

BEST PRACTICES: Disease Prevention for Solar Grazing Sheep



Author: Brittany N. Diehl, DVM, MS | Appalachian Tri-State Veterinary Services (ATSVS) | aptristatevet@gmail.com

Introduction

Maintaining a successful solar grazing operation requires balancing renewable energy production with a conscious effort to support responsible livestock stewardship. Solar sites can expose sheep to unique health challenges, including the risk of increased parasite burdens, potential nutritional imbalances, biosecurity challenges, and foot health issues. Fortunately, most sheep diseases are preventable. Adopting appropriate disease management strategies promotes flock productivity and enhances the effectiveness of grazing services. Producers who maintain healthy flocks will be in a better position to meet contractual obligations, while maintaining public confidence in sustainable land management practices and ensuring the ethical treatment of livestock.

This guide outlines preventative management practices to help solar graziers reduce the risk of illness, improve flock productivity, and implement healthy sheep management practices. It is meant to be used for informational purposes and does not replace the need for veterinary expertise on-site. Solar graziers are encouraged to work with their local veterinarians on disease prevention planning under a valid veterinarian-client-patient-relationship (VCPR).



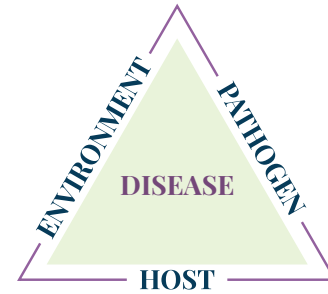
The Veterinarian-Client-Patient-Relationship (VCPR)

The VCPR is the legal and working relationship between the client, their animals, and the veterinarian. It is a mandatory requirement that allows the veterinarian to evaluate the herd, provide treatment and management protocols, and legally prescribe or dispense medications for the farm operation. A VCPR ensures the client has access to necessary medications when disease outbreaks happen, as well as a collaborative partnership that aids in treatment outcomes and prevention of drug residues. To establish a VCPR, the veterinarian must conduct timely, in-person visits to the farm operation at least once every 12 months. The veterinarian of record assumes responsibility for making clinical judgements regarding the animals' health, and the client must agree to follow those instructions.



Veterinarians utilize a foundational epidemiological concept known as the **disease triangle** to aid in the diagnosis, prevention, and management of infectious disease within animal populations. This outline explains the interaction between three key elements: **host**, **agent** (pathogen), and the **environment**. The goal is to disrupt at least one of these elements in the disease cycle to alter the trajectory of disease outbreaks.

It is important to consider how proper management practices, nutrition and timely intervention may influence production, therefore limiting morbidity and mortality. Prevention of disease is our key focus, as most sheep diseases are preventable.



The Host

The animal (individual or flock) that is susceptible to disease.

Veterinarians assist to help the population build resistance to disease through vaccination programs, proper nutrition, minimizing stress, and through the utilization of specific breeding programs to select for genetic resistance to disease.

The Agent (Pathogen)

The infectious organism that is causing disease (i.e., virus, bacteria, parasite, etc.)

Veterinarians assist to manage the agent by appropriately treating animals with anthelmintics, antibiotics, or other products, as well as implementing biosecurity protocols that will help keep pathogens out of the facility or flock.

The Environment

External, extrinsic factors that bring the host and the agent together or determine the host's vulnerability.

Veterinarians aid in the optimization of environmental factors by educating management on ventilation strategies, stocking density, and through the maintenance of biosecurity and sanitation practices.

Transmissible Diseases

Transmissible diseases in sheep may be caused by viruses, bacteria, prions, or parasites. These agents pose a threat to flock health and productivity, while some may also pose zoonotic risks (transmissible to humans). Common zoonotic pathogens of concern include: orf ("soremouth"), fecal pathogens (E. coli, Salmonella, Cryptosporidium), and abortive agents (Campylobacter, Chlamydia, Toxoplasmosis, Coxiella burnetii). Awareness for handlers is key given the zoonotic risk of these diseases.

CHRONIC DISEASES

Chronic foot conditions of sheep to note include foot rot, foot scald, or foot abscesses. These conditions are all preventable. However, in the case of mismanagement, these conditions

may result in excessive losses and require long-term, extensive management to eradicate from a population.

OPP is a slow, lifelong viral disease which leads to wasting, pneumonia, hard udders ("hard bag") and neurological abnormalities. Unfortunately, there is no cure for this disease, and it requires testing and culling to maintain control. Ideally, proper management would take place to eliminate entry into the flock.

Bacterial mastitis is another example of a chronic disease that may affect sheep; however, it commonly affects individuals, rather than the entire flock. Mastitis may result in extensive losses of milk production; therefore, maintaining a clean/dry environment for lactating ewes can minimize the risk. Close observation is required and culling those with damaged udders is a standard management practice.





ABORTION PREVENTION CHECKLIST

Abortions may be secondary to several different causes; however, in many cases, this is often preventable. A few key strategies should be considered to aid in the prevention of abortion:

- Maintain proper nutrition and ad-lib access to sheep-specific minerals;
- Avoid stressors in mid-to-late gestation;
- Avoid contamination of feed and water; provide proper storage;
- Remove known or suspected aborting ewes from the flock immediately;
- Submit any aborted fetus and placenta to a veterinary diagnostic lab for evaluation; and
- Vaccines are available for *Campylobacter* spp. and *Chlamydia abortus*. Vet consultation is implied with a vaccine.

LATE GESTATIONAL DISEASES

Late gestational diseases, pregnancy toxemia (ketosis) and hypocalcemia, occur because of metabolic disorders, which can all be mitigated through proper nutrition and management practices.

PRE- & POST-WEANING LAMB DISEASE PREVENTION

Pre-weaning and post-weaning lamb diseases can be avoided by ensuring proper hygiene, providing appropriate nutrition for ewes and lambs alike, regulating temperature and ventilation, observing closely for early signs of illness, and following vaccination protocols. Prevention is key in all scenarios.



Solar-Specific Risk Factors

In comparison to traditional production systems, solar graziers face unique challenges that require careful consideration and management. The challenges include the following items:

Risk Area	Why It's a Solar-Specific Challenge	Mitigation
Parasite Load	Continuous grazing on confined solar sites raises parasite burden versus rotational systems.	5-point checks, FECRT, targeted deworming (see Biosecurity sheet)
Foot Health	Wet conditions beneath panels plus high traffic near gates & water stations.	Improve drainage; manage stocking density near high-traffic zones.
Toxic Plants	Site vegetation not selected for grazing may include toxic species.	Inspect site vegetation before turnout; remove or fence off toxic plants.
Nutrition Balance	Contract vegetation-height targets may not match animal forage needs.	Mineral supplementation; monitor body condition against contract mowing schedule.
Heat Stress	Panels provide partial shade but can reduce airflow depending on layout.	Ensure water access and shade rotation. Site layout components that help mitigate heat stress include elevated racking systems (Vertical Clearance), single-axis trackers, staggered height arrays, and east-west facing arrays.
Predators	Site fencing and infrastructure may create predator access or blind spots.	Site-appropriate fencing, guardian animals, regular perimeter checks.
Biosecurity	Biosecurity Contract flocks, movement between sites, shared trailers, and temporary fencing.	Clean/disinfect trailers and handling equipment between sites.

PRACTICAL APPLICATION

Consider practices that are specific to your region and management style. Consult with other local sheep producers, local veterinarians, extension personnel and peer-reviewed websites. Remember, one size does not fit all.

Resources:

- Managing Parasites in a Solar Grazing System (ASGA)
- Guide to Developing a Flock Health Management Plan for a Solar Grazing System (ASGA)
- Best Management Practices (ALB)

