Studying resistant parasites in sheep in Norway

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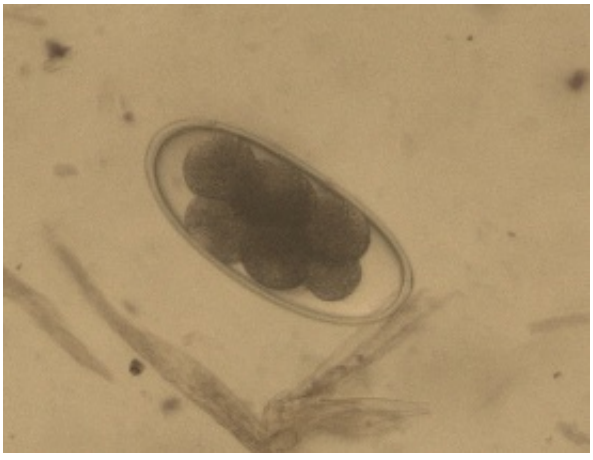
Sheep in the Norwegian counties of Rogaland and Hordaland have an increased risk of hosting gastrointestinal parasites which cannot be efficiently treated with benzimidazole – the most frequently used deworming agent for sheep in Norway.

A national monitoring programme, increased focus on good treatment

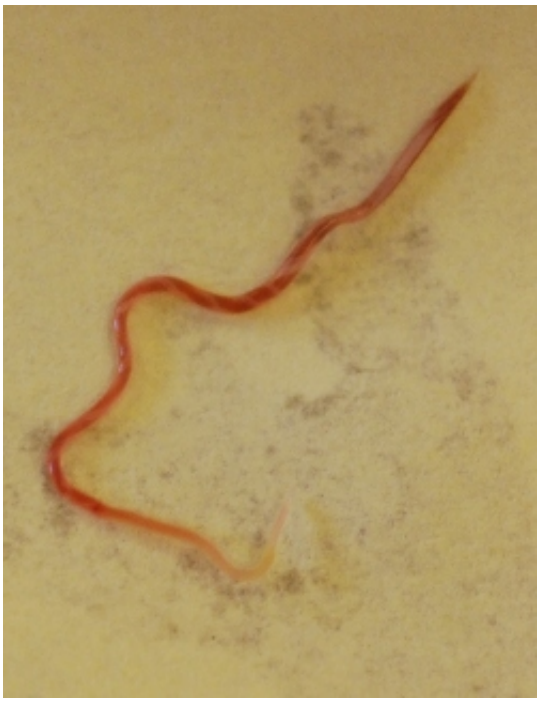
procedures and reducing excessive treatment are measures that can prevent the spreading of resistant parasites to other parts of the country.

A well-functioning and sustainable small ruminants industry in Norway depends on the effective control of gastrointestinal parasites in these animals. Atle V. Meling Domke's doctoral research has charted the distribution of resistant parasites in Norwegian sheep and goat herds, studied treatment procedures and revealed which gastrointestinal parasites are present in small ruminants in Norway.

His work shows that sheep excrete more parasite eggs in their faeces than goats and that there are higher numbers of eggs in animals in the Southwest of the country than in inland regions or in Northern Norway. The low occurrence of parasites in goats can be due to the fact that the adult goats do not share pastures with the kids, as is the case with sheep and lambs. The most frequently occurring gastrointestinal parasite found in small ruminants in Norway was *Teladorsagia circumcincta*. The blood-sucking parasite *Haemonchus contortus* was found in sheep as far north as the Lofoten Islands.



Domke's research project also included a survey about treating parasites in small ruminants. The results of this survey showed that 90% of the farmers were at risk of administering the wrong amount of medicine. The study also revealed that lambs in Southwest Norway were treated more often than animals in inland regions and in Northern Norway. For goats, the treatment was most usually given when they did not produce milk. Antiparasitic drugs (anthelmintics) based on the active ingredient benzimidazole were the most frequently used on sheep, while both benzimidazole and macrocyclic lactones were common treatments for goats.



28 flocks of sheep and 28 herds of goats from all over the country were tested in order to chart the occurrence of resistant gastrointestinal parasites. In addition, tests were carried out on 32 flocks of sheep which

were thought to have an increased risk of developing resistance to medication. The criteria for an increased risk were a high treatment rate, high animal density or treatment combined with a change of pasture.

No resistant parasites were found in goats. In 10.5% of the randomly selected flocks of sheep, the effect of the active ingredient benzimidazole was found to be unsatisfactory. It was also shown to have a poor effect on 31% of the high-risk flocks. The resistant flocks were mainly located in the South West - mostly in the county of Rogaland, but also to some extent in the county of Hordaland. The parasites that had developed resistance to benzimidazole were *Teladorsagia circumcincta og Haemonchus contortus*.

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DVM Atle V. Meling Domke defended his doctoral research at the Norwegian School of Veterinary Science on 9th November 2012 with a thesis entitled: "Gastrointestinal parasites and anthelmintic resistance in small ruminants in Norway".

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