

Guide to Developing a Flock Health Management Plan for a Solar Grazing System



Roselle Busch, DVM, Sheep and Goat Extension Veterinarian at UC Davis Weill School of Veterinary Medicine

This guide outlines flock health fundamentals and best practices for a solar grazer to consider when developing their flock health management plan with a veterinarian under a valid Veterinarian-Client-Patient Relationship (VCPR). These best practices are framed as statements of good management and are intended as guidance, not requirements. Implementation will vary based on solar site conditions, grazing operations, and other factors.

The information in this guide was developed and shaped by veterinarians, extension specialists, and practicing solar graziers to be used by producers when controlling vegetation on solar sites with managed sheep grazing. Its contents are meant to be used for informational purposes and does not replace the need for veterinary expertise on-site. It is not intended to serve as a regulatory or contractual standard and should not be used to impose rigid requirements on grazing operators.

Overall Operation & Management Foundations

PRODUCTION GOALS & RESOURCES

- Production targets are established and reviewed periodically with a veterinarian, industry professional, or mentor-producer input as needed.
- Facilities, equipment, and labor resources are sufficient to support safe animal handling and routine flock health management.
- Contingency resources (including off-site land or facilities) are available for animal removal, isolation, or emergency needs.

Site-Specific Risk Management

HAZARD & INFRASTRUCTURE ASSESSMENT

- Physical hazards to animals and people, beyond those that are inherent with solar infrastructure, are removed from the site as much as possible.
- Animals are managed in a way that mitigates risks associated with permanent hazards (e.g., drive lines, panel shifts, uneven ground) that cannot be removed from the site.
- Where practical, infrastructure layouts and movement plans prioritize animal safety and calm handling.



ENVIRONMENTAL & TOXICITY AWARENESS

- Environmental toxins (industrial solvents, batteries, lead paint, fertilizers, herbicides, pesticides, etc.) are not accessible to livestock and any exposure risks of these toxins are clearly communicated to all involved in livestock management.
- Based on clear communication between the site manager and grazer, environmentally sensitive or toxic areas are identified and an appropriate grazing plan is outlined in response.
- Toxic plants are identified and avoided or managed to prevent exposure when they might be harmful to grazing livestock. If toxic plants are excessive, this is communicated to the site manager and a removal plan is established.

Nutrition, Forage, & Water Management

FORAGE QUALITY & AVAILABILITY

- Livestock are consuming appropriate nutrition- with supplementation provided to meet nutritional requirements commensurate with forage quality and quantity.
- Body condition is monitored and managed to support animal health and productivity appropriate to the production stage and environment.
- Forages that accumulate toxins, such as nitrates or prussic acid, are tested where appropriate or managed around during higher-risk times.
- Nutritional intake meets the requirements of the animals' production stage.
- Mineral supplementation is provided as appropriate based on forage conditions and production needs.
- Forage consumption and availability are actively monitored while animals are on site.

WATER ACCESS & MANAGEMENT

- Water suitable for sheep is consistently available, recognizing temporary limitations during handling or transport events.
- Equipment and logistics support delivery of up to 3 gallons per head per day. Recognizing that sheep can access water from a variety of sources, to include but not limited to water troughs, stock tanks, forage, snow, and puddles.
- Water quality, access points, and supply systems are routinely monitored and maintained.

Predator, Pest, & Vector Control

- Site-specific predator deterrence strategies are established and implemented.
- Domestic and wild predator risks are actively managed.
- Pest and disease vector pressures are evaluated, with use of county or regional control services when available.

Animal Identification & Movement

IDENTIFICATION & INVENTORY

- Animals have unique individual or flock identification.
- Flock inventory records are current and accurate.

TRANSPORTATION & HANDLING

- Personnel are trained in industry-accepted animal handling and transport procedures.
- Handling facilities are present, safe for sheep and personnel, and designed to allow husbandry procedures to be performed efficiently.
- Trailers provide adequate space, ventilation, and footing.
- Plans exist for injured, down, or compromised animals during transport.
- Post-transport unloading and recovery procedures are defined.



Preventive Health & Reproductive Management

VACCINATION & PARASITE CONTROL

- Vaccination protocols are established in consultation with a veterinarian and implemented as appropriate for the operation.
- Vaccines are stored, handled, and administered to preserve efficacy.
- Parasite control and treatment effectiveness are practiced and informed by producer experience, animal performance, and veterinary input as needed.
- Unique parasite or pathogen risks may arise, and a mitigation plan is developed in consultation with veterinary and industry professional input.



REPRODUCTIVE MANAGEMENT

- Planned breeding and lambing windows are established to maintain nutritional, health, and animal handling uniformity across the flock.
- Mature rams are managed separate of the main ewe flock outside of the breeding period to reduce indiscriminate or undesired breeding.
- Lambing approaches consider labor, facilities, and animal care needs.
- When possible, orphan lambs are identified and appropriate additional care is provided.
- Pain mitigation is utilized for painful procedures beyond those that are routine management procedures such as tail-docking and castrations at an early age.

Flock Health Plan & Veterinary Partnership

VETERINARY OVERSIGHT

- A veterinarian of record is established and available to support animal health planning and disease response.
- Veterinarian contact information is readily accessible to all members of the livestock management team in cases of disease events or emergencies.
- Veterinary interaction occurs as needed to maintain a valid VCPR in accordance with state law.

BIOSECURITY & DAILY MONITORING

- Biosecurity practices are in place for shared equipment, handling areas, and treatment spaces.
- Cleaning and disinfection practices are consistently followed.
- Flocks are observed routinely, with employees trained to recognize early signs of illness or injury.

RECORDS & THRESHOLDS

- Treated animals are clearly identifiable and withdrawals are followed.
- Treatment and health records are comprehensive and accurate.
- Producers monitor flock health trends and respond to abnormal morbidity or mortality levels.
- Action plans exist when health thresholds are exceeded.

DIAGNOSTICS, DOWN ANIMALS, & EUTHANASIA

- Veterinarian-producer communication outlines approaches for collecting tissue samples or performing necropsy to determine unclear causes of death or illness.
- Humane euthanasia of down or terminal animals is performed in a manner that ensures a quick, painless death.

Employee Training & Communication

- Employees are trained appropriately for their role, with on-going instruction as needed, with a particular emphasis on flock health, low-stress handling, and livestock welfare/care. New employees receive training upon hire.
- Veterinary input is incorporated into training whenever necessary.
- Clear communication pathways exist for reporting concerns or seeking guidance.





Culling & Replacement Strategy

- Objective culling criteria are established and applied consistently.
- Animals failing to recover body condition or meeting high-risk criteria are removed.
- Replacement selection criteria align with production goals and measurable traits.

Dog Health & Management (Herding & Guardian Dogs)

- Canine reproductive management prevents unplanned breeding.
- Vaccination schedules are current.
- Rabies vaccinations are current, administered by a veterinarian, and in accordance with state and local laws.
- Routine deworming, including tapeworm control, is practiced.
- Dogs are regularly monitored for health, body condition, and injury.
- Dogs are appropriately identified (e.g., collar, tag, or microchip) with current owner information.

Extraordinary Circumstances & Emergency Preparedness

WEATHER & DISASTER RESPONSE

- Emergency plans address region-specific risks (fire, flood, extreme cold or heat, power outages).
- Shelter-in-place and evacuation strategies for personnel and livestock are defined.
- Readily available feed and water contingencies are established for extreme conditions.

ENHANCED BIOSECURITY & MOVEMENT RESTRICTIONS

- Reasonable biosecurity and sanitation practices are followed based on operation type and risk level.
- Contingency approaches exist for stop-movement orders or disease outbreaks.

