HYPOTHERMIA OF NEW-BORN LAMBS

The normal temperature of a lamb is 39-40°C, 102-104°F. When the temperature drops below this the lamb is hypothermic. This is best assessed with a thermometer (it pays to practice reading one), the digital models can make life a lot easier.

There are 2 causes of hypothermia

A) **Exposure** – especially wet new born lambs and in bad weather
B) **Starvation** – the lambs energy reserves have been used up, more common in twins or lambs from ewes in poor condition. The ewe has not been able to provide enough milk for the lamb.

Lambs that have starvation hypothermia, will have a low blood glucose. If this glucose level is not corrected before the lamb is warmed it is likely that the lamb will die from a fit during warming. Lambs suffering from starvation hypothermia tend to be weaker than those suffering from the exposure type of hypothermia.

All hypothermic lambs should be first dried. There are then 3 options to be considered: -

A) **Warming**
Ideally with warm air of 35-37°C, 95-99°F. Infrared lamps are not ideal, as there is a serious risk of skin burns and overheating. A wooden box of not less than 1.5 meter square and 1 meter high (to prevent overheating), with a domestic fan heater (1-3kW) will work well. Don't forget to provide insulation (i.e. paper sacks) underneath the lamb. Monitor the temperature of the box with a household thermometer, (clinical thermometers don't measure a fall in temperature). Check the lamb's temperature every 1/2hour and when it exceeds 37° remove the lamb from the warmer. Lambs will die if warmed to 41°C, 106°F.

B) **Stomach Tubing**
This should always be used when feeding new-born lambs. A bottle and teat is suitable only for strong orphan lambs. The technique is safe to use on lambs that can lie on their brisket and hold their heads up. It is best to get a stomach tube especially designed for this job with a 60ml syringe. This should be rinsed after each lamb and cleaned with detergent daily.

The Feed
By far the best food is ewe colostrum. Colostrum can be collected (from a ewe with a single or dead lamb) and frozen in small containers. Boiling destroys the essential antibodies, the colostrum should be warmed by placing it in a bucket of warm water.

Cow's colostrum is the next best thing and much easier to obtain. Commercial colostrum substitutes are available in some countries. Milk replacer or cows milk is not a substitute for colostrum.

Routine
3 times daily

Large lamb 5kg	200ml each feed
Medium lamb 3.5kg	150ml each feed
Small lamb 2.5kg	100ml each feed

Technique
Sit down with lamb on your lap, or between your legs.
Gently introduce the tube via the side of the mouth. If the lamb show signs of discomfort, start again. The tube can be felt with there now being 2 tubes in the neck – the stomach tube and the wind pipe. However , if the lamb shows no sign of distress the tube ***will be in the right place***.
Now either a) Attach the filled syringe and empty slowly (20sec)
Or b) Use the syringe as a funnel and allow gravity to let the colostrum flow
Remove the syringe and tube together.

C) Intraperitoneal Glucose Injection

Equipment
Sterile 50ml syringe
New 1 inch 19g needle (cream colour)
Glucose solution 20% or 40%
Terramycin spray or other disinfection for the injection site.
Dose –10ml per kg

Large lamb 5kg	25ml of 20% solution
Medium lamb 3.5kg	17.5ml of 20%solution
Small lamb 2.5kg	12.5ml of 20%solution

If using 40% solution withdraw one-half dose and dilute with recently *boiled* water. This will bring the solution to about the right heat. 20% solution needs to be warmed.

Technique
Shake the syringe to mix the contents and evenly distribute the temperature, check it is at blood heat.
Hold the lamb up by the front legs.
Prepare injection site by spraying with the Terramycin spray. This is half an inch to the side of the navel and 1 inch behind the navel.
Fully insert the needle with syringe attached aiming at the lamb's rump.
Empty the syringe
Dispose of the needle and boil the syringe before reuse.

Which Treatment When?

Consult the following table

Temperature	*Age*	*Treatment*
37-39°C 99-102°F	Any age	Dry the lamb Feed by stomach tube Give shelter with the ewe Check temperature again soon
Below 37°C, 99°F	0- 5 hours	Dry the lamb Warm the lamb in a warmer until the temperature recovers to 37°C Feed by stomach tube Return to ewe or transfer to 'weak lamb unit'
Below 37°C, 99°F	More than 5 hours and able to hold up its head	Dry the lamb Feed by stomach tube Warm the lamb in a warmer until the temperature recovers to 37°C Feed by stomach tube Return to ewe or transfer to 'weak lamb unit'
Below 37°C, 99°F	More than 5 hours and not able to hold up its head	Dry the lamb Give intraperitoneal injection of glucose Warm the lamb in a warmer until the temperature recovers to 37°C Feed by stomach tube Return to ewe or transfer to 'weak lamb unit'

Prevention is far better than a cure. Ewe condition is extremely important. Prompt use of the stomach tube will prevent many problems.

When dealing with twins consider removing both lambs from the ewe even if only one is weak. If they can be returned together it will avoid rejection problems.

If you intend to use any of the above techniques please prepare early. Cows colostrum should be collected and frozen and the equipment purchased.

Some Further Lambing Time Conditions.

Dystocia – this article is not intended to be a guide to lambing. The Veterinary Department would be delighted to assist with any difficult births. In order to get your ewe attended to as soon as possible we suggest that you bring her to the department rather than asking us to come out to your farm.

Umbilical Hernia – Occasionally the guts of the lamb will come out from a hole at its umbilical cord. Sometimes excess licking from the ewe can cause this. These lambs *can* be saved. Loosely wrap the lamb's abdomen with a clean towel and bring it down to the Department straight away. If the guts are broken it is unlikely that there will be a successful outcome.

Watery Mouth / Rattle Belly – Lambs suffering from this condition are miserable. Some will drool saliva (watery mouth) and others will have an enlarged stomach (which rattles if they are gently shaken). The condition is associated with intensive husbandry. Again these lambs can sometimes be saved. Contact the Department for advice.

Bloat

Abomasal bloat occurs in lambs being fed milk-replacer. Warm milk entering the abomasum (the 'true' stomach) provides the bacteria present (it is thought that Sarcinia ventriculi and Clostridial species are the main culprits) with an excellent environment for fermentation. Fermentation produces much gas which then causes the abomasum to expand. Lambs can become really distended within 1 hour of feeding and die quickly from abomasal rupture or from the extreme pressure on the organs of the abdomen and chest. Typical treatment includes using a trochar to release the trapped air but often it is too late for successful treatment so prevention is definitely better than cure.

Yoghurt containing Lactobacillus species ('good' bacteria) theoretically provides a stable environment in the abomasum that prevents the 'bad' bacteria colonising and multiplying in the gut. Lactobacilli are also said to improve immune function.

<u>Ideal early feeding strategy for artificially reared lambs</u>

On the day of birth try to give up to five feeds of colostrum if possible (ewes or cows) – about 600ml for a 4kg lamb (or 15% of the lambs body weight).

If you have fresh/frozen/powdered colostrum available then feed this on days 2-4 also. If lambs have had a feed of colostrum from the ewe they can go straight on to the yoghurt feed. If you have no colostrum and don't think the lamb will have had any from the ewe just start feeding the yoghurt on the day after birth and feed milk on the day of birth.

<u>Yoghurt recipe for small numbers of lambs (under 20)</u>

- Put 3L of warm water (40ºC) in a 9L bucket

- Add 1kg calf milk powder. Mix with an electric stick blender. They recommend calf milk simply because it is cheaper. You can use lamb milk powder if you prefer. Fresh cows milk is also fine to use as long as it has no antibiotic residues as these will kill the 'good' bacteria.
- Add 200ml of acidophilus yoghurt. Mix, then cover with a lid or sheets of news paper. The yoghurt produced at the Dairy contains acidophilus, make sure you get natural flavour. Lamb might not like strawberry!
- Keep the mix warm for the next few hours, if the air temperature is too cold the milk will take a long time to ferment. (They suggest using a brewer's mat that you can buy but not that many of us here make beer! Their other suggestion is putting the bucket in a polystyrene box with a lid with a hot water bottle as the heat source in the box. The airing cupboard may be another good warm spot).
- The yoghurt should set within 8-12 hours and may have a soft crust on top with some liquid at the bottom or may resemble thick commercial yoghurt.
- Top up with cold water to the 8L mark on the bucket and mix well. Feed in the same quantities that you would feed milk.
- Remove 200ml of this liquid yoghurt for use as the starter for the next batch.

Points to remember:

- Replace every milk feed with this 'soured'milk.
- Have a gradual transition from feeding warm to cold liquid yoghurt over a period of 4-5 days.
- Introduce the liquid yoghurt to lambs from 5 days of age, although it can be given to lambs from 2 days old if insufficient colostrum is available.
- Treatment is effective under either ad lib or set feeding regimes (eg 1-2 times a day)
- Treatment does not add a lot of extra expense.

Feed the lambs meal, hay and water along with the yoghurt but if you have decent grass for them to nibble that will be just as good as hay and meal. Make sure there is always a plentiful water supply.