

Protection for newborn lambs, including colostrum management

The turn of a new year means the lambing season is almost upon us again, and shepherds and animal keepers will need to do all they can to protect newborns in their most difficult days of life. Here, the author covers key topics, including hygiene and nutrition.

LOUISE SILK

MA, VetMB, MRCVS, studied at the University of Cambridge and has worked as a farm animal assistant at the Endell Veterinary Group, Salisbury for the past four years. Her main interest lies in sheep health and production and she is studying for a postgraduate certificate in this subject.



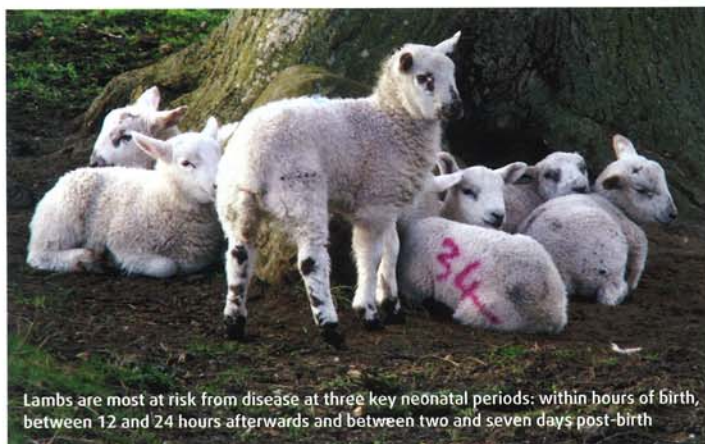
the neonatal period is when the risk of disease and potential lamb losses is at its highest. With the lambing season nearly on us, it is time to start thinking about how we can encourage shepherds to do all they can to protect newborn lambs.

Three major risk periods exist: within hours of birth, between 12 and 24 hours after birth, and between two and seven days post-birth. Each has its own disease issues.

The major problem within the first few hours is the risk of hypothermia, the biggest cause of mortality in very young lambs. In the 12 to 24-hour period, hypoglycaemia (low blood glucose levels) and watery mouth disease become the predominant causes of mortality. As we move into the later stages of the neonatal period, clostridial diseases, such as lamb dysentery, enteritis and neonatal septicaemia, are the biggest issues, as well as accidental death and starvation. With each disease challenge, a number of strategies can be adopted to help prevent neonatal losses, and these will be covered in detail.

Colostrum management

Lambs are born without any immunity as the placenta in the ewe does not allow any maternal antibodies (protective immunity) to cross into the lamb while it is in the uterus. Colostrum is the first milk produced by the ewe and contains antibodies against many major pathogens (disease-causing organisms). The



Lambs are most at risk from disease at three key neonatal periods: within hours of birth, between 12 and 24 hours afterwards and between two and seven days post-birth

gut of the newborn lamb is permeable to these antibodies in the first six hours after birth, and then becomes less permeable up until 12 hours after birth, after which no more antibodies can pass through the gut of the lamb into its bloodstream. It is essential the lamb receives 50ml colostrum/kg of bodyweight as soon as possible after birth, but certainly within the first 12 hours (ideally, within the first six hours) to ensure the antibodies (immunity against disease) are taken up into the lamb's bloodstream. This will provide the lamb with a protective immunity against most of the major disease challenges it will face in the first few weeks of life. Any lamb that fails to feed on its own within the first six hours of life should be fed colostrum – ideally from its own mother by the shepherd via a stomach tube.

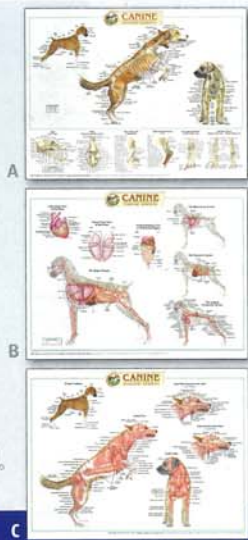
The natural immunity that is transferred from the ewe to neonatal lamb can also be enhanced through the use of vaccination in the ewe. Some diseases (clostridial ones and *Pasteurella* pneumonia in particular) have little or no natural immunity in the ewes. It is,

therefore, essential the ewes are vaccinated not only to protect them against these acute and fatal diseases, but also to ensure immunity is passed on in the colostrum to protect the lambs. Administering the booster vaccination dose to the ewe in the four to six weeks pre-lambing will maximise the protective immunity that will be transferred to the lambs via the colostrum. Most clostridial disease vaccination programmes involve an initial course of two doses of vaccine four weeks apart, followed by an annual booster dose. The immunity obtained via the colostrum will last until the lamb is old enough to start on the initial vaccination course itself, usually at around three to four weeks of age.

Colostrum is not only important for the role it plays in providing protective immunity to the neonatal lamb, but also in the provision of nutrition. Lambs are born with a finite quantity of brown fat within their bodies. This brown fat is unique to newborn mammals and is used by the lambs in the first few hours of life to keep warm. This is a protective mechanism that forms a stopgap bet-

6

CHART ORDER FORM		
Chart title	Qty @£39.99	Amount
(A) CANINE skeletal		£
(B) CANINE organs		£
(C) CANINE muscular		£
(D) FELINE skeletal		£
(E) EQUINE skeletal		£
Subtotal		£
Deduct 10% if order is for 3 or more charts		
Subtotal		£
Add VAT @20%		£
Post and packing		£5.00
Order total: Please charge my Debit/Credit card with:		£
MasterCard/ Visa		
Expiry date / Valid from / CSC	Name on card	
Name and address		
Post Code		
Tel		



Increase your knowledge with these fantastic anatomical charts!

ANIMAL HEALTH ADVISOR has acquired a limited stock of these superbly detailed annotated charts, originally produced by the Anatomical Chart Company.

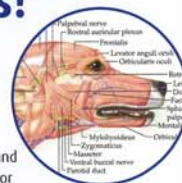
Unavailable in the UK for many years, they are sure to create a great focal point in your premises or on your staff room wall. Subjects available:

- > Canine Skeletal
- > Canine Organs
- > Canine Muscular
- > Feline Skeletal
- > Equine Skeletal

All charts measure 20 x 26" and are printed in full colour and laminated for durability and hygiene.

Each anatomical chart costs £39.99 (plus VAT). Orders for three or more charts qualify for a 10% discount.

Don't miss out on this opportunity to acquire these previously unobtainable charts!



Reader Offer



Navels should be dipped in strong iodine solution to prevent disease

between birth and the time when the lamb is able to feed. Any lambs that do not feed within the first few hours after birth will soon run out of energy reserves to keep warm and will die rapidly from hypothermia and hypoglycaemia.

Clearly, several factors exist that can influence whether the lamb receives this important source of nutrition and passive immunity:

- poor nutrition in ewes resulting in low quality and/or quantity of colostrum, as well as low birthweight lambs with poor viability;
- illness in the ewe;
- immature ewes resulting in poor maternal bond;
- dystocia (lambing difficulties) resulting in ewe failing to stand postpartum or trauma to the lamb;
- mineral/trace element deficiencies in the ewe, resulting in poor lamb viability;
- infectious disease in the ewe (toxoplasmosis, illness caused by *Campylobacter* and the Schmallenberg virus), resulting in poor lamb viability; and
- lamb illness (infectious disease, such as watery mouth).

Many of the aforementioned factors are not only the cause of failure to ingest colostrum, but also issues that, on their own, can result in neonatal problems and subsequent death. The majority of these factors, however, can be significantly reduced or eliminated by careful flock management.

Environmental hygiene

One of the main risk factors for some diseases is poor environmental hygiene. Such diseases include *Escherichia coli* septicaemia, also known as watery mouth or rattle belly. *E. coli* is a bacterium found in the faeces of all sheep. The higher the stocking density and poorer the environmental hygiene in the lambing environment, the greater the number of bacteria present and, therefore, the higher the disease risk. Ensuring good environmental hygiene is essential to prevent disease in neonatal lambs. Lambing pens should ideally be cleaned

out fully between couples and disinfected before clean, fresh straw is added. All placental material should be removed from the environment, and stocking densities in both indoor and outdoor systems checked. Inevitably, as the lambing season progresses, the burden of pathogens within the environment will increase.

The risk of disease will, therefore, increase. If necessary, preventive treatment strategies can be introduced towards the end of the lambing period if disease outbreaks occur.

Navel dipping

The navel is the easiest point of entry for pathogens into the body of a neonatal lamb. Dipping the navel in strong iodine solution is strongly recommended to kill bacteria around that area, as well as to speed up the rate at which the navel dries up. This will reduce the risk of entry of bacteria from the environment.

Provision of shelter

In general, sheep are particularly resistant to cold weather, and even newborn lambs can maintain body temperature in conditions below freezing, as long as they are dry and well nourished (McCutcheon et al. 1983). Keepers of outdoor lambing flocks should be advised to provide some areas of shelter within their lambing paddocks. Hedges, or even temporary use of straw bales as windbreaks, can make the difference between life and death. In an indoor lambing system, it is important to ensure the lambing pens are free from draughts.

Ewe nutrition

Nutrition in the ewe is one of the single most important factors in ensuring healthy, thriving newborn lambs. Ensuring the ewe has sufficient energy and protein intakes in the final weeks of pregnancy will not only result in strong thriving lambs, but also maximise the quality and quantity of colostrum produced. Equally important is the energy and protein intake in the first few weeks of lactation. In spring-born lambs, this is usually provided entirely by grass, but in early lambing flocks that spend the first few weeks of life indoors, provision of conserved forage and concentrate feed is essential.

Scanning the ewes mid-pregnancy will identify any carrying multiple lambs, allowing special attention to be paid to these groups as pregnancy progresses. Forage analysis can be used to assess the quality of the feed provided and identify where supplementation is required. Body condition scoring should be carried out on ewes at regular intervals throughout the year – including at several points during pregnancy – to monitor their nutritional status and allow adjustments to be made to feeding protocols as necessary.

Mineral and trace element deficiencies can also influence lamb viability. Iodine deficiency in the ewe, for example, is known to cause lamb stillbirths.

Deficiency in selenium in ewes causes poor lamb viability, resulting in weak, unthrifty lambs that are more likely to die in the neonatal period. Regular monitoring of the flock's mineral and trace element status can help to identify deficiencies before they become a problem.

Ewe health

Prevention of twin lamb disease, as well as postpartum uterine infections, is essential to ensure ewes are fit and well post-lambing to feed and nurture their lambs. Twin lamb disease can be prevented through adequate ewe nutrition in the run up to lambing, as well as by ensuring the ewes are in the correct body condition when they give birth. This is achieved through careful management throughout the winter months.

Uterine infections tend to be more prevalent following a difficult lambing, or as a result of poor personal hygiene of the shepherd at lambing. It is important to always wear clean gloves when assisting a ewe and be clean at all times. A good stockman will recognise when a malpresentation can be corrected easily or when the problem is beyond his or her capabilities and help is required. Making the correct decision quickly will reduce the trauma to the ewe and increase the chances of a successful outcome.

It can be seen that protection of the newborn lamb generally can be achieved through good management of the flock, not only during the lambing period but all year round. Good ewe health and nutrition, as well as appropriate colostrum management and environmental and personal hygiene, form the cornerstones of a successful lambing season.

References

- Haughey K G (1993). Perinatal lamb mortality – its investigation, causes and control, *Irish Vet J* **46**: 9–28.
- Huffman E M et al (1985). Factors associated with neonatal lamb mortality, *Theriogenology* **24**: 163–171.
- McCutcheon S N et al (1983). Resistance to cold stress in the newborn lamb, *NZ J Agric Res* **26**: 169–174.
- Sargison N (2008). *Sheep Flock Health: A Planned Approach*, Blackwell Publishing.
- Robinson J J et al (1999). Nutritional effects of foetal growth, *Anim Sci* **68**: 315–331.

Even newborn lambs can maintain body temperature in conditions below freezing, as long as they are dry and well nourished.

Good hygiene in the lambing environment, particularly the individual pens, is key to lamb survival

