



# Sheep raising: reducing worm infestations with forage clover and the right breed

In the scope of the European “LowInputBreeds” project, FiBL researchers are investigating ways to reduce worm infestations in sheep. They hope to achieve this goal with suitable breeds, proper feed choice and pasture management.

Gastrointestinal worms are common in sheep, and an infestation is very hard on the animals: they suffer from anaemia and become listless. Along with these serious health problems for the animals, economic disadvantages arise for the shepherds, as the animals are slower to reach their slaughter weight. Although treatment with chemical/synthetic wormers is an option, the worms are developing resistance. “That is an enormous problem worldwide,” stress Felix Heckendorn and Steffen Werne, who are conducting research on alternatives.

The worms being studied are known as gastrointestinal strongyles. The adult worms live in the gastrointestinal tract of sheep. The female worms produce eggs, which are excreted with dung and develop into infectious larvae on the pasture. These larvae migrate from the dung and are picked up by the grazing animals.

## Engadine sheep seems hardier

The study is based on the hypothesis that when sheep are bred solely for fattening performance, key functional traits such as disease resistance are sacrificed. The goal of the FiBL study and of another one in France is in each case to compare an old sheep breed that has not been intensively selected for fattening performance (e.g., Engadine, Blanche du Massif Central) with a modern breed that has been more intensively selected for meat production (e.g., white Alpine, Limousine). “Preliminary FiBL studies in 2007 and 2008 indicated that the Engadine sheep is less susceptible to worm infestation,” explains Felix Heckendorn.

## Scientific proof sought

This trend is likewise confirmed in the current study. Both of the breeds are being managed identically, are grazing on the same land, and the animals are the same age. Because there are hardly any differences other than the breed, conclusions about worm infestation can be drawn on the basis of the differences in the parasite eggs excreted.

*Seeking alternatives to chemical/synthetic wormers for sheep: Steffen Werne is researching the influence of raising sheep on Alpine pastures, and is helping to optimize the practical feeding of bioactive fodder plants. Furthermore, he is looking for sheep breeds that are inherently less susceptible to gastrointestinal worms.*

In the second part of the study, the researchers hope to learn whether raising sheep on Alpine pastures leads to reduced worm infestation compared to raising sheep on lowland pastures. “It is possible that there are fewer parasites at higher altitudes,” theorizes Heckendorn, “because it is colder, the growing season is much shorter, and the pastures are much larger in area.” The aim of the FiBL study is to quantify the magnitude of this effect scientifically for the first time.

## How to feed sainfoin?

The third part of the project relates to sainfoin, an heirloom forage legume. Various studies have already demonstrated the beneficial effect of this plant against worm infestation. Felix Heckendorn wrote his dissertation on this topic and therefore knows: “It is possible to reduce egg excretion by as much as 60 percent.” As yet there has been too little research on the practical aspects of feeding sainfoin. What percentage of sainfoin is needed in the forage? Is mixed feed practical, or would repeated feedings as a worm treatment be better? Due to the development of resistance to chemical/synthetic wormers, conventional shepherds are also eagerly awaiting the results.

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LowInputBreeds, an EU-funded project involving a consortium of institutes, aims to enhance animal health and product quality in European low-input and organic livestock husbandry by means of breeding schemes and improved management techniques. The teams of scientists involved in the project are based in 14 European countries. Together with its partners, FiBL is working on three issues: improving the functional traits of dairy cows by means of genome-based selection (see page 22), controlling parasites in sheep by selecting more robust breeds, feeding tannin-containing forage and improving pasture management (this page), and selecting and breeding laying hens suited particularly to free-range management.

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