

Managing internal parasites in organic livestock by Av Singh

INTERNAL PARASITISM IS CONSIDERED TO BE ONE OF THE MOST PROMINENT LIVESTOCK DISEASES IN CANADA, CAUSING ECONOMIC AND PRODUCTION LOSSES TO MANY RUMINANT LIVESTOCK PRODUCERS. For organic producers, recourse to synthetic dewormers is severely restricted and in some cases prohibited. Farmers are seeking alternatives. They are concerned about drug residues in meat and increased resistance to dewormers and harm to non-target species (such as species that help decompose manure). This article will highlight the many innovative practices used by livestock producers to limit parasite infestation.

Grazing animals are often being exposed to parasites. Internal parasites may pose a greater challenge for organic livestock because of their tendency to be more reliant on pastures. For most organic producers, a “zero tolerance” policy for internal parasites is not a desirable goal for two reasons. First, the implementation of several preventative practices may not be economically feasible. A second reason is that many producers want their animals to have controlled exposure to parasites to help build immunity. Ideally, the ultimate objective is to develop a system in which parasites may be present in small numbers but do not affect either the health or the performance of the animal.

Herd management

An animal is better able to resist or tolerate internal parasites when its living conditions are good. In barns, animals should be fed using feeders rather than directly from the ground to avoid contamination as a result of their mouths coming in contact with bedding or manure. With respect to nutrition, vitamins and minerals can play a key role in affecting ruminant susceptibility. Vitamins A, D, and B complex are integral in developing immunity to parasites. Essential minerals include cobalt, used to synthesize vitamin B12, and iron.

Pasture management

In general, high stocking rates are linked with increased parasite loads. If parasite infestation is a problem, lower stocking densities are recommended. Lowering the animal density serves two purposes. It reduces the amount of manure in a given area, and secondly, the residual grazing height of the forage is often much higher. Leaving a residue greater than 10 cm will lower the probability of parasite infection significantly (80% of parasites live in the first 5 cm of forage aboveground). The risk of infection is also lowered by waiting to put animals out to pasture until after the dew has lifted or the grass has dried after the rain. Drier conditions force parasites to stay at the base of plants and therefore they are less likely to be consumed by grazing livestock.

A very useful concept in parasite control involves the use of safe or clean pastures. Pastures that have been harvested for hay, silage, or small grain crops can generally be considered safe. Pastures that have been grazed by other species for a grazing season or longer are also considered safe because only a small amount of cross-infection between species occurs (although this does occur between sheep and goats).

Compared to cattle, sheep tend to be more susceptible to internal parasitism because of their ability to graze close to the ground. Moreover, sheep manure is excreted in pellets,

which are difficult for sheep to avoid grazing over. In contrast, cattle avoid grazing near dung pats.

Integrating animals with differing susceptibilities to parasites, such as cattle and sheep grazing together or following each other, has been shown to reduce parasite load in pastures. Similar to multi-species grazing, livestock producers often mix different classes of animals to reduce parasite infection. Lambs and calves often have access to pastures prior to ewes and cows, respectively. Some organic producers attempt to build immunity in young calves by placing them with dry cows that serve as a controlled source of infection.

Different forage species may also have a role in determining the parasite load within a pasture. Generally, grass-dominant pastures contain more parasite larvae than pastures containing legumes such as alfalfa and birdsfoot trefoil (owing primarily to increased levels of condensed tannins) or forbs like chicory.

The common practice of harrowing pastures to break up dung pats is generally not recommended. Dragging manure pats across pastures may scatter parasite eggs and larvae, making it difficult for animals to selectively graze away from infected areas. Harrowing pastures may be beneficial just before a dry period in which the pasture would be rested for a long period. Alternatively, dung-burying beetles and free-ranging chickens help break down dung pats, reducing the environment for parasite infestation.

Alternative dewormers

As a last resort, livestock producers can carry out deworming treatments as a means of parasite control. Ideally, all deworming treatments involving natural products should be preceded by a fasting period and followed by a laxative period. Many of these natural dewormers can be considered poisons and it is therefore essential to follow recommended dosages.

Some common botanical dewormers include garlic (pills, powders, fresh, tinctures); wormwood (*Artemisia* spp.); wild ginger or snakeroot; goosefoot; conifers (pine, spruce, or fir); mustard; squash or pumpkin seeds; carrot and fennel seeds; pyrethrum (plant extract from *Chrysanthemum*) and several others. Other products used as dewormers include diatomaceous earth and charcoal; these are often added to the grain ration. The following are mixed with water and added to food or drinking water: hydrogen peroxide, copper sulphate, and Shaklee's Basic H surfactant (Joel Salatin swears by it, but it may not be accepted by certain organic certifying bodies).

Despite having use of alternative parasiticides, organic farmers rely on fine-tuning their nutrition regimes, herd and pasture management, as well as field and soil practices so they can learn to coexist with parasites. The Organic Agriculture Centre of Canada, in collaboration with the New Brunswick Department of Agriculture & Fisheries and the Atlantic Veterinary College at the University of Prince Edward Island, has initiated an assessment of the parasite load in organic and low-input conventional beef herds.

Based on the small population of sampled farms, the organic farms did not have higher fecal egg counts of parasites (i.e. *trichostrongyle*-type; *nematodirus*; *strongyloides*; *trichuris*; and *capillaria*) than the conventional farms that used synthetic dewormers. Regardless of farm type, yearlings and suckling calves had much higher infestation levels than breeding cows; suggesting that immunity to intestinal parasites probably increases

with age. In addition to fecal sampling, farmer-cooperators were surveyed to determine what farming practices might contribute to the level of parasitism observed on the farm. Stocking rate, grazing system, water source, top clipping of pastures, manure spreading, fall calving vs. spring calving were some of the management practices questioned in hopes to shed light on parasite load differences among farms. No distinct trend emerged from the survey data. The collaborators, along with Agriculture & Agri-Food Canada, hope to do further parasite research this summer including assessing the effectiveness of alternative parasiticides such as homeopathic remedies, essential oils, botanicals and grazing methodologies.

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