



American Consortium for Small Ruminant Parasite Control

Best Management Practices for Internal Parasite Control in Small Ruminants

GENERAL MANAGEMENT

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Management can greatly affect the risk of internal parasitism, either directly or indirectly. Management can support or suppress the immune system, which is the body's first line of defense against parasites. Management can also increase challenge from other diseases, which diverts the animal's immune system from defending against parasites.

WEATHER

Although we cannot control the weather, it can have a huge effect (good or bad) on parasitism; therefore, the degree of management necessary to prevent losses. If a farm is located in a predominantly dry area (less than 25 inches of annual rainfall), parasite problems should be minimal, except perhaps during the rainy season. In wetter areas (over 40 inches of annual rainfall), there is usually a much greater challenge from parasites.

Temperature also needs to be considered, as parasite problems usually become worse as temperatures go from colder to hotter. An awareness of weather conditions is critical to implementing management programs which effectively control parasites in small ruminant flocks/herds.



Clean dry bedding is important.

Image by Susan Schoenian



Creep grazing provides access to clean, nutritious pasture.

Image by Susan Schoenian

BEDDING

The material used to bed animals and the conditions affecting such can have a pronounced effect on parasites. If soft bedding (straw, shavings, etc.) is used and it remains relatively dry, minimal issues would be expected. However, if the bedding becomes moist due to water leaks or spillage, lack of ventilation, or high animal density (greater build-up of feces and urine), parasitism will be promoted, especially coccidia, which can be an issue in younger animals. Although very rare, under some such conditions, worm eggs can hatch and the animals might pick up the infective larvae, if they eat the bedding. In particular, threadworm (*Strongyloides* spp.) larvae can thrive in moist bedding and penetrate skin to infect animals. Young animals are at greatest risk. If animals are housed on concrete, infective larvae that develop in the feces can be washed to the outside of the pen, making the grass at the edge of the concrete highly infective. Grazing animals which have access to this grass can become very wormy.



Shipping can alter the immune status of animals.

Image by Susan Schoenian



Birthing season can have a big effect on parasite risk.

Image by Susan Schoenian

SHIPPING STRESS

Shipping can have a big effect on the immune system, depending upon the severity of the shipping stress. Animals that are transported a short distance in a short amount of time usually experience minimal stress. However, animals transported over farther distances and for longer periods of time can undergo severe stress, especially if they do not get adequate feed and water at stops. Shipping and any other source of stress adversely affects an animal's immune status and will make it more susceptible to the effects of parasitism.

LAMBING/KIDDING

There are usually fewer worm problems when birthing occurs during the cooler times of the year (fall/winter) when temperatures are not as conducive to egg hatching and larval development. On the other hand, parasite risk should not be the sole determinant of when to lamb/kid. Production costs, market demand, and profitability are other important factors to consider when choosing a birthing season. For some producers, it may not be possible to overcome the parasite challenges that are more common to traditional spring (or early summer) birthing.

CREEP GRAZING

Creep grazing can help reduce worm problems in lambs/kids. Although lambs/kids usually have more worms than adults, if they creep graze pastures that contain high quality forage and the forage is tall enough so they do not graze too close to the ground, they are less likely to pick up infective worm larvae.

Creep grazing can be implemented in different ways. One way is creep forward grazing with rotational grazing. Lambs/kids are allowed to graze the next pasture in the rotation, using a creep gate that has holes big enough to allow lambs/kids to pass through, but small enough to prevent ewes/does from getting through. It may take a little time for lambs/kids to learn to go through the creep gate to get to the next pasture. If pasture rotations are five days or less, the lambs/kids should be able to reduce ingestion of infective worm larvae.

Most of the benefits of creep grazing can be achieved with daily pasture moves. The lambs/kids graze the high quality part of the pasture when they are first moved. After they get their bellies full, they will lie down and let their dams graze the lower part of the pasture.

Another way to creep graze is to use a specific pasture of high quality forage, usually annuals such as clovers, crabgrass, sudangrass or sunn hemp. A creep gate is used to allow lambs/kids access to this pasture where they can graze high quality forage



Higher stocking rates increase parasite risk.

Image by Susan Schoenian

without grazing too close to the ground. This can be implemented with set stocking or rotational grazing. The disadvantage of this method is that there is an accumulation of infective larvae on the pasture; however, it may not be a problem if the animals can be kept from grazing too close to the ground.

STOCKING RATE

Stocking rate has a significant effect on pasture contamination and transmission of parasites. As stocking rate increases, the amount of feces per area increases, resulting in an increased number of worm eggs and then infective larvae that are consumed by the more mouths present. At a stocking rate of 2 head per acre, parasites may not be much of a problem, but a stocking rate of 10 to 12 or more head per acre could have disastrous consequences. Depending upon geographic location and animal type, 4 to 6 head per acre might result in a more tolerable level of challenge. All parasite control programs need to consider stocking rate.

BioWorma® might be a useful option when high stocking rates are necessary. BioWorma® is a fungus that consumes infective worm larvae in the feces, thereby reducing pasture contamination. It is a feed-through product that should be fed daily for at least 60 days in order to significantly reduce pasture larvae. For more information, see the Timely Topic on BioWorma® at www.wormx.info/wormtrappingfungus).

HYGIENE AND SANITATION

Hygiene and sanitation are important aspects of parasite control, especially with coccidia. The primary route of infection for coccidiosis is fecal-oral; animals ingest feed/water contaminated with feces that contain infective oocysts. There are so many oocysts in feces that it only takes a small amount of feces for an animal to get a high level of infection. It is very important to keep feces out of feed and water.

Infective oocysts can remain in the environment for long periods of time. Moisture is an important factor, as survival is much longer in a moist environment. Keeping animal areas dry can help control coccidia, as well as other diseases. Although not a major means of worm transmission, it is possible for animals to become infected with a few worms from fecal-contaminated feed or hay that is kept moist. Good hygiene will also help to prevent other diseases, which in turn make the animals healthier and better able to combat parasite infection.

COLOSTRUM

Colostrum is the first milk produced by the dam. It is important for complementing immune function. Colostrum contains antibodies from the dam. Those antibodies are protective against diseases the dam has been exposed to and from the vaccinations she has received. Colostrum can help ward off disease/



Good animal management practices can go a long way to help control parasite problems by reducing stress and improving the overall health of the animal population.

parasite infection until the body itself can generate its own immune function, which gets stronger with age. Though it varies, the immune response should be fully functional by the time the lamb/kid is 4 to 6 months of age. If young animals are sick or immune-deficient, they are more susceptible to parasites. Therefore, it is very important for lambs/kids to nurse shortly after birth to get the colostrum needed to ensure a healthy start in life in protecting against diseases, including parasites.



Colostrum intake is important for early immunity.

Image by Susan Schoenian

ANIMAL MIXING

Mixing older animals with younger animals can perpetuate more parasite problems. Older animals are more resistant to parasites, but contaminate the environment when they shed eggs and oocysts; thereby, serving as a reservoir of infection for younger animals. In addition, the social stress of the pecking order can put younger animals at greater risk for parasitism, as they must compete with older animals for food and space.

It is very important to quarantine new animals before adding them to the population. During quarantine, they should be dewormed with multiple products to remove existing worm infections as much as

possible, especially in this time of dewormer resistance. Performing a fecal egg count 7 to 14 days after deworming will verify treatment efficacy.

Good animal management practices can go a long way to help control parasite problems by reducing stress and improving the overall health of the animal population.



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For a complete list of fact sheets, go to <https://www.wormx.info/bmps>.

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