Lamb Mortality

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FACTSHEET

HYPOTHERMIA AND STARVATION

One of the most obvious constraints to profitability in BC sheep flocks is lamb mortality. In some cases, up to 30% of the potential lamb crop is lost between late pregnancy and weaning. This is due to a number of causes ranging from, poor nutrition of the pregnant ewe, to predation of lambs on pasture. Since 80-85% of the costs of producing a lamb are incurred before birth, a major effort must be made to bring the lamb successfully to market in order to cover those costs. A lamb which dies at two days of age may not provide a return on an investment.

Although there are many potential causes of mortality between birth and weaning, the highest proportion of losses occurs in the first few days of life due to hypothermia and starvation.

1. **Hypothermia:**

This term refers to a body temperature below the normal 39-40^{o}C. A lamb is born with a small reserve of energy, which in the course of its metabolism provides heat. When the lamb is losing heat to the environment at a rate faster than the body can produce it, hypothermia occurs. Several factors can influence the balance between heat production and heat loss:

a) during a difficult birth, a lamb may consume large proportions of its energy reserves, reducing the potential for heat production.
b) long time intervals between birth and the first feeding, result in energy reserves becoming greatly depleted.
c) small lambs have a higher ratio of body surface to body volume than large lambs. This means that heat loss occurs at a pace higher then that relative to the rate of production.
d) newborn lambs lose heat at a much higher rate when they are wet than when they are dry. Evaporation of moisture from the surface causes cooling.

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Treatment of Hypothermia:

a) Moderate hypothermia (temperature 37-39^{o} C) in a lamb less than 5 hours old: In most cases a lamb this young will still have some energy reserve and, therefore, glucose administration will not be necessary. The lamb should first be vigorously towel-dried and then given colostrum. If it can nurse, encourage it; if not, feed 2 ounces by stomach tube at two hour intervals. The lamb need not be warmed with more than a heat lamp in a draft-free claiming pen.

b) Serious hypothermia (temperature less than 37^{o} C) in a lamb less than 5 hours old. This lamb should again be dried and warmed, with rapid warming becoming more important. This can be accomplished by plunging the lamb into warm (40^{o} C) water or by using a warming box such as that shown in Figure 1. The air surrounding the lamb should have a temperature of 37-40^{o} C, since a higher temperature can cause fatal hypothermia. When the lamb's rectal temperature has reached 38^{o} C, it should receive colostrum, as before.

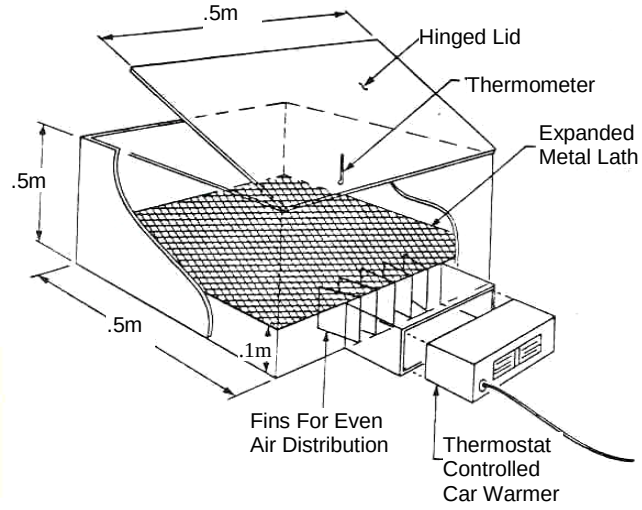

Figure 1 Lamb warmer

c) Serious hypothermia
(less than 37^{o} C) in a lamb over 5 hours old: This lamb has likely utilized a large proportion of its energy reserves and is hypoglycemic (low blood glucose). It should again be towel dried and administered glucose. Subsequent heating without glucose administration can result in death from a lack of glucose available to the brain.

Warm (39^{o} C) glucose solution is most effectively administered by intraperitoneal injection but scrupulous attention to cleanliness is essential.

The dosage is 10 ml per kg body weight of a 20% glucose solution (40% solution diluted 1:1 with boiled water). A sterile syringe and a new 1 inch by 20 gauge needle must be used. The lamb is suspended by its front legs with the needle entering a scrubbed area of the abdomen 1 cm to the side and 2 cm behind the navel, aiming (at a 45 angle) toward the lamb's rump (Figure 2). An intramuscular dose of antibiotic will help prevent infection, but it is no substitute for absolute cleanliness.

FIGURE 2. Intraperitoneal injection

Glucose can alternatively be given subcutaneously, but absorption into the bloodstream is much slower and there are some risks of abscess formation. When the subcutaneous route is used, distribute the dose over 2 sites. Preferably under the loose skin behind the front or ahead for the hind legs. Again, absolute cleanliness is essential to prevent abscess formation.

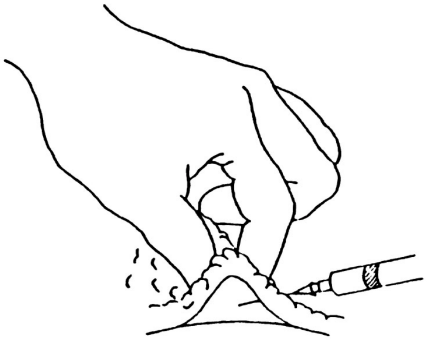

FIGURE 3. Subcutaneous injection

Glucose administration is then followed by heating. When the rectal temperature has reached 38^{o} C, colostrum should be given by stomach tube.

(2) Starvation:

This is the most common cause of lamb mortality and the level of losses in a flock is strictly related to management. Unless lambs receive colostrum within two or three hours of birth, body energy reserves become critically depleted. Some of our best managers will tip each ewe at lambing, check her udder, and assist every lamb with its first meal. This is followed by careful scrutiny of ewes and lambs two or three times a day until one is confident that the lambs are off to a successful start.

Recognition of Starvation

Starvation typically occurs during the first three days of life. A lamb will be found standing with its head down, ears drooping back, or it may become too weak to stand. The stomach would be empty upon palpation. Shivering, shaking and hypothermia may follow but this hypothermic lamb is typically over 12 hours of age.

Treatment of Starvation

Treatment should begin with revival if the lamb is too weak to suck. In this case, feeding with a stomach tube may be necessary. Subsequent treatment depends upon the source of the problem, of which there are several possibilities. The accompanying chart on page 5 outlines these possible problems in a manner which should lead you to a solution.

Intensive Care

Lambs which have been severely stressed by hypothermia or starvation will require a day or two of intensive care. A lamb which is still weak after treatment cannot be simply returned to the ewe. It will not suck and is at risk of being injured in the confinement of the claiming pen. The ewe may also fail to accept a young lamb which has been kept from her for a significant length of time.

A disposable cardboard box or an 8 to 10 inch partition in the corner of the (preferably enlarged) claiming pen prevents injury but allows the ewe to smell the lamb. A heat lamp placed 4 feet above the lamb should provide enough heat to warm it without risk of overheating. Small frequent feedings by a stomach tube may be necessary until the lamb gains enough strength to nurse.

Summary:

Hypothermia and starvation are the two principal causes of early lamb mortality and may result in losses of 5-20% of lambs born alive. The recognition and treatment of these two problems will return significant dividends.

TROUBLE SHOOTING CHART FOR STARVING LAMB