



NEWSLETTER

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SMALL RUMINANTS 2025

CREATING A HEALTHIER FUTURE, TOGETHER

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RABIES

Rabies is a virus of the central nervous system (brain and spinal cord) that can affect any mammal and is widespread throughout Pennsylvania. In PA between 350-500 animals are confirmed positive to rabies each year. About half of these cases are raccoons, followed by skunks, cats, bats, and foxes. In the past 6 months, our region has had more positive cases of rabies than any other region in the state. Several of our clients have reported cases of rabid animals biting and attacking their livestock. In these cases, the livestock may be placed under quarantine and a rigorous multiple dose rabies vaccination plan may be initiated. Even though rabies is not as common in livestock as in some other species in the wild, we recommend routine vaccination especially since clinical signs in livestock are not as obvious as they are in other species. Livestock usually exhibit the dumb form and signs may just include increased vocalization, fence walking, and/or neurologic signs. This could lead to human exposure if an unvaccinated animal is infected but not showing obvious clinical signs.



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HPAI (HIGHLY PATHOGENIC AVIAN INFLUENZA) IN SMALL RUMINANTS /CAMELIDS

At this time the Federal Order does not include movement or testing requirements for small ruminants. However, laboratories must report positive influenza A results in livestock including small ruminants. In March 2024 HPAI was confirmed in young goat kids on a Minnesota farm that also had poultry infected with HPAI. The goats shared the same water and pasture source with the ducks and chickens. Adult goats on the premises tested negative for the virus. The virus identified was genotype B3.6. The virus causing disease in cattle is B3.13. The goat kids showed no clinical signs at birth, but at 5-9 days of age they developed neurologic signs such as incoordination, inability to stand, difficulty nursing, seizures, blindness, etc.

In May 2024 HPAI was confirmed in alpacas on a farm that shared pasture and water with infected chickens and ducks. This strain was identified as B3.13, the same strain as dairy cattle. Clinical signs in the alpacas included depression, weakness, mild respiratory signs, nasal discharge and abortions/stillbirths.

To reduce the risk of HPAI, small ruminant and camelid owners should always practice good biosecurity for all farm animals, including housing different animal species separately with their own feed and water sources. Producers should also report any unusual sickness or death loss of their animals or wild animals on the premises to their veterinarian.



SMALL RUMINANT LENTIVIRUSES

Small Ruminant Lentiviruses (SRLVs) such as Ovine Progressive Pneumonia (OPP) and Caprine Arthritis Encephalitis (CAE) are common diseases for small ruminant herds or flocks. Both of these have similar aspects including their mode of infection, slow progression of clinical signs, and susceptibility to disinfectants and temperature. Biosecurity and prevention of these diseases is the best way to minimize their risk. It's much easier to prevent SRLVs than to eradicate once they have gained a foothold. Testing and culling can be expensive and time consuming.

SRLVs insert their DNA into the host where it hides from the immune system. As the virus multiplies it causes changes in several organs especially the lungs, mammary glands, and joints. This leads to clinical signs such as labored breathing, lack of milk production, chronic weight loss despite normal appetite, and swollen painful joints. The virus can transfer to other sheep and/or goats by coughing, saliva, blood, colostrum, milk, and semen. If goats and sheep are housed together they may spread the virus back and forth. Once an animal is infected, it is infected for life as no vaccine or treatment is available. Animals can be affected and not show clinical signs but still shed the virus. Serology can be used to detect the virus but may take several months to identify an animal once infected.

OPP

The slow progression of OPP signs requires more than visual assessment of newly purchased animals to detect infections. Several studies have been published that show the virus can be very detrimental to the productivity of the sheep flock. Effects include decreased reproductive efficiency, decreased milk yield, premature culling, and poor lamb growth.

Clinical signs include:

-Mastitis with less milk produced each lactation, failure of ewes to gain condition after weaning, labored respiration and pneumonia unresponsive to antibiotics, swollen joints and wasting and death,

36 % of flocks tested had one or more OPP positive sheep, 24% of all animals tested were positive for OPP, and the highest rates of infection were in flocks with more than 500 head and open range flocks.

Control measures for OPP include testing ewes prior to breeding to remove positives, testing replacement ewes 2 months after weaning to catch early infections, and testing flock additions with unknown OPP status twice 2-3 months apart before entering the flock. Research has also found a genetic haplotype (TMEM154) in sheep that showed less susceptibility to the virus. Selecting rams with these desirable genes can be used in large commercial flocks where testing and culling protocols may be cost prohibitive. This will not eradicate the disease but will decrease the incidence.

CAE has been reported to infect about 80% of the dairy goats in the U.S. CAE tends to settle more in the joint fluid causing an immune reaction that leads to enlarged joints and arthritis. Mastitis, decreased milk production, and wasting can be seen in affected goats. In kids 2-6 months of age the encephalitic form is most common. The most common methods of preventing CAE are removing kids at birth and rearing away from the dam, feeding pasteurized colostrum or colostrum replacer, and pasteurization of milk fed to the kids. Introduction of CAE negative kids into the infected herd can expose them to the virus and be a source of spread. Prevention:

- Purchase new animals from a flock or herd that is test negative
- Be diligent when exhibiting animals or purchasing from sales where animals are exposed to others. Quarantine animals on arrival home and test before putting them in with the herd
- Test and cull positives or test and then place positives into a separate group creating 2 flocks/herds. This option requires diligent testing, record keeping, identification, biosecurity, and maintenance of separate fences and facilities.

Producers who have used the testing and culling program have reported that it is economically beneficial to control SRLVs.

*****NEW POLICY – DROP OFF FEE*****

Ag Vet has implemented a new medication drop fee of \$25 for each drop off due to the increasing number of drop off requests and time consumed to offer the service. Exceptions may be made if you request the drop off for a day in the future when a veterinarian may be in your area, or if one of our veterinarians is already driving by your farm. Medications can be picked up at our office during regular business hours or sometimes left outside on the back dock area by the pharmacy if we know you will be picking up that day. We can also mail medications but that will incur the shipping charge to mail the package.

Thank you for your understanding and if you have any questions about this new policy, please let us know.

PREGNANCY TOXEMIA IN SHEEP AND GOATS

Pregnancy toxemia in sheep and goats is also known as pregnancy disease, lambing sickness, ketosis, and twin-lamb/kid disease. Pregnancy toxemia is the most common metabolic disease of pregnant small ruminants and occurs most during the final month of pregnancy. It is characterized by anorexia and depression, often with neurologic signs and progresses to recumbency and death. It occurs more frequently in small ruminants carrying multiples.

The primary cause is inadequate nutrition during late gestation, usually due to insufficient energy in the ration and decreased rumen capacity because of fetal growth. Ewes/does with poor body condition or that are over conditioned and carrying more than one fetus are more at risk of developing pregnancy toxemia. With insufficient energy intake to meet the fetal demands, the mothers mobilize more body fat which results in ketone production. This condition can also be adversely affected by stresses such as adverse weather, transport, handling for shearing, vaccines, and deworming, or other diseases.

Most cases develop 1-3 weeks before parturition. Onset of clinical signs earlier than 140 days of gestation is associated with more severe disease and increased risk of death. Decreased appetite at feeding time, especially grain, is an early indication of possible pregnancy toxemia. Animals will spend more time lying down and as the disease progresses, other signs such as listlessness, aimless walking, muscle tremors, and teeth grinding may occur. This progresses to blindness, sternal recumbency, coma and even death.

Pregnancy toxemia can be differentiated from other diseases by checking ketone levels or BHB concentration. Ketone strips that test urine are a quick easy immediate test for ketone bodies on the farm and can be used to monitor the condition.

Prevention includes increasing the feeding of high energy concentrates and grains during the last month of gestation. This is important because about 80% of the growth of the fetus occurs during the last 6 weeks of pregnancy. Late pregnant ewes/does require about 50% more feed if bearing a single and about 75% more if carrying twins. The increased demand for feed sometimes exceeds the digestive capacity unless grain is substituted for part of the hay in the diet. Multiple fetuses will tend to crowd the abdomen limiting intake due to space restriction. About 1 pound of corn or high energy concentrate should be fed per head per day during the last 4-6 weeks of pregnancy. Animals with poor body condition should be grouped together and fed a higher energy diet for the last couple months of pregnancy.

Treatment includes early diagnosis as it is more successful in early stages. Oral products such as Nutri-drench, propylene glycol, or similar products at a dose of 1 oz/100 lbs body weight 2 or 3 times a day are important. Intravenous dextrose/glucose can be administered in severe cases but should be used in combination with oral products. Calcium gluconate or CMPK should be administered subcutaneously or orally for a few days as low calcium is a common issue in these cases. Flunixin meglumine is beneficial once or twice a day to make the patient more comfortable. B complex vitamins once a day help stimulate appetite. Some recent studies have shown a benefit to oral administration of 4-5 oz of red wine daily.

In severe cases, inducing the doe or ewe to kid or lamb may be necessary to correct ketosis. If induction is not done soon enough, then the affected doe/ewe and her offspring may not survive. If the offspring are valuable and a reliable breeding date exists, it is possible to get live kids/lambs if they are within a week of their due date. Dexamethasone and prostaglandin can be used to induce with expected parturition in 24-48 hours. Since the doe/ewe is often weak, she will need consistent monitoring especially since she may require assistance during delivery. The risk of retained fetal membranes is also higher in these cases.

COLOSTRUM MANAGEMENT

Colostrum or “first milk” provides immune protection and important nutrients which are crucial for newborns, especially since they are born without the natural immunity needed to defend against environmental challenges and agents. Up to 50% of deaths in goat kids occur within the first 24 hours due to lack of colostrum which can be due to lack of or not enough colostrum. Two of the biggest killers of newborns are hypothermia (low body temperature) and hypoglycemia (low blood glucose). Therefore, feeding high quality colostrum shortly after birth is critical to ensure survivability and good health.

Colostrum is rich in nutrients to support newborn health such as:
Energy (fats) which help regulate body temperature and prevent hypothermia.
Proteins (immunoglobulins) for immune protection against infections.
Vitamins that support immune function, growth and bone development.
Minerals to support skeletal development and metabolic functions.



Effective colostrum management includes timing, quantity, quality and cleanliness of the colostrum. The absorption of antibodies is best during the first several hours of life while the intestines can absorb the large proteins in colostrum called immunoglobulins. Colostrum should be given within the first 2-6 hours of birth. Studies have shown that the absorption of the immunoglobulins is very little after the first 24 hours of birth.

After the doe or ewe kids or lambs, make sure to check the milk to make sure that there is colostrum available, the teats are open, and no mastitis present. Colostrum should be as clean as possible when fed, and the teats should be clean if milking out colostrum from the dam. The teats should be clean and dry before the kid/lamb nurses from the dam. Colostrum from first time dams is usually not as high in immunoglobulins as it is in dams that have previously lambled/kidded. Ensuring that colostrum has sufficient immunoglobulins is vital in providing adequate immune protection. This can be done using a Brix refractometer on the colostrum. The kid or lamb can also be checked for adequate protein levels after colostrum consumption to make sure that colostrum was absorbed and levels in the body are adequate.

Newborns should receive 15-20% of their body weight in colostrum within the first 24 hours after birth. This can be given over several feedings, starting with 5-7% for the first feeding followed by feedings every 3-4 hours to reach 15-20%. For example, a 6.5-7 lb lamb or kid should receive 150-210 ml (5-7 oz) in the first feeding.

In situations where maternal colostrum is contaminated, unavailable, insufficient, or poor quality, alternative colostrum sources can be used. Sources may include colostrum from another ewe or doe that is fresh or frozen. Frozen colostrum should be thawed in a warm water bath below 122 degrees F to preserve the nutrients and immunoglobulins. Colostrum replacers are available and provide a good substitute for maternal colostrum. Try to buy colostrum replacer with at least 50g of IgG per liter, which is usually better (higher IgG level) than the colostrum substitutes. Cow colostrum can also be used if sheep or goat colostrum is not available. If colostrum is used from a doe, sheep, or cow with an unknown history, make sure that the colostrum donor does not carry diseases such as Johnes, Mycoplasma, CAE, or CL which could be transferred to the newborn. Colostrum can be pasteurized if needed where diseases are a concern.

HYPOTHERMIA AND HYPOGLYCEMIA

Hypothermia and hypoglycemia are the biggest causes of weakness and death in newborn small ruminants. Hypothermia occurs when the animal's body temperature drops below normal and can lead to delayed growth or death. The normal body temperature should be about 101-102 degrees Fahrenheit. Hypoglycemia is when the blood glucose level falls below normal and is a result of inadequate colostrum intake at birth.

Early detection and intervention can greatly increase survivability. The neonates at highest risk are those from dams in poor condition, those from very old or young mothers, multiples (twins or triplets or quads), small or premature babies, or newborns that are limp and weak at birth. Body temperature can be easily taken rectally using a digital thermometer.

The highest risk for hypothermia is from birth to 6 hours of age as the wet newborn loses heat very rapidly and can cool quickly. This is more of a problem in cold, wet, or windy conditions. With hypoglycemia there is a lack of body heat production which leads to hypothermia and can happen even in warmer weather. Adequate good quality milk/colostrum intake is important in preventing both conditions.

Newborns with mild hypothermia (99-100.5 degrees) that are weak, depressed, but able to stand should be dried off and placed in a shelter. Then they should be given colostrum with a bottle or stomach tube about 50 ml/kg slowly over about 5 minutes. Keep them with their dam and make sure they nurse and receive adequate milk over the next 3-6 hours. Monitor rectal temperature until it returns to normal and stays there.

Smaller than average newborns may not have sufficient fat reserves to initiate heat production, even with colostrum. These newborns can be fed 20% dextrose (50 ml/kg) about 1 hour after the colostrum feeding for an energy boost. This does not replace the amount of colostrum needed. They also can be fitted with sweaters for several days to help maintain a normal body temperature.

To resuscitate a newborn with hypothermia:

- Dry with towels or even a blow dryer
- Warm the newborn by placing in a small box or area with a heater. In severe cases of hypothermia, place the newborn in a plastic bag and dunk the body and legs into a warm water bath. Make sure to keep the head above the water. Then dry with a blow dryer.
- Newborns aged 6 hours or more have a greater chance of recovery if they are given an injection of dextrose 20% before warming due to hypoglycemia.
- Newborns with a suckle reflex can be tube fed colostrum about 50 ml/kg body weight.
- Newborns without a suckle should be given dextrose and warmed prior to tube feeding.
- Check rectal temperature every 30 minutes. When the temperature is greater than 100.5, the newborn can be removed from the heated area. Most will take 2-4 hours to warm up especially when the body temperature is very low.

Essential Supplies to Have on Hand BEFORE Birthing:

- Digital Thermometer
- Frozen Colostrum or Colostrum Replacer
- Newborn Stomach tube and Feeding syringe
- Warming box and heater
- Dextrose
- Syringes and needles
- Draft free pens-dry and well bedded

Keep in mind that PREVENTION is the best cure for hypothermia and hypoglycemia.



GRAFTING

Grafting or fostering a lamb or kid from one mother to another is a management tool that can help save lambs/kids during lambing/kidding season. It works best when several mothers birth at the same time so is easier to do with larger flocks/herds. Grafting can be done for many reasons such as multiples, sickness, lack of milk, poor udder or young or aged dams.

Lambs or kids to be grafted (aliens) should be able to stand and move about in order for the graft to be successful. Lambs/kids not thriving on their mother are good choices to be used for grafting. It is best to match the size of the alien lamb or kid to the size of the foster mother's own offspring. The types of grafting are slime grafting, scent grafting, stanchion grafting, and skin grafting.

The slime method of grafting can only be used during delivery. The goal is to make the alien smell like the foster mother's baby. Hold the alien up behind the foster mother in labor and smear or cover it with the birthing fluids. Tie the legs of the alien so it cannot get up and walk away to mimic a newborn which will lie for a period of time before sitting and standing up. Then simulate the birth of another baby by placing a hand in the foster mother's birth canal and making a fist. Let the mother strain against the hand for 2-3 minutes and then remove the hand.

GRAFTING CONTINUED....

Put the alien beside the mother's natural lamb/kid and observe. If the mother licks or seems to accept the alien, put the family into a pen together and leave the alien tied for about 30 minutes before untying. The sign of a successful graft is when the foster mother allows the alien to nurse. If the foster mother has a baby of her own, make sure it gets adequate colostrum before allowing the alien to nurse if it is a day or two old. Keep the group together for 3-5 days and observe to make sure the alien is accepted by the foster mother.

Scent grafting involves transferring the scent of the mother's single live or dead baby to an alien to aid in the grafting process. A large sock or stockinette with cutouts for the head and legs are placed on the mother's own baby at birth. This "jacket" acquires the natural odor of the mother's own baby and when the jacket is transferred to an alien, hopefully the mother will accept the alien. It is a good idea to halter and restrain the mother for the first day to help with the acceptance process.

Another option is to use a strong smelling product such as Neatsfoot oil. The Neatsfoot is smeared onto the mother's baby and onto the alien, then introduced to the mother. An experiment was done in sheep using both the Neatsfoot oil and the stockinette jacket together to graft a lamb and 80% of the foster ewes accepted the alien lamb as well as their own lamb. The sock/stockinette should be left on for several days before removal. Make sure to keep the mother and babies isolated in a pen for close observation for a minimum of 2-3 days to make sure both mom and babies bond.

Stanchion grafting involves having a sturdy stanchion available to restrain the mother so the lamb/kid can nurse. This can be used for up to 3 days after birthing but after that it is more difficult to graft an alien lamb or kid. The alien lamb or kid selected for grafting should be strong so they are persistent about trying to nurse. It also helps if the foster mother cannot see or smell the alien for the first 3-5 days. The mother can be kept with her head locked for a few days as long as she has room and can lie down and get up whenever she likes. After 3-5 days she can be released from the stanchion and observed to see if she is accepting of the alien.

A skin graft is often the best method if the slime graft is not an option when you do not have mothers birthing at the same time. This requires skinning a dead lamb/kid and attaching the skin to an alien that is selected to graft onto the mother of the dead one. If this does not work right away, then the next option would be to use the stanchion graft. In large commercial flocks the skin graft is used most because it can work quickly.

None of these methods are miracles for grafting, and do require time and commitment to succeed. All methods require supervision to make sure that the mother and alien are bonding over a period of several days before introduction back into the flock/herd.