

# Resistance to dewormers



Refugia  
Deworming  
Monitoring  
Pasture  
**Resistance**  
Resilience

A parasite's resistance to an antiparasitic is its capacity to survive a treatment administered at the dose recommended by the manufacturer.

## How to confirm the presence of gastrointestinal parasites

The presence of gastrointestinal parasites can be confirmed by a fecal egg count test performed in laboratory. Analyses may be repeated every four weeks throughout the season.

Grouped samples (pools) can provide an estimate of the extent of infestation at the herd level.

## Factors contributing to emergence of resistance



The emergence of resistance is influenced by:

- Deworming pressure (treatment frequency and period of administration);
- Intrinsic efficacy of the medication;
- Gene flux (the introduction of resistant genotypes in the population);
- Rapid multiplication and high fecundity of the parasite species;
- Frequency of resistance in the natural population (before any treatment);
- Number of genes implicated in the resistance;
- Absence of refugia.

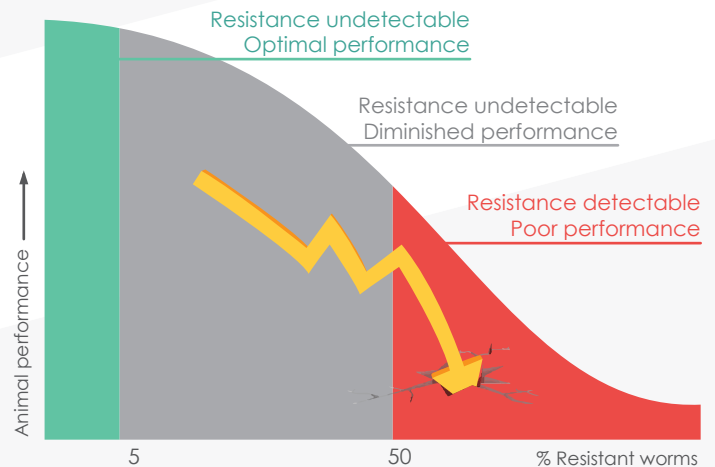


## How to detect the presence of resistance to an antiparasitic medication

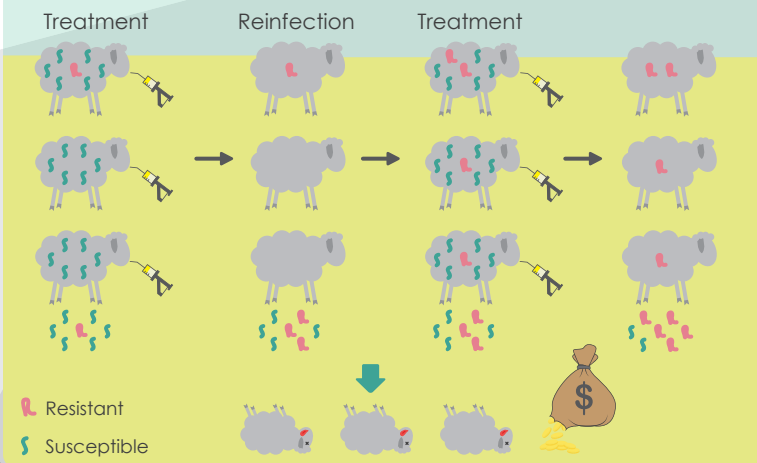
Veterinarians can confirm whether a dewormer is still effective with the help of a fecal egg count reduction test. To do so, two individual coproscopies are performed on 15 of the most susceptible animals. The first analysis is performed the day of treatment administration, while the second takes place 10-14 days later (for the same animals). Results demonstrating less than a 95% decrease in egg count may be associated with the presence of resistance to the dewormer.

The veterinarian will interpret these results in light of all relevant information.

## Resistance is an insidious problem



## Systematic treatment of all animals contributes to resistance



## Consequences of resistance



- Animal suffering
- Mortality
- Loss of productivity and reduced daily gains
- Costs associated with diagnosis and repeated treatments (due to decreased effectiveness)
- Increased workload

## Rotation of anthelmintics?

If parasites are resistant to an anthelmintic, they are likely resistant to all anthelmintics in the same category. The present recommendation is to not rotate between dewormers so long as the dewormer currently in use remains totally effective. If medications need to be rotated, they should not be changed more than once yearly. As such, the development of resistance is slowed.

## Purchasing animals

To avoid introducing resistance within a herd of animals:

- Do not purchase animals presenting clinical signs of parasitism;
- Keep newly purchased animals in quarantine until treated with a combination of dewormers (the goal is to kill all parasites present);
- Confirm the effectiveness of treatment with coprological analyses (day of treatment and 14 days later);
- Fecal egg counts should be at 0 before introducing new animals into the herd;
- Introduce new animals on a pasture already contaminated with susceptible parasites.

## Poor practices!

Regular deworming of all animals in the herd is not a sustainable practice. Don't:

- Deworm monthly;
- Deworm at fixed times, such as at insemination or lambing;
- Deworm simply because "it's been a while";
- Deworm because you'll be handling your animals for another reason;
- Deworm all animals at the same time;
- Deworm to get rid of all parasites.

## Recommendations for effective parasite management and avoiding the emergence of resistance

To avoid the emergence of resistance, the best method is to opt for integrated strategies for management of parasitism.

See other sheets for details:

- Refugia
- Deworming
- Monitoring
- Pasture
- Resilience



## Farmer's question:

**I think there's resistance in my herd because I've lost several ewes. What do I do now?**

After having documented the resistance with coprological analyses, the challenge is to find, with the help of your veterinarian, a dewormer that's still effective. It could also be helpful to evaluate the possibility of working with a combination of dewormers.

Given that we cannot reverse the phenomenon of resistance, it's now imperative to put into place all the principles of integrated parasite management within your herd and adjust your practices accordingly.

## Dewormer combinations

Combining dewormers from different categories is a new approach to slowing the development of resistance to antiparasitics.

**Caution:** Farmers should not improvise a combination on the farm because there is a risk of physico-chemical incompatibility between products. Any combination not validated by a specialist could have serious consequences on the health of animals and lead to increased resistance.

Sheet produced by:



Université de Montréal

Projet funded by:

Cultivons l'avenir 2  
Une initiative fédérale-provinciale-territoriale

Agriculture, Pêcheries  
et Alimentation

Québec Canada



The strategies described in this pamphlet also largely apply to goats