

# A basket of options to control worms in organic sheep production systems

## Problem

Organic sheep producers are aware that worm control issues continue to pose a threat to their business. To a large extent, they still have to rely on dewormers to maintain the health and productivity of their animals.

## Solution

Research on alternative strategies for worm control can now be put into practice. These strategies have been developed independently of each other, but we now bring them together in a “basket of options” approach.

## Outcome

The basket of options is not a “one size fits all” approach. It gives farmers the option to select what is best for their circumstances increasing the chances of keeping treatment frequency as low as possible and maintaining drench efficacy as high as possible.

## Applicability box

### Input used

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Copper      | x Anthelmintics                      |
| <input type="checkbox"/> Mineral oil | <input type="checkbox"/> Antibiotics |
| <input type="checkbox"/> Fertilisers | <input type="checkbox"/> Vitamins    |

### Geographical coverage

Europe

### Application time

Throughout the year

### Period of impact

Animals and their offspring

### Best in

Integrated worm control strategies

## Practical recommendations

Organic farmers can choose and combine the following actions that constitute the basket of options for worm control.

### Clean grazing

If sufficient land is available, clean grazing is a very effective way to reduce worm challenges and improve lamb growth. Rotational use of land for cattle, sheep and silage or hay (in this order) will allow lamb production on pastures with low worm populations. If cattle are not available, feeding lambs on silage or hay alone will already be beneficial.

### Nutrient supplementation

Protein supplementation to ewes results in reduced worm egg output and increased milk production. Both factors contribute to higher weaning weights of lambs, which also require less dewormer use. Protein supplementation to wormy lambs improves their resilience and resistance as well. Therefore, protein supplementation is an option to be considered for both ewes and lambs. This could be achieved through supplementation with concentrates or by including red clover in the pasture.

### Use of bioactive forages

Bioactive forages show anti-parasitic properties and, in many cases, contribute to the improvement of animal performance. Several forages have been tested in Europe, including sainfoin, chicory and heather. For example, hill farms may have easier access to heather, whereas lowland farms may find it easy to establish other bioactive forages.



**Picture 1 (left): SRUC crew collecting heather** (Photo: Francesca Shepherd, SRUC)

**Picture 2 (right): Sheep grazing on heather at the SRUC hill farm** (Photo: Francesca Shepherd, SRUC)

## Use biological control

In several countries in Europe, biological control using “worm-eating” fungi has been tested. The fungus *Duddingtonia flagrans* grows naturally in the soil or in rotting organic matter (for example in compost) and feeds on soil nematodes, which are very similar in size and appearance to the free-living juvenile stages of gastrointestinal nematodes (GIN). Grazing animals ingest the spores of the fungus, which pass undigested through the gastrointestinal tract. The spores then germinate in the freshly deposited faeces, where they trap and digest the GIN larvae that were developing. Up to 70% reduction in the infective larvae has been reported on pastures.

## Drench if worm egg counts are rising

Regular worm egg counting can help to identify which parts of the farm are more “dirty” than other parts and assist with treatment decisions. Farmers may find out that they can delay or skip treatments based on this information. Regular Faecal Egg Counts (FEC) are required for this.

## Drench the poor growers only

Information from regular weighing of sheep can be used to inform treatment decisions. This is very much helped by novel weighing equipment which would allow drafting off animals that for example have not grown as much as farmers would have expected. Drenching the poorer performers only may cut down on total amount of dewormer used.

## On-farm application

### System approach

The implementation of a basket of options strategy aims to reduce the parasite burden in the animal and on pasture but does not remove the need for regular monitoring of the animals, for example faecal egg counts (FEC), and weight or body condition measurements, which would inform the strategic use of anthelmintics.

## Further information

### Further readings

RELACS Practice Abstract “Faecal egg counts to improve worm control in organic sheep farming”, available at: [https://relacs-project.eu/wp-content/uploads/2021/05/RELACS\\_PA\\_04\\_FEC\\_SRUC\\_SA\\_final.pdf](https://relacs-project.eu/wp-content/uploads/2021/05/RELACS_PA_04_FEC_SRUC_SA_final.pdf)

RELACS New Story “Can we use heather to control worms in sheep in organic agriculture?”, available at: [https://relacs-project.eu/wp-content/uploads/2020/06/ifoameu\\_projects\\_RELACS\\_news\\_story\\_SRUC\\_heather\\_final.pdf](https://relacs-project.eu/wp-content/uploads/2020/06/ifoameu_projects_RELACS_news_story_SRUC_heather_final.pdf)

### Weblinks

Check the [Farm Knowledge Platform](#) for more practical recommendations.

## About this practice abstract and RELACS

### Publishers:

Research Institute of Organic Agriculture (FiBL)  
Ackerstrasse 113, Postfach 219, CH-5070 Frick  
Phone: +41 62 865 72 72, [info.suisse@fibl.org](mailto:info.suisse@fibl.org), [www.fibl.org](http://www.fibl.org)

IFOAM Organics Europe  
Rue du Commerce 124, BE-1000 Brussels  
Phone: +32 2 280 12 23, [info@organiceurope.bio](mailto:info@organiceurope.bio), [www.organiceurope.bio](http://www.organiceurope.bio)

Scotland's Rural College (SRUC)  
Peter Wilson Building, Kings Buildings, West Mains Road, UK-EH9 3JG  
Edinburgh  
Phone: +44 131 535 4000, [communications@sruc.ac.uk](mailto:communications@sruc.ac.uk), [www.sruc.ac.uk](http://www.sruc.ac.uk)

**Authors:** Spiridoula Athanasiadou, Ana Allamand, Veronika Maurer

**Editors:** Joelle Herforth-Rahmé, Mathilde Calmels, Lauren Dietemann, Bram Moeskops

**RELACS:** 'Replacement of Contentious Inputs in Organic Farming Systems' (RELACS) builds on results of previous research projects and takes far-advanced solutions forward. As a system approach to sustainable agriculture, organic farming aims to effectively manage ecological processes whilst lowering dependence on off-farm inputs. The RELACS partners will evaluate solutions to further reduce the use of external inputs and, if needed, develop and adopt cost-efficient and environmentally safe tools and technologies.

**Project website:** [www.relacs-project.eu](http://www.relacs-project.eu)

**Social media:** Facebook ([RELACSeu](#)) & Twitter ([@RELACSeu](#))

© 2022

