

Book of Abstracts of the 72nd Annual Meeting of the European Federation of Animal Science



Book of abstracts No. 27 (2021)
Davos, Switzerland
30 August – 3 September 2021

From the lab to the farm: using a multi-actor approach to foster sustainable parasite control

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While anthelmintics can be effective to control parasitic disease, due to their synthetic nature they are contentious inputs for organic systems. Development of alternatives is a prerequisite to reduce the environmental footprint of organic agriculture, whilst maintaining livestock health and welfare. To develop implementable and bespoke alternatives for parasite control, in RELACS we have followed a multi-actor approach which entails engagement with multiple stakeholders, throughout the project. At the first stage, information on current management strategies, farmers perceptions and potential use of alternatives was collected. Expert opinion (advisors and scientists), farmer interviews and surveys, and data analysis from previous projects, were the sources of information. This enabled us to identify two alternatives: heather, as a model bioactive plant, and nematophagous fungi, as a model biological control method. Farmers associations were interviewed to report on the grazing patterns of upland sheep and potential access to heather in different countries; they then orchestrated heather sample collection, which were sent to researchers for *in vitro* analysis. The optimisation of fungi's anthelmintic efficacy was achieved through a series of *in vitro* testing. Animal experimentation followed on, at the research facilities of RELACS partners. This step was vital to identify undesirable/complementary effects of heather and fungi supplementation on the health, productivity and welfare of the animals, prior to their roll out on farm. At the final stages of the project, scientists, farmers and farmer associations interacted in focus groups, to discuss the scientific evidence generated and to debate management practices and cost-benefit analysis of the alternatives. Some farmers carried out on-farm validations, to corroborate the experimental outcomes and identify constraints during the practical implementation of lab-developed tools. This multi-actor approach is expected to maximise impact and facilitate implementation of the alternatives for sustainable parasite control.