By the end of fall most ewes and does are pregnant with parturition (kidding or lambing) occurring in winter and spring. This publication contains recommendations that will help to minimize health and nutrition problems among sheep and goats during the winter, kidding, and lambing seasons.

**Winter Herd Management**

Animal nutrient requirements and voluntary feed intake increases during the winter since does and ewes may be in mid-to-late gestation, kidding, or lambing phase. Therefore, producers are advised to implement the following herd management practices.

- Provide winter supplementation. Assess feed options in advance to ensure that animals receive adequate protein, energy, and mineral supplements. It is wise to consider feed costs, availability, ease of handling and storage, animal acceptance, and nutrient contents. Producers may encounter problems if you wait until winter begins to secure hay and other nutritional resources. You can also reduce your feed bill by culling open and non-productive ewes and does and other excess animals. In addition, be sure to monitor the body condition of the animals to make sure they are in good condition during parturition. Supplement feed as body condition warrants.

- Make sure the herd has a fresh and thawed water supply during freezing temperatures. As temperatures rise, check to see whether there are any busted water lines that have the potential to deplete drinking water supplies or flood animal grazing and resting areas.

- Provide adequate shelter to protect animals from precipitation and wind-chill (especially goats) to minimize the impact on nutrient requirements and to reduce the risk of hypothermia, weakness, and death in newborn kids and lambs.

**Common Winter Diseases**

Producers will need to monitor sheep and goat herds for diseases. Following is a list of common diseases among sheep and goats, as well as recommended treatment options.
- **Pneumonia** is primarily caused by bacteria such as *Pasteurella multocida*, *Mannheimia haemolytica*, or *Arcanobacterium pyogenes*. Stress, poor barn ventilation, and other environmental conditions are predisposing factors for pneumonia, particularly among lambs and kids. Watch for signs of diarrhea (scours) that is sometimes associated with pneumonia. To prevent pneumonia, vaccinate adults and young stock. Herd bucks should receive annual booster shots. Pneumonia is treatable with antibiotics.

- **Enterotoxaemia** or overeating disease caused by the bacteria *Clostridium perfringens*, types C and D. Enterotoxaemia may occur when sheep and goats experience a sudden change of diet or stress.

  A gradual introduction of grain to the winter diet over a week or two will help to prevent enterotoxaemia among animals. Pregnant does and ewes should be vaccinated against *Clostridium perfringens* types C, D, and C. *tetani* during the fourth month of gestation. This vaccine is commonly referred to as the “clostridial CD/T” vaccine. Herd bucks should also receive annual CD/T booster shots during this time.

- **Pregnancy toxemia or ketosis** is a metabolic disorder that occurs as a result of improper feeding. This condition generally occurs in does and ewes during late gestation. Affected females are usually carrying multiple fetuses and are either too fat or too thin. Pregnant ewes or does may experience a debilitating and negative energy balance.

  To prevent pregnancy toxemia, make sure females are in moderate body condition going into the last six weeks of gestation and are provided grain as needed based on forage nutrient content. This condition is highly fatal when animals are not treated in time. Treatment involves the oral administration of propylene glycol or a liquid nutrient supplement to rapidly increase energy levels. The Extension publication titled *Pregnancy Toxemia (Ketosis) in Goats* contains additional information on this metabolic disorder and can be downloaded at [www.aces.edu/pubs/docs/U/UNP-0106/UNP-0106.pdf](http://www.aces.edu/pubs/docs/U/UNP-0106/UNP-0106.pdf).

- **Infectious abortion** is always a health concern among small ruminant producers. Infectious diseases such as chlamydiosis, campylobacteriosis (sheep), leptospirosis, listeriosis, toxoplasmosis, and Q fever must be controlled. Non-infectious abortions may also occur as a result of head-butting or when animals compete for space, food, or social ranking.

  Producers should make sure that adequate shelter and trough space are provided for all animals in the herd. Grouping animals in shelters during the winter could increase susceptibility to infectious agents that can lead to abortions. Also, vaccinate or treat as necessary for any prevalent infectious diseases that could result in pregnancy losses. Avoid the contaminating feed, water, and hay supplies with pathogens that cause conditions such as listeriosis, chlamydiosis, and toxoplasmosis.

- **External parasites** may be prevalent when there is close animal-to-animal contact during the winter months. Common parasitic diseases could include:
  - Ringworm, a fungal skin infection (dermatophytosis).
  - Mange caused by parasitic mites such as *Sarcoptes scabiei* (sarcoptic mange), *Chorioptes caprae* (chorioptic mange), *Psoroptes cuniculi* (psoroptic mange), and *Demodex caprae* (demodectic mange).
  - *Damalinia caprae*, a species of lice that infects goats or *Linognathus pedalis* that infects sheep. *Linognathus ovis* and *Bovicola ovis* are the most common species of lice in sheep.

  The control and treatment of skin parasites require closer observation for
signs of lesions or other hair, wool, or skin problems. Affected animals may require isolation from the herd or flock for treatment and to minimize further infections. A variety of ointment, powder and spray products are available to treat external parasites and fungal infections.

- **Other contagious diseases** such as pinkeye (keratoconjunctivitis), sore-mouth (contagious ecthyma), caseous lymphadenitis (CL), and lameness such as foot rot and foot scald, may be prevalent during the winter as animals remain in close contact. Pinkeye can be of the non-infectious form caused by dusty feed and hay. It can also be highly infectious and spread by direct contact with the microorganism. Isolation and daily eye treatments are generally required to cure sick animals. Sore-mouth (scabby mouth) requires isolating sick animals and iodine treatment. In some severe cases antibiotics are required. Caseous lymphadenitis requires isolating animals, careful drainage and cleaning of abscesses, and the culling of affected animals. Lameness can affect animal wellbeing, body condition, and general health. Foot baths with concentrated zinc sulfate solution should be available at all times as a preventive measure. An iodine solution can also be used, as well as local antibiotics in severe cases.

### Caring for Pregnant Ewes & Does

Daily observation of animals and keeping good records are management practices that will help producers to have a successful lambing and kidding season. If breeding is conducted on a year-round basis or uncontrolled, keeping records on breeding and expected lambing and kidding dates will be more challenging.

#### Third Month of Pregnancy
- Group does and ewes based on pregnancy status.
- Check females for body condition score. On a scale from 1-5, provide supplemental feeding if doe/ewes are at 2.5 or lower.
- Check for worm burden by recording FAMACHA scores and/or conducting fecal egg counts.

### Fourth Month of Pregnancy
- Vaccinate ewes and does with CD&T and pneumonia. Use the FAMACHA scoring method.
- Use caution when selecting a dewormer for treating pregnant ewes and does.
- Determine if kidding will take place on pasture, in isolation pens, or in barns. Winter parturition may require added shelter space to prevent newborn mortality due to hypothermia.

### Lambing/Kidding
- Check herd/flock at regular intervals three times a day.
- Watch for signs of parturition such as vaginal swelling, vaginal discharge, and milk letdown.
- Observe behavioral changes such as isolation from the flock or herd, repeated getting up and down, apparent discomfort and restlessness, and the presence of a water bag indicating that delivery time is near.
- Assist and intervene in case of dystocia (difficult delivery). Problems may arise due to abnormal presentation of the fetus, two fetuses being presented simultaneously, large birth weights, small or poor condition of the dam, uterine inertia, incomplete cervical dilation, or cervico-vaginal prolapse.
- Check to see if ewes or does are nursing and caring for newborn animals after delivery.
- Check for placental expulsion that can be retained up to 12 hours post-partum. In case of placental retention, give prostaglandin injection to induce expulsion.
- Keep ewes and does in a ventilated facility with dry bedding at all times to avoid pneumonia, mastitis, lameness, and other infections. Make sure there is no umbilical infection or diarrhea as a result of *E. coli* or *Salmonella* bacteria.
Newborn Care
• Enhance lamb and kid survivability by preventing starvation and hypothermia. Determine if ewes or does are providing colostrum to newborn. Kids and lambs born outside in cold conditions will quickly succumb to hypothermia, starvation, and death if they do not adequately suckle within the first 12 hours of life. Colostrum is an early source of immunity and stimulates intestinal motility for the passage of the meconium (first feces) of the newborn. Provide artificial colostrum and milk replacer as an alternative if dam does not provide adequate colostrum or milk. When using a feeding milk replacer follow manufacturer recommendations and be aware of product concentrations and dilution to avoid diarrhea. Prevent lamb or kid choking, pneumonia, or death that could occur when liquids flow in the wrong direction down the trachea and into the lungs. These events can be avoided by regulating the size of the holes of the nipples. Bottle and nipples must be sterilized to prevent bacterial gastrointestinal infections.
• Disinfect umbilical cord or naval cord within 12 hours after birth by dipping the cord in an iodine solution. Pinch and clip the umbilical cord to about one inch if it is too long.
• Ear tag, weigh, and record sex of lamb/ kidding soon after birth.
• In herd with a history of white muscle diseases, inject 1/2 cc of Bo-Se (selenium, vitamin E) once to lambs and kids at birth. Repeat the dosage 3-4 weeks later. Commercial mineral feed mixes can also provide adequate levels of selenium and vitamin E. Provide minerals to pregnant ewes and does to prevent selenium/vitamin E deficiency and white muscle disease among lambs and kids.
• Pneumonia can also lower newborn survivability. Signs of pneumonia include a temperature over 104°F, nasal discharge, rapid and difficult breathing, and a wet cough. Watch for poor barn or facility ventilation and damp bedding. Try to keep lamb and kids in dry bedding.

Note: Producers should consult with local veterinarians to assess local disease risks when developing a winter herd health management plan. Also, please note that many products labeled for sheep may require extra-label use for goats.

References

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