Lambing

Lambing Part 4 – Ensuring Survival of Newborn Lambs

Phil Scott DVM&S, DipECBHM, CertCHP, DSHP, FRCVS

The average number of lambs weaned from lowground flocks in the UK is around 155 lambs per 100 ewes put to the ram. The average scanning percentage in these flocks is often over 200 per cent.

Fig 1: The average number of lambs weaned from lowground flocks in the UK is around 155 lambs per 100 ewes put to the ram.

Lamb deaths from birth to three day-old in the majority of UK flocks ranges from 10 to 25 per cent which represents 2 to 6 million dead lambs annually and is a great financial loss to farmers.

In well-managed flocks, vaccinated against toxoplasmosis and enzootic abortion (or EAE-accredited flock), lambing indoors (or outdoors during good weather) the target perinatal lamb mortality figure should be less than 7 per cent; with 5 per cent achievable.

- Average scanning percentage is more than 200%
- Average weaning percentage is around 155%
- Average perinatal mortality is around 10-25%
- Achievable perinatal mortality around 5%

Factors affecting perinatal lamb mortality include:

- Farm management especially nutrition
- Level of flock supervision
- Infectious diseases

Fig 2: Correct ewe nutrition during pregnancy is essential to reduce lamb losses.

Key factors of flock nutritional management affecting perinatal lamb mortality are:

- lamb birthweight
- ewe body condition score
- colostrum accumulation in the udder at lambing

These factors remain fundamental to ensuring a good start for the lamb during the critical first 36 hours of life. Perinatal lamb mortality is an area where veterinary advice can have a major impact in terms of flock production and profitability and, importantly, welfare of the flock.

The direct influence of dam energy undernutrition during late gestation on reduced lamb birthweights and inadequate accumulation of colostrum in the udder was established more than 40 years ago. Many studies have found significantly higher lamb deaths in the progeny of underfed ewes with the effects greater in triplet than twins lambs; singletons were largely unaffected by dam nutritional status (See NADIS bulletin December 2007).

Litter size

In UK lowground flocks, ewes produce

- Singles approximately 15 per cent
- Twins approximately 65 per cent
- Triplets approximately 20 per cent

Fig 3: About one quarter of ewes have triplets - these lambs are at greatest risk if the ewes have not been fed correctly during late pregnancy.

These lambing statistics are influenced by breed, parity and nutrition at tupping time (flushing).

Lamb birthweights

Optimum lamb birthweights using a Suffolk or other terminal meat breed sire crossed onto a F1 hybrid female (eg Greyface, or Scottish Halfbred) are:

- Single 5.5 to 7.0 kg;
- Twins 5.0 to 6.0 kg;
- Triplets greater than 4.0 kg.

(Note that liveweight measurements for the hybrid ewes listed above range from 70 to 85 kg).

Fig 4: Single lambs typically weigh 5.5 to 7 kg.

Recording birthweights

Lamb birthweight changes little within the first 24 hours therefore all lambs born within the previous 24 hours can be weighed to provide a representative population sample during on-farm investigations. Lamb birthweights more than 1.0 kg lighter than those quoted above are strongly suggestive of chronic ewe undernutrition during late gestation. Ewe condition scores must also be checked with low values consistent with poor energy supply.

Hill breeds in the UK, such as the Scottish Blackface (liveweight measurements range from 45 to 65 kg), will have birthweights 1 to 1.5 kg lighter than those stated above.

Ewe body condition score

Ewe body condition scores (see prelambing bulletin) are low (2.0 or less; scale 1 to 5) when late gestation nutrition has been inadequate for more than two weeks. Where the flock is managed as one group, low body condition scores are most noticeable in multigravid ewes especially those ewes with three or more lambs in-utero. Where feeding of the whole flock started on the same date, later-born lambs typically have heavier birthweights due to a longer period of dam supplementary feeding.

Flock problems such as parasitic gastroenteritis and fasciolosis can lead to low body condition in a large percentage of ewes and this problem is exacerbated by litter size. Lambs are smaller than normal even with prompt treatment and supplementary feeding.

Fig 5: Sub-acute fasciolosis causing poor ewe body condition - lamb birthweights are lower than normal.

Hungry lambs within the first 24 hours of life

After the normal enthusiastic teat-searching behaviour immediately after birth, these lambs make only pathetic attempts to suck. These lambs quickly become gaunt with a hunched up appearance with all four limbs held on the same spot.

Fig 6: Hungry lambs quickly become gaunt with a hunched up appearance with all four limbs held on the same spot.

Fig 7: Hungry lambs are easily spotted and must be attended to immediately by the shepherd.

If neglected, the lamb's condition may progress to coma and death but this may take two to three days during which time they should be detected by the shepherd and fed accordingly. Coma and death can occur more rapidly in starved lambs exposed to severe weather conditions. In many situations, lambs which have failed to ingest sufficient colostrum (protective immunoglobulins) succumb to infectious disease such as watery mouth disease or septicaemia.

Birth injuries

Lack of oxygen and trauma during the birth process can be a contributing factor to lamb losses. Typical examples may be anterior presentation with either unilateral or bilateral shoulder flexion (hung lambs). Such lambs may present with considerable swelling of the head when it is lodged within the maternal pelvis.

The most common skeletal injury is fracture of a number of ribs along one side of the chest when a large lamb is delivered in posterior presentation. These lambs show an increased respiratory rate with painful chest movements. The chest wall is flat instead of convex.

Meconium staining of the lamb's fleece

Meconium staining of the fleece is an indication of a stressful birth and such lambs require special attention to ensure they suck quickly.

Colostrum ingestion

Colostrum in the lamb's abomasum immediately caudal to the costal arch can readily be detected by gentle palpation. This can be undertaken in the standing lamb or after the lamb has been held up by the thoracic limbs.

Fig 8: Colostrum in the lamb's abomasum can readily be detected by gentle palpation.

Fig 9: Colostrum in the lamb's abomasum can be palpated after the lamb has been held up by the thoracic limbs.

The gastrointestinal tract of the newborn lamb is empty and it should be easy to detect whether the lamb has ingested up to 500 mls of colostrum (more than 10 per cent of its bodyweight). Abdominal distension does occur in watery mouth disease but affected lambs are usually 24 hour-old and should not be confused with colostrum ingestion by lambs within the first few hours of life.

Ensuring the lamb's best start in life

There are three critically important events which must happen to ensure that newborn lambs have the best chance of survival.

- Lambs must be born into a clean environment to an attentive dam with a good colostrum supply
- The lamb must ingest sufficient colostrum (200 mls/kg) during the first 24 hours of life, and 50 mls/kg within the first 2 hours, if not sooner
- The navel must fully immersed in strong veterinary iodine BP within the first 15 minutes of life, and this procedure repeated at least once 2 to 4 hours later.

Fig 10: Good maternal behaviour is important to ensure a good start to the lamb's life.

1 ***Clean environment***

Poor hygiene standards can increase the prevalence of infections of lambs (watery mouth, joint ill, navel ill) and their dams (mastitis and metritis).

2.***Colostrum ingestion***

The lamb must ingest sufficient colostrum (200 mls/kg) during the first 24 hours of life and 50 mls/kg within the first two hours, if not sooner.

If the lamb has not sucked colostrum then some assistance is necessary and various methods are employed:

Restrain the ewe and gently put the teat into the lamb's mouth at the same time as gently expressing some colostrum onto the lamb's tongue to encourage sucking

Fig 11: Restraint of the ewe while the lamb is guided to the teat.

Sit the ewe on to her hindquarters and lay the lamb on its side, then put the teat into the lamb's mouth at the same time as gently expressing some colostrum onto the lamb's tongue to encourage sucking

Encourage the lamb to suck colostrum stripped from either the dam, another ewe, or bovine colostrum from a bottle and teat

Fig 12: Feeding ewe colostrum from a bottle and teat.

Administer colostrum stripped from the either dam, another ewe, or bovine colostrum via a stomach tube. Colostrum is very viscous and it may prove necessary to dilute the colostrum with warm water so that it will easily flow through the stomach tube. Alternatively, a 50 to 60 mls syringe can be filled then discharged through the stomach tube.

Ingestion of colostrum is the single most important event in the lamb's life. Immunoglobulins in colostrum afford specific protection against clostridial and other diseases depending upon dam vaccination status, as well as non-specific immunity. Colostrum is an essential source of energy, minerals and vitamins, as well as possessing laxative properties. Despite the importance of colostrum in ensuring the health of the neonatal lamb, studies have consistently shown that many lambs, particularly triplet and small birthweight lambs, do not suck sufficient colostrum during the first few hours of life.

Fig 13: Administering cow colostrum via a stomach tube

Treatment of comatose lambs

Treatment of comatose lambs is divided into two age groups; either less or more than 6 hours-old.

Treatment of comatose lambs less than 6 hour-old

Coma should not arise in lambs less than 6 hour-old unless the lambing flock has suffered adverse weather conditions. This situation occurs most commonly in the UK when ewes lamb outdoors during severe weather conditions, and in hill flocks which lamb outdoors where there is no supervision during the hours of darkness.

Hypothermic lambs less than 6 hour-old do not require intraperitoneal glucose injection because the lamb is born with considerable reserves which can be mobilised to produce glucose.

Fig 14: Diligent shepherding will identify cold hungry lambs long before they become comatose even during adverse weather conditions.

The lamb in a placed in a warming box with the thermostat set at 45°C. Colostrum should be stomach-tubed at a rate of 50 mls/kg once the lamb has been warmed and can maintain sternal recumbency. If there is insufficient ewe colostrum, it is possible to use cow colostrum pooled in advance from more than four dairy cows previously vaccinated with a multi-component sheep clostridial vaccine preparation 3, 6 and 10 weeks prior to calving. Proprietary colostrum supplements are available but are costly.

Artificial milk replacers should not be used for the first feed, but can be used after the first feed to save colostrum stores. Electrolyte solutions contain very little energy (as little as 15% of daily requirements) and should be used for treating neonatal diarrhoea only.

Treatment of comatose lambs more than 6 hours-old

Diligent flock supervision should quickly detect all hungry lambs which can then be fed and should recover uneventfully long before becoming comatose. Starvation of 24 to 48 hours' duration exhausts glycogen and brown fat reserves and the lamb becomes hypoglycaemic and hypothermic.

Fig 15: Two day-old lamb which has died of starvation and hypothermia - note that any brown fat surrounding the kidney has already been metabolised.

This metabolic crisis can be corrected by intraperitoneal injection of 25 mls of 20 per cent glucose solution followed by placing the lamb in a warming box with the thermostat set at 45°C. It is essential that the intraperitoneal injection is administered before the lamb is placed in the warming box. The lamb must be regularly checked if the box does not have a thermostat to prevent overheating.

Intraperitoneal injection

The lamb is suspended vertically by the front legs. The 19 gauge 25mm long needle is introduced through the body wall 2 to 3 cm to the side of the navel and 2 to 3 cm caudal. The needle point is directed towards the lamb's tail head. The solution is slowly injected in to the body cavity once the needle has been introduced up to the hub. The recovery of hypothermic and hypoglycaemic lambs takes 30 to 60 minutes.

Fig 16: Intraperitoneal Injection(from http://www.flickr.com/photos/baalands)