



Keeping Lambs Alive

Introduction

Hybu Cig Cymru/Meat Promotion Wales (HCC) was established in April 2003 and is the strategic body for the promotion and development of the Welsh red meat industry. Its mission is to develop profitable and sustainable markets for the benefit of all stakeholders in the supply chain.

It brought together the red meat activities of three organisations, namely the Meat and Livestock Commission in Wales (MLC Cymru), Welsh Development Agency and Welsh Lamb and Beef Promotions Ltd. Each organisation was responsible for different aspects of red meat activity, which have now been integrated into HCC's work.

HCC is now the sole body for the promotion and development of red meat in Wales.

This booklet forms part of a series of publications produced by HCC's Industry Development Team.

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Keeping Lambs Alive

Increasing industry productivity and efficiency within the sheep sector is a key Hybu Cig Cymru objective. This booklet summarises the current knowledge about keeping lambs alive at lambing time.

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A hill shepherd in Cumberland, farm animal veterinary practitioner in the West Country, senior lecturer in animal health at Seale-Hayne Agricultural College and senior field researcher with a major pharmaceutical company are posts David held prior to becoming Head of the Division of Clinical Studies & Director of Farms at the Moredun Research Institute in Edinburgh. Since his retirement in 1999 he has been working as a consultant in sheep health matters and is currently a member of the Farm Animal Welfare Council.

The importance of pre-lambing preparation

Introduction

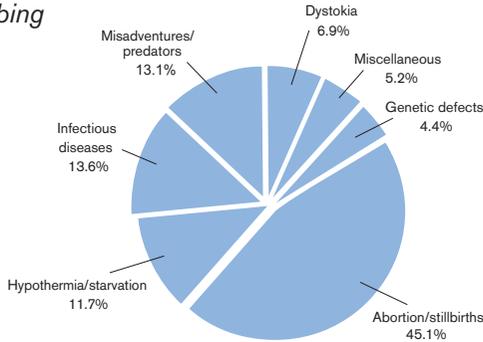
Some loss of lambs around lambing time is unfortunately, unavoidable in any flock. However, the level of these losses in some flocks is unacceptably high, especially since the majority of lamb deaths are avoidable if sound husbandry, health measures and skilled shepherding are employed.

The aim of this booklet is to provide guidelines on how to reduce such losses and thereby improve the welfare of the animals and the productivity and the profitability of the flock.

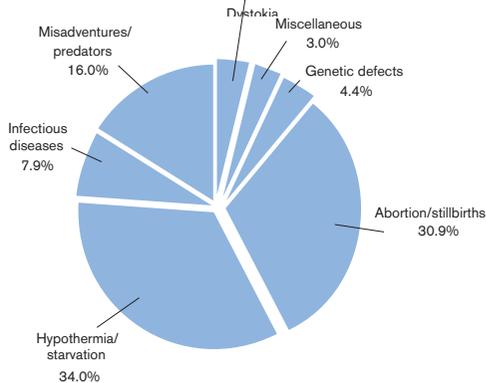


Relative importance of different causes of different causes of lamb deaths (%)

Lowland Spring Lambing



Hill lambing flocks



Pre-mating

Abortion not only causes the death of lambs before term, but enzootic abortion and toxoplasmosis are also responsible for the birth of the small, weakly lambs which are particularly susceptible to hypothermia and the other life threatening diseases of early life. Where these infections pose a threat, vaccination is possible, but this must be carried out between weaning and mating and no later than one month before the rams are put out with the ewes.

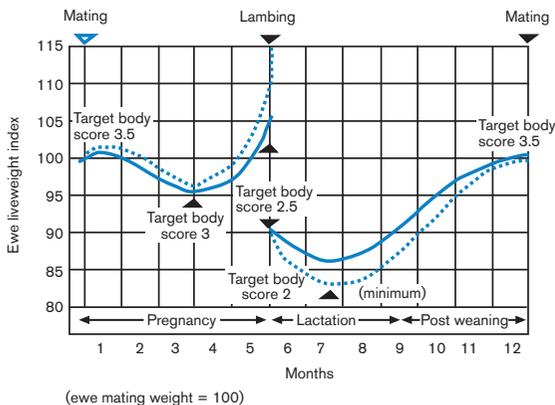


Pregnancy

Surveys of lamb mortality have shown that around two thirds of deaths are due to conditions which have their origins during pregnancy rather than around the actual time of lambing.

Optimal growth of the **placenta** (afterbirth) is critical to lamb survival and growth since it influences the birth weight of lambs. Also, the hormones it produces affect the yield of colostrum and milk and influence the mothering ability of the ewe. Do not overfeed during the early and mid-pregnancy periods, (although a modest drop in condition score in mid-pregnancy is acceptable).

Condition score (CS) ewes whenever the opportunity arises. Separate out thin ewes for preferential feeding or treatment (e.g. for liver fluke). The aim is to have lowland ewes in CS 3 and hill ewes in CS 2 at the end of the third month of pregnancy.



Condition score and ewe liveweight index through pregnancy

Pre-lambing preparation

Splitting the flock into early and late lambing groups will assist with appropriate feeding and will also help break the chain of infection.

Shelter for outdoor lambing flocks is necessary whether it is a straw bale construction or access to woodland for hill ewes brought down into enclosures.

For indoor lambing flocks an adequate number of **lambing pens** should be constructed, one per eight twin bearing ewes, of appropriate dimensions for breed. Both lambing and group pens should be liberally bedded with straw and well drained since this will greatly reduce the level of infection as lambing proceeds.

Close confinement indoors or in paddocks for lambing mean the risk of spread of footrot is increased. It is important that this infectious disease is controlled before ewes enter the lambing quarters since one of the organisms responsible is a frequent cause of liver abscesses in lambs (via the naval) which is inevitably fatal.

Vaccination of ewes in late pregnancy will not only boost their own immunity to infection, but the antibodies produced are concentrated in colostrum and are crucial to lamb survival. All ewes should be routinely vaccinated against the clostridial infections and against pasteurellosis. A booster injection (for previously vaccinated ewes) is best administered approximately one month before lambing. In flocks with an extended lambing (longer than a month), early and late lambing ewes should be vaccinated at the appropriate time, otherwise late born lambs may not receive sufficient antibodies to protect them adequately against the killer diseases of early life, such as lamb dysentery or tetanus.

Lambs which consume sufficient colostrum early enough after birth should be protected against the clostridial diseases for around three to four months, but against pasteurellosis for only three to four weeks. Lambs may therefore need to be vaccinated where a more prolonged period of protection is required.

Veterinary advice should be sought on vaccination policy generally and, in particular, where there is a need to protect against specific diseases which may afflict a particular flock; for example, against erysipelas which causes a crippling arthritis (joint-ill) in lambs and which responds only poorly to treatment.

A list of materials required around lambing time is given on the back page.

The lambing period

Hospital Facilities

Separate hospital quarters are essential in any flock. If used properly, they give some protection against the spread of infectious disease by isolating sick animals from healthy ones and also provide a more suitable environment where lambs can be given intensive care, for example, following recovery from hypothermia.



Moredun type aftercare unit and warming box



The hospital area should be separate from the main lambing area and indoors where the flock is lambing outdoors. Shepherds should change overalls and boots after working in the hospital area and disinfect appropriately before going back to the main flock. Hot water should be available and the area should be well lit with power points for supplying a lamb-warming box and infrared lamps. A simple Moredun type after-care unit should be assembled using cardboard boxes to accommodate sick lambs since they can be destroyed between patients.

Lambs, which are to be artificially, reared or adopted should be healthy and should **not** therefore be kept in the hospital area.

Attending to the lamb's needs

Having survived the birth process lambs remain very vulnerable, particularly if they have had a prolonged or difficult delivery. There are some tasks, which must (and others, which must not) be carried out soon as possible after the birth.

Whether indoors or outdoors, the lamb's naval cord must be treated immediately to disinfect and, most importantly, to dry it and cause it to shrivel up. This will prevent micro-organisms tracking along the cord, entering the body and causing infection in the liver, joints, spinal cord, brain or elsewhere usually with serious or fatal consequences. Many products are sold for this purpose, but the only one which satisfies the criteria above is Tincture of Iodine BP, which is a solution of iodine in absolute alcohol - accept no substitute. The solution is best applied by means of an anti-spill teat dip cup (for dairy cows) the contents being discarded and replaced with fresh at least daily. Examine the naval a few hours after treatment to see if it has dried up - if not it should be dipped again.

Taking an adequate feed of colostrum as soon as possible after the birth is the single most important thing a lamb will do in its whole life – its survival depends on it. Colostrum is the lambs' only source of energy once the supplies of brown fat within its body tissues are exhausted (after only a few hours). Colostrum therefore enables the lamb to run around and follow its mother and protects it from becoming hypothermic (chilled) which is the single most important cause of death. Equally important, antibodies against many of the life threatening diseases of early (and later) life are concentrated in colostrum during the last few days of pregnancy. These are the lambs' only source of protection against infection. It is important that colostrum is taken early since it is only during the first few hours of life that these protective antibodies can pass through the gut wall and into the bloodstream and hence be transferred all over the body to where they are needed (e.g. to the lungs to protect against pneumonia).

Colostrum requirements of lambs

| Size of lamb | Example rearing type | Colostrum Requirement |
|--------------|-----------------------|-----------------------|
| Large lamb | Average single (5kg) | 250 ml/feed 3 x daily |
| Medium lamb | Average twin (4kg) | 200 ml/feed 3 x daily |
| Small lamb | Average triplet (3kg) | 100 ml/feed 4 x daily |

It is therefore the shepherd's single most important task to ensure that lambs' consume adequate colostrum soon after birth. Premature lambs, small lambs, lambs compromised during the birth process, lambs born to young inexperienced ewes or older, thin or sick ewes or ewes which have been fed inappropriately, twins and triplets which have to compete for a teat, are all vulnerable and will need close and frequent shepherding.

Where there is any suspicion that a lamb has not received a bellyful of colostrum within the first two or three hours of life then they must be supplemented by stomach tube. Colostrum from the lamb's mother or another ewe in the flock is best. Alternatively cow colostrum, preferably pooled from cows vaccinated against the clostridial diseases can be used, as can the colostrum from goats which are free from CAE (caprine arthritis encephalitis).

There are available a number of easy to prepare colostrum replacer products, especially those containing antibodies from appropriately vaccinated ewes. They provide instant energy and protection against disease, thereby giving vulnerable lambs a fighting chance of survival. They are well worth the cost involved considering the potential value of these lambs.

It is clearly important to establish why the lamb did not get a feed from its mother and to ensure the lamb is not returned to its dam if she is unable or unwilling to nurse it, for example, because of mastitis. Lambs must have a full day's quota of colostrum if they are to survive and thrive.

The use of rubber rings for castration and tailing is restricted by law to the first week of life. However, it is a painful procedure, which should not be used during the first day of life since it may discourage lambs from sucking vital colostrum and therefore predispose it to diseases such as watery mouth. Never ring lambs, which are sick and always wait until the weather is reasonable. Careful thought should be given as to whether it is necessary to castrate male lambs at all.

Summary of legislation relating to castration of lambs

| Age of Animal | Conditions | Persons who may perform | Anaesthetic |
|--------------------|--|-------------------------|-------------|
| First week of life | Rubber ring or device to constrict the flow of blood to the scrotum | Unqualified* | Without |
| Up to 3 months | Other than rubber ring or device to constrict the flow of blood to the scrotum | Unqualified* | Without |
| 3 months and over | | Veterinary Surgeon | With |

* Operation may be performed by a person aged 18 or over, or aged 17 and undergoing animal husbandry training and supervised by a veterinary surgeon or recognised institution.

Assistance at lambing

The aim should be to provide maximum supervision to lambing ewes with the minimum of interference. Most ewes which have been bred wisely and managed well throughout pregnancy (i.e. have been fed appropriately to the number of foetuses present) should give birth to lambs of a reasonable size. Few such ewes should require assistance during the lambing process, but below are listed some of the situations where an examination or assistance from the shepherd may be required.

Before any internal examination is attempted, make sure everything you may need is close by.

Knowing when to assist during the lambing process

- When a ewe has been straining for an hour or more, but there is no sign of a lamb at the vulva.
- When part of a lamb is visible and the ewe has been straining for some time without making any headway or has given up straining.
- When part of a lamb is showing to indicate an abnormal presentation (e.g. tail or a head but no forelimbs).
- When the ewe is straining and is wet behind (indicating the water bag has burst), but is making no progress.
- When a ewe has lambled one or more offspring, but is still uneasy.
- When a ewe has been uneasy for a prolonged period, but is not straining regularly, or afterbirth is showing, or the rear end is bloodstained.

Cleanliness is essential and copious **lubrication** is vital to be able to manipulate the position of lambs and withdraw them while causing minimal damage to the lambs and to the ewe's reproductive tract.

Both ewe's birth canal and the lamb are very delicate and any examination or manipulation should be carried out with the greatest of care. If an examination reveals a normal lambing is in progress, be patient and allow the ewe to lamb on her own. If a manipulation is required, gently return the lamb to the womb (uterus) - never attempt to do this in the birth canal. If you cannot correct the problem within about five minutes, stop and seek veterinary assistance. Ewes which have difficulty lambing are less likely to nurse their lambs successfully and lambs which are injured during the birth process are likely to be slow to suck and more prone to chilling and infection.

Where assistance has been given at lambing, always inject the ewe with antibiotic and keep them close by for frequent observation. Always check that the ewe has colostrum for her lambs, if not act promptly

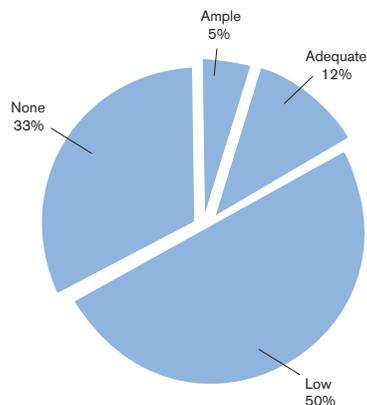
Chilled lambs - hypothermia management

Lambs from well-fed ewes are born with a supply of special (brown) fat, which is metabolised immediately after birth, producing heat and energy, to get the lambs going. It is used up within a few hours, so if the lamb does not receive colostrum, then its body temperature will fall (hypothermia) and it will surely die if it is not spotted and cared for.

Cold weather, but particularly the combination of wind and rain, will chill lambs very rapidly (exposure). Lambs born indoors are also susceptible to hypothermia through exposure, but may take longer to die. However, providing a high standard of shepherding is employed, lambing indoors will allow closer supervision so that lambs in difficulty are spotted early and receive appropriate treatment.

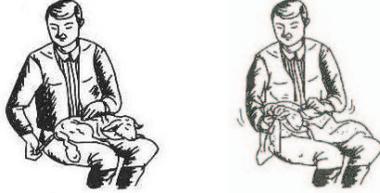
Colostrum absorption in dead lambs

Source: ADAS

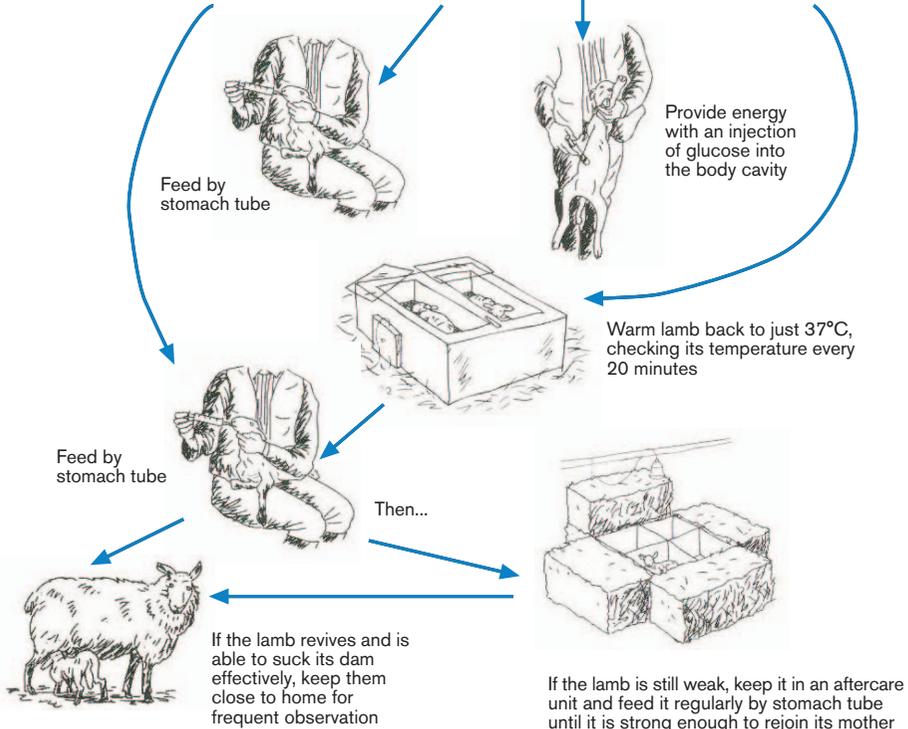


Detecting and dealing with hypothermic lambs

Any lamb which gives the slightest cause for concern should immediately have its temperature taken and be thoroughly towel dried, if wet



| Temperature | 37-39°C | | | Below 37°C | |
|-------------------|-----------------|-----------------------------|-------------------------------|-----------------|-----------------------|
| Age of lamb | Any age | | More than 5 hours old | | Less than 5 hours old |
| Condition of lamb | Able to swallow | Head up and able to swallow | Head up and unable to swallow | Able to swallow | |
| | | | | | |



Once all brown fat is used up, the lamb is entirely dependent on colostrum from its mother (or from the shepherd). Lambs which succumb to hypothermia when more than about six hours old, do so due to starvation. In flocks lambing indoors, all deaths due to chilling alone are avoidable and, providing adequate shelter is available in lowland outdoor lambing flocks, most are avoidable.

It is therefore the sheep farmer's responsibility to ensure the flock is adequately fed and that the shelter and other facilities are provided to minimise the risk of hypothermia. It is also their responsibility to ensure that shepherds are trained in modern shepherding techniques so that they can detect hypothermia cases early, decide where the problems lie and deal with lambs effectively.

Techniques which must be learned, include the use of a thermometer, stomach tube, warming box and, most importantly, the injection of dextrose (glucose) into the abdominal cavity. This latter technique is simple once learned, but professional tuition is essential in the first instance to instil confidence in the operator and protect the lambs from further harm. The supply of energy in this manner to starving, unconscious or semi-unconscious lambs before they are warmed in a box is vital to their survival (such lambs cannot be given energy in the form of colostrum by stomach tube since they cannot swallow).

It is crucially important that a competent person is given the responsibility for the aftercare of lambs compromised in this way otherwise many will recover only to relapse and die through neglect.



Glucose injection into the body cavity

Dealing with disease

Outbreaks of disease do occur from time to time, but especially where the flock has been incorrectly fed during pregnancy or where there is inadequate shepherding at lambing to ensure that all lambs receive sufficient colostrum immediately after birth and have their navels correctly treated.

When infection strikes (e.g. scour), if possible separate off ewes yet to lamb and move sick lambs and their dams to a hospital area where they can be given extra attention. Seek professional advice early as to the correct diagnosis and best course

of action. For example, scouring lambs need rehydrating and keeping warm more urgently than they need antibiotic. Remember that hospital areas will become heavily contaminated and should be cleaned up frequently and copious bedding used. Disposable pens made of straw bales/cardboard boxes can be burned and replaced so reducing the risk.

Remember that many of the infectious agents causing abortion and scour are transmissible to humans (zoonoses). Pregnant women and young children should keep away from the lambing area and boots and overalls should not be brought into the farmhouse.

When infections strike in a flock a correct diagnosis will also assist in formulating preventive measures (e.g., correct feeding and/or vaccination) for future lambing, since prevention is always more successful than cure.

Some materials required around lambing

General:

- Vaccines (clostridial plus additional as necessary)
- Anthelmintics
- Prolapse retainers
- Treatments for pregnancy toxæmia and other metabolic diseases of ewes
- Materials for marking, tagging and recording
- Footrot spray
- Buckets
- Elastrator

For assisting the ewe at lambing:

- Hot water supply, soap, towel and mild antiseptic
- Lambing lubricant
- Lambing aid and soft ropes
- Antibiotic (on prescription from veterinary surgeon)
- Syringes and needles of appropriate size for both ewes and lambs

For care of newborn lambs

- Warming box and aftercare unit
- Tincture of iodine (BP) and dispenser
- Colostrum or replacer product
- Stomach tubes and syringes (50ml)
- Digital thermometer
- Dextrose (glucose) sterile solution
- Electrolyte (treatment for dehydration)
- Oral antibiotics
- Fostering equipment
- Ewe milk replacer
- Cardboard boxes
- Infrared lamps

Further information

Please contact HCC's Industry Development Team
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For further information on this brochure or the work of HCC please visit
www.hccmpw.org.uk