Department of Agriculture
Farmnote

Rearing orphan lambs

Reviewed April 2006

Farmnote 78/99 [July 1999 version]

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Orphan lambs occur in all flocks. They can result:

- when a ewe has a multiple birth but only mothers one lamb
- when ewes die during or after lambing or
- because of poor 'mothering' by ewes.

Poor mothering can be an important problem:

- with maiden ewes
- in ewes that are undernourished in late pregnancy or
- in those that experience a slow or difficult delivery.

Reasons will vary for the need to raise orphan lambs. Western Australia has many new breeds of sheep whose progeny are valuable or lambs may be reared as family pets. Stud breeders may find it worthwhile to artificially rear abandoned lambs.

Re-mothering lambs

Before deciding to rear a lamb artificially, recognise that a ewe can raise a lamb better than you can. If you can identify the ewe, it is worth attempting to re-mother the lamb if she is physically capable of rearing it, or to foster the lamb to another ewe. Do this by confining the ewe and lamb in a small enclosed pen. Mothering-up pens can be erected in the lambing paddock from four 1.25 metre mesh panels laced together at each corner and with old seed or fertiliser bags attached to the four panels. The bags stop the ewe seeing out and being distracted. Make the pens stable by attaching them to steel pickets driven into the ground. In most cases, the ewe will mother the lamb in 24 to 48 hours.

Colostrum

Generally there are two types of orphan lambs – those that have been deserted at or soon after birth, and those that have remained with the ewe for one or two days before being orphaned.

In both cases the lamb may have a low body temperature so the first thing is to warm it up by placing it in a box under a lamp or in a warmed area.

Lambs that have been suckled by ewes during the first 18 hours or more of their lives can be started immediately on milk or milk replacer. However, if there is doubt as to whether a lamb has received any colostrum, give it colostrum or a substitute for best results.

Colostrum is the first milk produced by a ewe during the 48 hours immediately after the birth of a lamb. It is yellow and thicker than normal ewe milk. The new-born lamb must receive colostrum or a substitute within 18 hours of birth, otherwise it has only a 50:50 chance of survival.

Colostrum contains:

- laxative for the excretion of the meconium – the first faecal discharge of a newborn lamb
- nutrients – high levels of fat, protein (seven to eight times higher than the concentration in normal ewe milk), vitamins and
- antibodies that are absorbed from the lamb's digestive tract into its blood, and so protect it from infectious organisms.

Lambs are born without a front line of defence against disease. Colostrum provides the antibodies that induce an initial resistance to disease. An early intake of a readily available source of energy (from the fat) protects against excessive heat loss during the first few hours of life.

Cow colostrum is the best substitute if ewe colostrum is not available. This can be obtained from the first milking of a cow and then frozen in small plastic bags (at about -15^{o}C), each containing 100 mL. When needed, thaw the colostrum at room temperature and then slowly warm it to 37^{o}C.

The safest method to heat the thawed colostrum is to put it in a feeding bottle, which is then stood in a saucepan of water and warmed slowly. Place a thermometer in the feeding

bottle during heating. If colostrum is heated above 37ºC, the antibodies may be destroyed.

Feed the colostrum to the lamb, 100 mL every six hours during the first 18 hours of life. If the lamb is small and weak, it is better to feed a smaller quantity more often (say every four hours).

If cow colostrum is not available, a substitute can be made from a mixture of 680 mL of cow's milk, one beaten egg, one teaspoon of cod liver oil and one tablespoon of glucose. Feed the mixture at the same quantity and as often as the cow colostrum. Since it contains no antibodies, the lamb must build up its own supply of antibodies if it is to survive.

The easiest method to feed the colostrum (or substitute), to a lamb is by using a small bottle and rubber nipple. The lamb should place its tongue under the nipple and suck the fluid out. If the fluid trickles out, due to the lamb not sucking or the hole in the nipple being too large, then fluid can get to the lungs and cause pneumonia.

Milk or milk replacers

Ewe's milk contains more fat, protein and minerals than cow's milk. Nevertheless, lambs can be raised successfully on cow's milk, full cream powdered milk or a milk replacer, but will gain weight more slowly than a lamb raised naturally.

Cow's milk

Add 25 grams of full cream powdered milk to 400 mL of cow's milk to give a fluid closer to the richness of ewe's milk; or feed cow's milk.

Full cream powdered milk

Feed at a concentration of 25 per cent dry matter; that is, 250 grams of powder added to one litre of water.

Milk replacer

In the USA, Canada and UK, large numbers of lambs are reared with milk replacers. These are prepared for lambs and marketed as powders.

When prepared according to the instructions, the percentages of fat, protein and lactose are similar to ewe's milk. The milk replacers are mixed with water and are normally fed at 5°C from automatic milk dispensers.

A milk replacer marketed in Western Australia specifically for lambs and goat kids is Veanavite®. Bags of milk replacer and powdered milk should be resealed between feedings, as the product will oxidise if left exposed to the atmosphere.

Quantity and frequency of feeding

Lambs vary in size and vigour and drink different amounts of milk. Under natural conditions a lamb will suckle the ewe up to 40 times each 24 hours. Therefore small, frequent feedings are more beneficial than a few large feeds.

Use the feeding program in the table below as a guide. For lambs that are small and weak, it is better to feed a smaller quantity more often (say every four hours). Feeding more than the recommended amounts can cause scouring.

Table of quantity and frequency of feeding

Age (days)	Body weight (kg)	Volume of milk per feed (mL)	Total volume of milk per day (mL)
0 - 4	2.5	75 - 100	300
	3.5	110 - 150	450 - 600
	5	150 - 200	
4 - 5		160 - 250	500 - 750
6 - 14		250 - 330	750 - 1000
15 plus		500 - 660	1,500 - 2,000

Temperature

A lamb does not have to drink milk or substitutes at body temperature (37°C), and cold milk does not cause scouring. However, it is preferable to warm the fluid for the first two or

three days. If an automatic demand feeding system is used, then cold milk or replacer can be fed after two or three days.

Method of feeding

The system that is used to feed the lambs will depend on the number that is raised. If only one or two lambs are to be handled at once, then feeding with a bottle and rubber teat would be satisfactory. However, for mass rearing of lambs buy or make a self-feeding dispenser, which is basically a container for the milk fitted with 'Lambar' rubber teats.

A simple device can be made from a plastic drink cooler (see Figure 1). Bore four holes near the top on each side of the cooler, and fit the tubes and rubber teats in them.

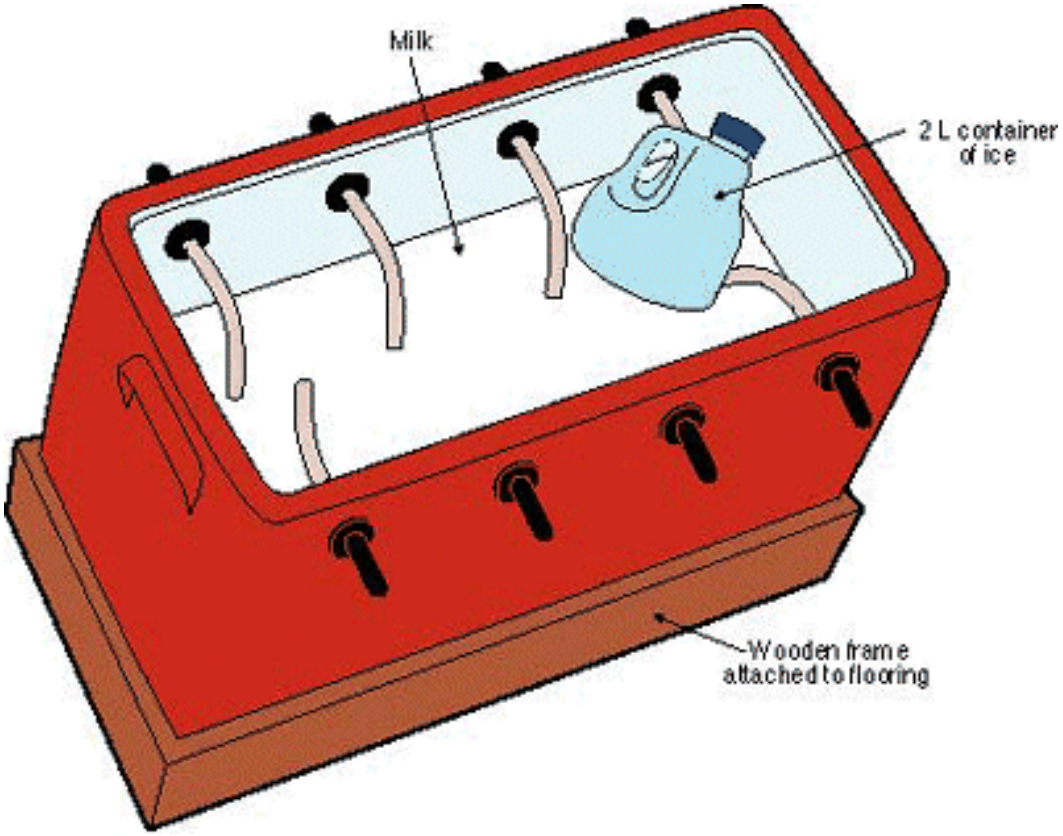

Figure 1. Self-feeding dispenser for rearing orphan lambs.

The drink cooler will need to be anchored in place so that the lambs cannot move it around. The lid of the bin should be in place at all times to keep out flies and dust.

Lambs can be trained on to this type of self-feeder after they have been fed colostrum for 18 hours and then starved for four to five hours. Push down the neck of the lamb so that its head is pointing up, then place the teat into the lamb's mouth. After the lamb has been placed on the teat three or four times during the first day, it will start to feed without any more encouragement.

As some lambs take longer to train than others, watch each lamb introduced to this feeding system, to ensure that it is feeding.

Besides being a labour saving method of rearing lambs, this system has the advantage of providing as much food as the lamb wants as happens for a lamb being reared by its mother. In addition, only one mix of feed is needed each day. The milk is served cold (5 to 8^{o}C) and is kept cool by adding ice bricks or cordial bottles that have been partially filled with water and frozen. The addition of 1 mL formaldehyde per 5 L of milk replacer will reduce the problem of it turning sour.

Mix enough milk or replacer each day so lambs are never without food. Use two self-feeders with each group of lambs so that a clean bin in available each day. Dismantle the dirty bin and clean it daily.

When using this system for feeding, do not pen more than 20 lambs together. It is advisable to feed lambs of the same age together. During the first week of feeding, allow 500 to 750 mL of milk per lamb per day. This can be increased later as needed.

Supplementary feed

Give the lambs access to fresh water, short green pasture if available or hay, and a high protein (20 per cent) dry food from two weeks of age. Sheep pellets, calf pellets or calf crumbles are ideal but they must always be fresh – renewed each day. Although only small quantities will be eaten at first, such supplements will assist in rumen development, making an earlier weaning (five to six weeks) from the milk diet possible.

To prevent a setback to lambs that have been weaned at five to six weeks, they must have access to the pellets for at least another week. Return lambs to the liquid diet if they show a loss of body condition after weaning.

Shelter

Lambs born in severe weather may be in a critical condition during the first few hours of life because of excessive heat loss and an inability to maintain body temperature. Keep these lambs in warm conditions when they are brought in for artificial rearing. Even healthy lambs need supplementary heat for the first few weeks after birth if the outside temperature is low.

A hot water bottle or infra-red lamp can supply additional warmth. It may be noticed that

lambs on a cold milk diet will shiver for a short period of time after suckling. In this case, infra-red lamps are the ideal source of warmth.

It is also important that as the lamb grows it gets as much exposure to sunlight as possible. Sunlight is the source of vitamin D which is vital for the growth of the lamb.

Hygiene

It is extremely important to keep all feeding equipment and mixing utensils clean and hygienic. After each feeding, dismantle all equipment, rinse in cold water, scrub in hot water with a disinfectant and then rinse in hot water and leave to dry.

The use of equipment that has not been cleaned thoroughly can introduce infection and cause scouring.

Clean dung from the shelter area regularly. Place all foodstuffs such as hay, pellets, crumbles and water in receptacles that do not allow contamination by the lamb.

Complications

The most likely complications are pneumonia, scouring, coccidiosis, white muscle disease and abomasal bloat.

Pneumonia

Pneumonia is usually caused by a cold and wet or draughty environment. Lambs that are not fed properly can also suffer from pneumonia as the liquid can settle in the lungs.

Scouring

Scouring can be minimised by only using clean feeding utensils and by feeding 'little and often' rather than in large, less frequent meals.

Remember that if the lamb does not receive enough fluid, dehydration can cause death. It is advisable to separate scouring lambs from healthy ones in case the cause is infectious.

If scouring is not affecting the intake of food or the appearance of the lamb, disregard it. However, if the scours persist and the lamb loses its appetite and becomes lethargic, decrease the amount of solids in the milk or milk replacer for two days.

Overfeeding can also cause scouring. If the lamb is fed more milk or milk replacer than the stomach can 'set' or coagulate with stomach acids, the remainder of the liquid passes into the small intestine only partly digested and causes scouring.

If scouring persists, consult a veterinarian.

Coccidiosis

Coccidiosis should not be a problem if the shelter area is kept dry and clean and all foodstuffs are fed so that the lamb cannot defecate or stand on the food. Because the symptoms of scours and coccidiosis can be similar, it is advisable to have a veterinarian identify the cause of any persistent scouring.

White muscle disease

White muscle disease is associated with a deficiency of selenium in the diet. If the lamb does not gain weight, becomes weak and collapses when disturbed, then it may be deficient in selenium.

As prevention is better than cure, add selenium to the lamb's feed on a regular basis. Selenium drench concentrate is readily available from stock agents. Dilute the concentrate by adding one part to 19 parts of water, then add it to the milk or milk replacer so that each lamb receives 1 mL of diluted selenium every three weeks.

Abomasal bloat

Abomasal bloat is not common in artificially reared lambs and the cause is not fully understood. It may be associated with the combined intake of milk, or its replacer, and solid food. If bloat does occur, withdraw all solid food until the bloat subsides.

General care

Do not forget orphan lambs when marking, docking, vaccinating, drenching and dipping the flock lambs.

It is recommended that the tail be docked at the third apparent joint.

Lambs can be vaccinated against pulpy kidney (enterotoxaemia), cheesy gland (caseous lymphadenitis), black disease, tetanus, blackleg and malignant oedema.

When vaccinating lambs do so by injecting the vaccine under the skin on their head. In this way the carcase is not damaged. Do not vaccinate on the back, side or legs of the lamb.

Further reading

- Farmnote No. 117/89 'Enterotoxaemia (pulpy kidney) of sheep' and
- Farmnote No. 30/97 'Cheesy gland in sheep'.