Fecal monitoring for gastrointestinal parasites

Refugia
Deworming
Monitoring
Pasture
Resistance
Resilience

Screening for gastrointestinal parasites can be performed with the help of several tools, the most practical being a clinical exam, case history, and fecal exam. The present document describes screening through fecal analyses.

WHY perform fecal analyses?

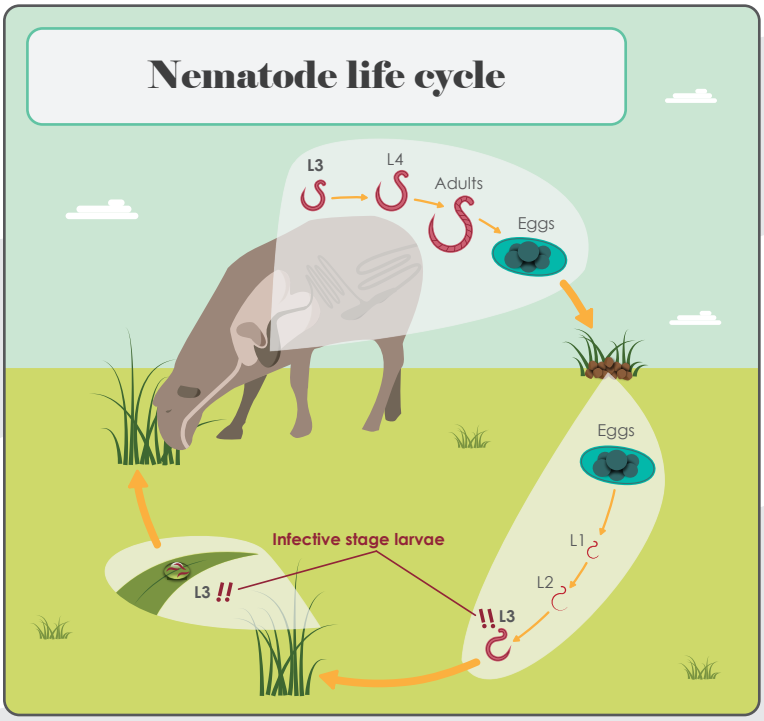
- To evaluate the parasite load of an animal or a group and decide if a treatment is necessary;
- To detect certain infections in animals that seem healthy;
- To make a diagnosis in sick animals;
- To choose the medication most appropriate for the selected animal;
- To confirm the effectiveness of a treatment (see Resistance sheet).

How to detect the presence of resistance to an antiparasitic medication

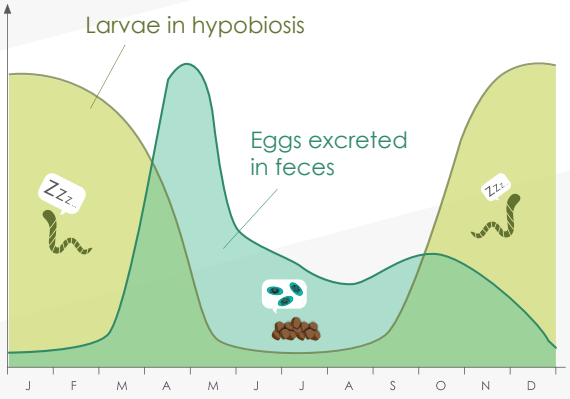
Veterinarians can confirm if a dewormer is still effective with the help of a fecal egg count reduction test. To do so, two individual coproscopies are performed for 15 of the most susceptible animals. The first analysis is performed the day of treatment administration, while the second takes place 10-14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

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

Nematode life cycle



Egg count in relation to time of year and periods of hypobiosis



Species	Pathogenicity	Larval Inhibition	Winter survival	Fecundity (EPG[1])
Cooperia	+/-	yes	yes	highest
*Haemonchus**	+++	yes	no	5-10 000
Nematodirus	+/-	yes	no	low
Oesophagostomum	+	yes	no	low
*Ostertagia/Teladorsagia**	+++	yes	yes	2-5 000
*Trichostrongylus**	+	yes	yes	~ 1 000

*Principal parasites in Quebec

[1]EPG : eggs per gram

Hypobiosis: an advantage for the parasite and a challenge for the farmer

STOP

In Quebec, the majority of larvae that winter on pasture are destroyed by the cold or die in spring when their nutritional reserves are exhausted.

Larvae of certain parasites (including *Haemonchus*, *Teladorsagia*, and *Trichostrongylus*) can survive winter by inhibiting their development at the L4 stage inside a host; this is the phenomenon of hypobiosis.

These inhibited, or hypobiotic larvae make up a reservoir of individuals, the majority of which will resume development at the same time in spring (April-May) or during a period of stress in winter.

Interpretation of fecal egg counts (for nematodes)

- **For grouped samples (pool)**

Level of excretion	Interpretation
Under 100 EPG*	**Low**
Between 100 and 500 EPG	**Intermediate**
Above 500 EPG	**High (alert threshold)**

- **For individual samples**, slightly higher counts may be accepted, but the result of the analysis must be interpreted in conjunction with the age and physiological status of the animal, clinical indicators, and the time of year when samples were collected.

  In both cases, it is also important to consider other indicators when determining whether treatment is necessary, in particular; the colour of the mucous membrane of the eyes, the consistency of feces, body condition, and daily gain.

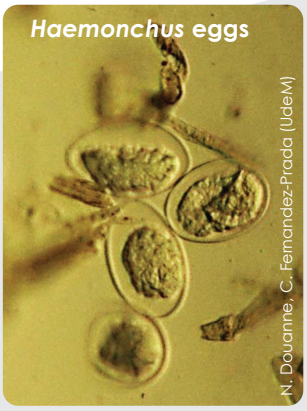
Be careful interpreting fecal egg counts

Given the 20/80 rule and the large variability between individuals (see figure), an egg count from grouped samples interpreted on its own may underestimate the severity of the situation.
For example, if you take feces from 10 ewe lambs, 2 with counts of 1000 epg and 8 with counts of 50 epg, the average is 240 epg. If interpretation is limited to this average, one might consider that it's not necessary to treat the animals in the group. That said, low or intermediate levels of excretion do not always indicate low or intermediate risk.

In such a case, it is important to regularly evaluate the clinical state of animals and treat as needed (the situation can evolve very rapidly).

Results transmitted by the lab do not permit identification of most nematode species.

However, it is possible to identify and quantify eggs of *Haemonchus contortus*, one of the most pathogenic parasites, using a complementary test offered at the laboratory; the fluorescence test.

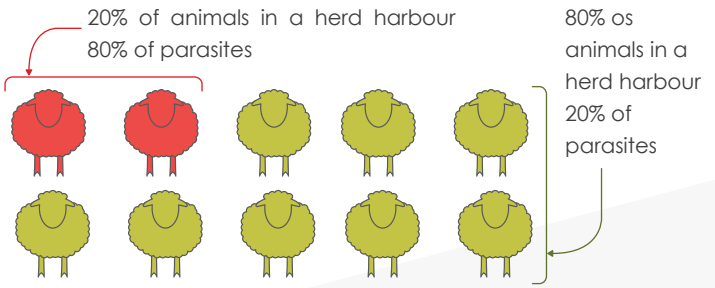


IMPORTANT

STOP

- Egg counts are not always an accurate representation of parasite load.
- Eggs are laid by adult females.
- Egg counts do not give an indication of the number of males, young larvae in development, or larvae in hypobiosis.
- At the end of autumn and in winter, the parasite load is largely made up of inhibited larvae (the lab is therefore of little use during this period of the year).

Egg shedding varies on individuals in a herd



For more information, see the Refugia sheet

Sampling for fecal analyses

Samples can be used to identify parasite problems on the individual level (samples can be taken directly from the rectum) or at herd level. In both cases, feces must be collected in the hour following their excretion, whether in fields or in the sheepfold. For group analyses, feces of 10 different animals (randomly chosen) must be collected (approximately 10 g/animal; a golf ball or 10 small droppings). A single-use glove or ziploc bag may be used (separate gloves or bags). For liquid feces, use a urine specimen container filled to 3/4.

The laboratory will then create and analyse 2 pools of 5 samples per group of animals.

The procedure is repeated for each group on the pasture: dry ewes, lactating ewes, lambs, etc. A sensitive method of analysis (e.g. Wisconsin) is preferred.

Preserving feces before their analysis

- **Keep cold.**
- **If samples are being sent to a diagnostic lab by mail, don't forget to use refrigerated packaging.**

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The strategies described in this pamphlet also largely apply to goats