PRACTICE ABSTRACT: 37



Sustainable PARasite Control in Grazing Ruminants

Battling anthelmintic resistance in grazing ruminants: A comparison between the Netherlands and Italy

The SPARC project is committed to the correct use of anthelmintics and the sustainable control of parasitic infections in grazing ruminant famrs. This can be implemented in different ways depending on the needs of ruminant farmers and the level of anthelmintic resistance in the country. The need and necessity in the Netherlands are therefore different than in Italy, which results in a different approach within the project.

State of anthelmintic resistance

In the Netherlands, mainly macrocyclic lactones (ivermectin, doramectin and moxidectin) are used. Research has shown that resistance to ivermectin and doramectin occurs to a high degree, especially in sheep (University of Utrecht, 2011). In the Netherlands there is resistance of *Teladorsagia*, *Trichostrongylus* and *Haemonchus* against benzimidazoles. Recently, resistance has also been found of *Trichostrongylus* worms against macrocyclic lactones (ivermectin). In, amongst others, North Holland there is resistance of liver fluke against triclabendazole (like Tribex®, Fasinex®). The product Zolvix, introduced in 2012, is now no longer effective against *Haemonchus* infections (Veterinary Parasitological Center “Het Woud”, n.d.).

In Italy the severity of resistance is not yet as urgent, but also there the effectiveness of macrocyclic lactones and benzimidazoles is strongly decreasing (Maurizio et al., 2023). There is especially resistance against *Haemonchus* within the benzimidazoles, but also increasingly for ivermectin and doramectin (Castagna et al., 2024).

Approach within the SPARC project

Since the level of resistance in the Netherlands is higher, more emphasis is placed on preventing the use of anthelmintics through pasture management, genetic selection and plant-based control. When treatment is necessary after parasitological research has proven the presence of parasites, targeted treatment and diagnostics are used. In this case it is important to repeat the test a number of days after the treatment has taken place, in order to determine whether the product has actually been effective.

In Italy the focus is mainly on targeted treatment. In this way livestock farmers are made aware of the fact that resistance is also increasing in Italy and that it is important to first proceed with parasitological diagnosis before treatment and no longer treat routinely. When treatment is necessary, a anthelmintic is selected that is appropriate for the type of farm, in this case it is also important to carry out the same test afterwards in order to determine the effectiveness of the drug.

Other differences

In the case of pasture management, there are a number of major differences. For example, in the Netherlands it is often quite easy to divide a large pasture area into several parts and let the animals graze rotationally in order to reduce infection pressure.

In Italy this is often not an option, because the area is so large or is located in the mountains, making this form of pasture management too labour-intensive. In addition, pasture areas are often rented, which means that livestock farmers are not allowed to adjust them without permission. It also often happens that animals from other nearby livestock farmers graze in the same area.

Finally, in the areas in Italy where the animals graze there are often many wild ruminants present, which pose a risk for the further spread of parasitic infections. In the Netherlands this occurs to a lesser extent, since there are fewer extensive nature areas and livestock farmers are often located close to inhabited areas.



Overview of Italian SPARC farms and their housing systems and pasture management.



Overview of Dutch SPARC farms and their housing systems and pasture management.

Resources:
University of Utrecht (2011): https://studenttheses.uu.nl/server/api/core/bitstreams/b5f1e82d-0d10-4538-8d63-9ebd1042c8fa/content
Veterinary Parasitological Centre “Het Woud” (z.d.): https://wormbestrijding.nl/wormresistentie/
Maurizio et al. (2023). https://www.cambridge.org/core/journals/parasitology/article/control-of-gastrointestinal-helminths-in-small-ruminants-to-prevent-anthelmintic-resistance-the-italian-experience/1FEB432D135926D464975E350049C80B
Castagna et al. (2024). https://www.mdpi.com/2076-0817/13/6/493

Futher information:
SPARC website: www.wormsparc.com
WebGIS: https://webgis.wormsparc.com/

Basket Of Options: https://wormsparc.com/chat-bot/

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