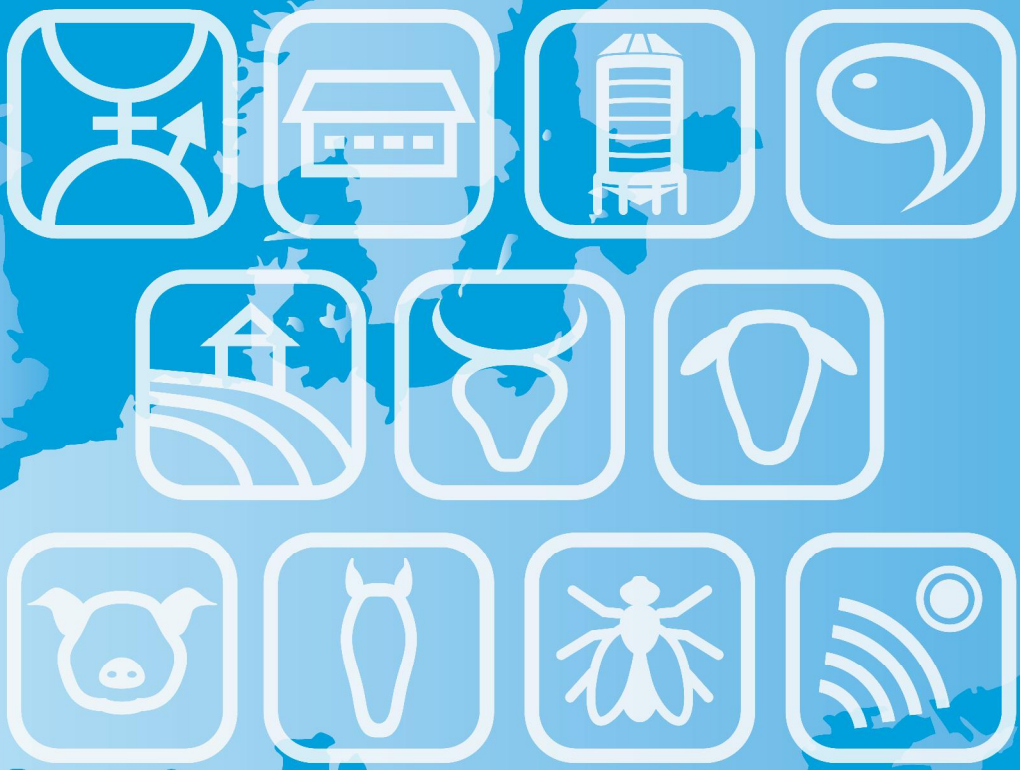
Book of Abstracts

of the 3nd Mountain Livestock Farming Systems Meeting of the European Federation of Animal Science



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Book of Abstracts No. 32 (2024)
Clermont-Ferrand, France
5-7 June, 2024

Scientific programme

Session 1. Adaptation of mountain livestock farming to climate change

Date: Wednesday 5 June 2024; 10:00 - 13:15
Chair: Cozzi / Martin / Blanc

Theatre Session 1

Poster Session 1

Session 2. Interaction between farming systems and wildlife

Date: Wednesday 5 June 2024; 15:00 - 17:00
Chair: Holand / Brunschwig

Theatre Session 2

Poster Session 2

Session 3. Product quality and mountain farming

Date: Wednesday 5 June 2024; 17:00 - 19:35
Chair: Coppa / Silacci

Theatre Session 3

Poster Session 3

Session 4. Local breeds

Date: Thursday 6 June 2024; 8:30 - 10:00
Chair: Pauler / Zanon

Theatre Session 4

Poster Session 4

Session 5. Transhumance in European mountains – challenges and perspective

Date: Thursday 6 June 2024; 10:30 - 12:30
Chair: Holand / Zanon

Theatre Session 5

Session 7. Sustainability and ecosystem services of mountain farming

Date: Friday 7 June 2024; 8:30 - 11:00
Chair: Cozzi / Gauly

Theatre Session 7

Poster Session 7

Session 8. New technologies for mountain livestock

Date: Friday 7 June 2024; 11:00 - 13:30
Chair: Morgan-Davies / Schneider

Theatre Session 8

Poster Session 8

A framework to study the resilience of dairy herds to climate change from on-farm data

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Climate change is known to challenge mountain livestock farming systems through its impact on forage resources availability. However, information about their vulnerability to heat waves is meager. Previous studies showed that heat waves can severely affect dairy cows' welfare and activity, their reproductive success and milk yield. Thus, the ability of mountain dairy herds to cope with heat episodes is worth to be addressed. The objective is to develop a framework to examine the resilience of dairy herds to heat waves from milk data gathered on farms. The study was carried out on 1500 dairy herds located in a mountain area (Puy de Dôme, France), covering a period of 22 years. Longitudinal data available for each herd concerned productive (milk yield) and reproductive (calving to calving interval) performances along with cows longevity. Weather data (daily temperatures and humidity) for the same period and area were used to calculate the daily temperature humidity index (THI) at a local scale. Heat stress events (HSE) were identified when THI was both higher than 68 and higher than weekly average for at least three consecutive days. Finally, yearly cumulative sums for both duration and levels of HSE were calculated. Dairy herd resilience was assessed through the ability of a given herd to maintain yearly performances relatively stable when experiencing IISE (being minimally affected or going back rapidly to equilibrium state). Then, resilient and non-resilient dairy herds were contrasted in terms of their characteristics (milk yield, breeds, calvings and lactations distribution). The development of such a framework may be useful to identify levers of resilience at the herd level that would ultimately help dairy farmers better dealing with the expected increase in frequency and intensity of HSE.

Does biodiverse mountain grassland reduce enteric methane emissions?

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Plant secondary metabolites are known to mitigate enteric methane emissions. They can be found in biodiverse pasture, rich in fobs, which have been shown to reduce enteric methane (CH4) production in vitro. We set up an in vivo experiment to measure methane (CH4) emission, dairy performances and digestive parameters of 28 grazing dairy cows, allocated to a low plant diversity level plot (LD, 17 species, H-index = 209) for a 3 weeks pre-experimental period. Then, cows were split for a 6 weeks experiment in two balanced groups: one stayed on LD plot managed under rotational grazing; the other continuously grazed a plot with a high plant diversity level (HD, 58 species, H-index = 323). Milk yield was 32% lower for HD cows while protein content was greater for LD cows (+ 1.5 g/kg). CH4 emission for HD cows was lower (- 14%) compared to LD and CH4 intensity was higher for HD cows (+5.4 g/kg MY). First results regarding volatile fatty acid (VFA) in the rumen showed a higher proportion of acetate in HD cows (73,1% vs 70,4% of total VFA). Phenological stage of LD regressed during the trial because LD cows grazed on regrowth and HD plot passed flowering stage during the last three weeks. More data are needed to understand the underlying physiological phenomenon, but we can hypothesise that a higher level of plant secondary compound could explain the reduction of methane emission of HD cows, despite the increase of herbage fiber content associated to its maturity and the probable lower level of intake. This trial should then bring new insight following in vitro fermentation trial showing a reduction of gas emission for biodiverse mountainous herbage.