

## Short description of the project

<p><b>Project short name and title</b></p> <p>PrOPara (Practices for Organic Parasite Control)</p> <p>Tackling the parasitological challenges in organic ruminant farming practices</p>
<p><b>Project summary</b></p> <p>Parasitism is well recognized as a major challenge to the health and welfare of organic livestock. In organic small ruminant production systems, endoparasitic disease is accepted as the most important multifactorial syndrome, resulting in lack of appetite, diarrhoea, anaemia and in extreme cases, death. In organic cattle production, despite the low stocking densities and use of improved grazing management practices, helminth infections are still a significant issue. Although previous projects funded either by EC or National Governments have largely delivered the underpinning scientific research, progress in the implementation of suitable control strategies has been hindered by: i) limitations of research at farm systems level, ii) absence of clear cost-benefit and societal analysis and iii) difficulties in reaching and educating the appropriate stakeholders. This project aspires to address these limitations by: i) <b>assessing existing knowledge</b> from research, development and benchmarking studies on alternatives to parasite control on organic ruminant farms, ii) <b>collecting novel data</b> on disease prevalence, risk assessment analysis and parasite control measures, through monitoring (farm surveys and stakeholder participation studies), iii) <b>performing cost-benefit analysis</b> on alternative parasite control measures and iv) <b>developing and delivering technical innovation</b> to facilitate implementation of sustainable parasite control strategies. The overall objective of this project is to generate novel information, including liver fluke prevalence data, risk assessment analysis for liver fluke, cost-benefit analysis of novel options for control of gastrointestinal nematodes (GIN) and innovative tools, such as a device for automatic weight registrations while the animals are on pasture for targeted selected treatment for GIN control and a user-friendly decision tree in the form of an electronic application to help farmers with the control of fasciolosis. We will focus on pasture-borne parasitic diseases, as they are the most relevant to organic conditions of production, and in particular helminthoses, such as GIN and trematodes (the common liver fluke).</p>
<p><b>Aim, objectives and hypotheses</b></p> <p>The <b>overall aim</b> of this project is to generate novel information and innovative tools that can be readily used by key stakeholders, such as farmers, trainers, extension workers to improve animal health and welfare in organic ruminants. Our <b>hypothesis</b> is that by ensuring stakeholders' participation and feedback at all stages of the project, science can be moved into industry to make an impact to parasite control strategies in organic ruminants. To achieve this we will work at the interface between research and implementation and ensure the fundamental involvement of key stakeholders, through questionnaires, on-farm trials and focus groups throughout the duration of the project. The <b>specific objectives</b> are to: i)</p>

assess existing knowledge from research, development and benchmarking studies on parasite control, with on-farm trials, ii) associate novel data on disease prevalence with risk factors and control measures, iii) develop, refine and evaluate user friendly decision support tools iv) perform cost-benefit analysis on control measures available for organic ruminants and iv) develop and deliver technical innovation to facilitate deployment of sustainable parasite control strategies. We have chosen to focus on pasture-borne parasitic diseases, as they are the most relevant to organic production, and in particular helminthoses, such as GIN and trematodes (liver fluke). Although these parasites have been identified as major causes of disease and production losses in ruminants, their impact has not as yet been assessed in a co-ordinated fashion on organic farms throughout Europe.

#### **Expected results and their impact/application**

To maximise impact, the project will develop and deliver innovations for organic ruminants in Europe, through stakeholder participation throughout. For cattle it will deliver: i) an electronic application, that will facilitate liver fluke control for organic farmers ii) a device for automatic weight registrations while the animals are on pasture/grazing, iii) a parameterised model where weight gains are used as a proxy for early diagnosis and targeted treatment of GIN. For small ruminants it will deliver: i) a set of farmer friendly criteria formulated as a tool to help farmers decide drenching requirements of their flock/herd ii) an economic model, that will generate estimates of the extra costs of implementation of alternative strategies for GIN control. The project will also deliver novel information based on surveys and stakeholder participation studies on current helminth control strategies in organic farms in Europe, fluke prevalence data and associated risk factor analysis, which will improve animal health and welfare through improved monitoring.

#### **Coordinator, partners and countries involved**

- 1 SRUC, Dr Spiridoula Athanasiadou. Coordinator (United Kingdom)
- 2 SLU, Prof Johan Höglund (Sweden)
- 3 UCPH, Prof Stig Milan Thamsborg (Denmark)
- 4 FiBL, Dr Matthias Stolze (Switzerland)
- 5 LMU, Dr Gabriela Knubben (Germany)
- 6 LBI, Dr Cynthia Verwer (The Netherlands)
- 7 INRA /IHAP, Dr Hervé Hoste (France)
- 8 WUR-LR, Dr Marion Kluivers (The Netherlands)
- 9 VA LUHS, Prof Saulius Petkevicius (Lithuania)