



Lambing and Neonatal Care

G a: Assisting Ewes at Lambing

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G b: Care of Newborn Lamb

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G c: Treating Hypothermia (Chilling) and Hypoglycemia (Starvation) in Very Young Lambs

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FACTSHEET

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ASSISTING THE EWE AT LAMBING

John Martin, Health Management, OMAFRA

This factsheet is one of a set of three, “Assisting the Ewe at Lambing”, “Care of the Newborn Lamb”, and “Treating Hypothermia (Chilling) and Hypoglycemia (Starvation) in Very Young Lambs”, concerning lamb survival. They should be read together.

The ewe's gestation period is from 144 to 151 days, with an average of 147 days. The date that the first lambing is to be expected can be calculated from the date of the first exposure of the ewes to a fertile ram. Before lambing starts, a kit of lambing aids should be prepared. The essentials of this kit are:

- soap
- disinfectant
- obstetrical lubricant
- sterile syringes - 10ml and 1ml
- hypodermic needles of sizes suitable for the ewe and the lamb
- antibiotics and vitamin E/selenium injections
- lambing cords and lamb snare
- navel disinfectant - iodine based
- intra-uterine oblets
- clean towels or cloths
- clean pail for warm water.

Colostrum and milk replacer should also be available. The colostrum can be from ewe or cow, frozen in 500ml units. If lambing is to be inside a building, sufficient individual pens are needed to allow each ewe in the group 2 - 3 days individual housing with her lamb/s.

Signs of impending lambing

About 10 days before the ewe will lamb, the teats begin to feel firm and full of colostrum. Between then and lambing the lips of the vulva slacken and become slightly swollen. In the last hours before lambing, many ewes will separate from the flock. At this point they should be moved into a lambing pen.

At birth, the normal presentation of a lamb is spine upwards, forefeet with the head between them pointing toward the cervix. The cervix, itself, is still sealed by a mucous plug.



Lambing and Neonatal Care (continued)

The lamb is surrounded by two fluid-filled sacs, the allantois and the chorion. These first and second waterbags have acted as cushion to prevent injury to the developing foetus. They form part of the placenta. The placenta is attached to the wall of the ewe's uterus by about eighty small buttons, the cotyledons. It is through these and the placenta that the developing lamb has received nutrients from the ewe's blood supply. The placenta with the cotyledons will be expelled as the afterbirth.

Physiology of Parturition (lambing)

The mechanism by which any mammal gives birth is stimulated by changes to the dams hormone balance and the bulk of the uterine contents, (the foetus and the placental fluids). These stimuli cause the uterus to contract, pushing the foetus into the dilating cervix and expel it.

Lambing

In a normal lambing, there are three distinct stages:

1. *Dilation of the cervix*

As the uterine contractions start, a thick creamy white mucous, the remains of the cervical seal, is passed from the vulva. This is often missed. Continued contractions of the uterus push the first waterbag into the cervix, stimulating its dilation. Eventually the cervix will be about the same diameter as the neck of the uterus. At this time the ewe is uneasy, getting up and down, switching her tail and bleating frequently. There may be some straining. This stage can take 3 - 4 hours.

2. *Expulsion of the lamb*

As the uterine contractions become stronger and more frequent, the lamb and waterbags are pushed into the dilated cervix. The first waterbag bursts, releasing a watery fluid through the vulva. As the ewe continues to strain, the second waterbag is pushed through the vulva and ruptures, to release a thicker fluid.

The rupturing of these bags has established a smooth, well-lubricated passage through the vagina. The hooves and nose of the lamb can often be seen in the second waterbag before it bursts. The ewe continues to strain, gradually expelling the lamb, forefeet first, followed by the head. The ewe may need considerable effort to pass the head and shoulders of the lamb through her pelvis. Once this happened, final delivery is rapid.

The birth of a single lamb should take an hour or less from the rupture of the first waterbag. A ewe, lambing for the first time, or with a multiple birth could take longer.

3. *Expulsion of the afterbirth*

The placenta serves no further function once the lamb has been born, and is passed 2 to 3 hours after delivery has finished. Nothing will be passed until after the first lamb has been born. In multiple births, there will be separate afterbirths for each lamb.

Signs of abnormal deliveries

Most ewes will lamb unaided and about 95% of lambs are born in the normal presentation, forefeet first. A normal delivery usually takes 5 hours from the start of cervical dilation to the delivery of the lamb, 4 hours for the dilation of the cervix and 1 hour for the actual delivery. The first 4 hours often go unnoticed.

If the ewe:

1. continues to strain, but there is no sign of the waterbags, or
2. continues to strain an hour after the rupture of the waterbags but there is no sign of a lamb, or
3. if the lamb appears to be wedged in the birth canal, or



Lambing and Neonatal Care (continued)

- if there is an abnormal presentation, a leg back, head back etc., assistance may be needed. Any delay in assistance could mean the difference between a live and dead lamb.

Making the internal examination

Cleanliness is important to prevent infection of the uterus. Wash the area round the ewe's vulva with soap and a mild disinfectant to remove any manure and other debris. Scrub hands and arms with soap and a mild disinfectant, and lubricated with soap or an obstetrical cream. The hand is carefully slid into the vagina to feel the lamb and assess the situation. Obviously a person with a small hand is best suited for this task.



Normal presentation

In many cases the lamb will be presented normally, you will feel two forelegs with the head between them, in others there will be a malpresentation hindlegs instead of fore legs, or one or both hindlegs back, or a breech presentation, only the tail and rump felt.



One leg back



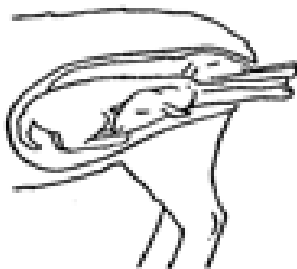
Elbow lock



Both forelegs back



Head back



Four legs - one head



Twins - front and back



**Breech presentation Hind
Legs Only**



Lambing and Neonatal Care (continued)

Resolutions

Normal Presentation - place the noose of a lambing cord over each leg above the fetlock joint and apply a firm steady pull synchronized with the ewe's straining. Lubricate the vagina around the lamb with obstetrical jelly to smooth the passage of the lamb. This is especially important if the waterbags have been ruptured for some time and the vagina has lost this natural lubrication.

Abnormal presentations must be corrected before attempting to pull the lamb. Do not attempt to convert a hind leg presentation to the normal delivery. Pull the lamb out hind legs first, straight back until the lamb's hind legs and pelvis are out of the vulva, then change the pull to downwards towards the ground behind the ewe. Pulling down before the lamb's pelvis is out will wedge the lamb in the pelvic canal of the ewe. Other malpresentations are possible.

Remember that multiple births are common. Two lambs may be presented with legs intertwined. Always ensure that the legs and head are part of the same lamb before attempting to pull it.

Occasionally, deformed lambs will be produced with enlarged heads, stiff joints or skeletal deformities. To successfully lamb a ewe in these situations may require help from an experienced shepherd or veterinarian.

As ewes often have multiple births, the same sequence of the rupture of the waterbag and expulsion of the lamb will be repeated for the delivery of each lamb. After an assisted lambing always check the ewe internally that there is not another lamb to be delivered.

Aftercare

In all cases, whether the delivery was natural or assisted, check that the lamb is breathing, its nostrils are clear of mucous and are not covered by any uterine membrane. At this time the lamb's navel should be disinfected to prevent infection.

The ewe usually starts to lick the lamb, this is a natural process and should be allowed to continue. Some ewes will eat the afterbirth, but this should be prevented as it can lead to digestive disturbance.

A healthy lamb struggles to its feet soon after birth and starts to nurse its dam. Lambs, weak from a protracted delivery should be helped to nurse, or given up to 250ml of colostrum by stomach tube. This first nursing is critical

as the colostrum contains antibodies to give the lamb immediate protection against infectious agents common to the flock. All lambs should nurse or be tube fed colostrum within 6 - 8 hours of birth. In the first 24 hours of life, each lamb should receive about one litre of colostrum. After 36 hours the lamb is unable to absorb any more antibody from the colostrum.

After any assisted delivery the ewe should be given an antibiotic injection and have an antibiotic oblet put into the uterus.

This factsheet was originally written by John Martin is a Veterinary Scientist, Sheep, Goat and Swine, Agriculture and Rural Division, OMAFRA, Fergus.

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Lambing and Neonatal Care (continued)

Appendix Gb: Care of Newborn Lamb

FACTSHEET

ANIMAL
SCIENCE

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CARE OF THE NEWBORN LAMB

J. Martin

This factsheet is one of a set of three, "Assisting the Ewe at Lambing", "Care of the Newborn Lamb", and "Treating Hypothermia (Chilling) and Hypoglycemia (Starvation) in Very Young Lambs", concerning lamb survival. They should be read together.

The profitability of a sheep enterprise depends on the number of lambs sold either for meat or as breeding stock. The number raised to market is a reflection of the complete management of the flock throughout the year. One of the critical points in this management cycle is lambing.

GESTATION CARE

The ewe is required to deliver strong healthy lambs and to have sufficient milk to raise those lambs. Her ability to do this is a reflection of the gestation management. After breeding a ewe should body score 2.5. Throughout much of the gestation period a diet of good hay should suffice. In the last six weeks, grain can be fed in addition to hay to allow for the growing lambs, the development of the udder, and the fat reserves of the ewe for lactation. The amount of supplementary feed depends on the size and body condition of the ewes and the quality of forage being fed. At lambing the body score should be between 3 and 3.5. Care must be taken not to feed too much grain early in gestation, gradually increasing the amount allows for lamb development. A leveling out or fall in late pregnancy grain intake can result in pregnancy toxemia and death of the lamb(s) in utero. Conversely, too little grain will give an undersized, weak lamb with a poor chance of survival. Also, the ewe will have insufficient udder development for a good lactation.

Not less than four weeks before the due date of the first ewe, all the ewes should receive a booster vaccination against the clostridial group of diseases, (all first lamb ewes should have completed the primary vaccination course before breeding) and an injection of Vitamin E/selenium. If they are not to be sheared, they should at least be crutched to remove excess wool from the udder area.

LAMBING FACILITIES

Each ewe should have a lambing pen in which the bonding between ewe and lamb can be monitored, the lamb is easily caught for any procedures (tail docking etc.), and is seen to be nursing. Depending on the system used, the ewe can be put into this pen when lambing is observed to be imminent, or after the lamb has been dropped. The pen should be about 1.5m square with a corner divided off to give the lamb a safe area from the ewe. Once the lamb is vigorous and all treatments completed, it and the ewe can be let out into a larger pen with other ewe/lamb sets. After each ewe, the soiled bedding is removed and fresh bedding put down. On average, expect each ewe to spend three days in this pen.

LAMBING PREPARATIONS

To be prepared for lambing you will need two kits. One to assist the ewe at lambing (see Assisting the Ewe at Lambing, OMAFRA Factsheet No. 98-091) and the other to process each lamb as it is born.

LAMB PROCESSING KIT

This kit (see Figure 1) should contain:

- suitable syringe and needles
- iodine solution for dipping navels
- Vitamin E/selenium injection
- ear tags and applicators and/or tattooing pliers
- tail docking rings or cutter

LAMBING

The average gestation period for a ewe is 147 days, but some will always be early. Have the kit of lambing aids ready in advance.

The lamb should start breathing at birth. It may need help; check that there is no placenta covering the nostrils or mouth. A gentle rub over the chest with a



Lambing and Neonatal Care (continued)

towel or straw wisk, tickling the inside of the nostrils with a piece of straw or blowing into the nostrils (*do not allow your lips to come in contact with the wet lamb while doing this*) will often stimulate breathing. There is also a commercial device¹ for this task.



Figure 1. Lamb Processing Kit

TINT YOUR LAMBS

In the first few days of a lambs life there are several procedures that should be carried out. Once you are certain that the lamb has had adequate colostrum, TINT them.

- T = Tails
- I = Inject
- N = Navels
- T = Testicles

Tails

The tails need to be docked before the lamb is seven days old. (Code of Practice for Sheep). The tail can be removed with:

- electric or gas heated docker
- rubber ring
- crush and cut device
- rubber ring plus crushing device.

The docked tail should cover the anus of the ram or the vulva of the ewe. A good guide is to remove it at the joint in the tail bones just beyond the web on the underside of the tail.

Injection

In Ontario, newborn lambs can be born selenium deficient. As a routine, they should be injected with the appropriate dose of a Vitamin E/selenium preparation. Read the label on the bottle for the route of injection, either subcutaneous or intramuscular. Always inject into the neck area, never into the muscles of the hind quarters.

¹ Constant Delivery Animal Resuscitator, McCulloch Medical.

Navels

The navel of the new born lamb needs to be disinfected as soon after birth as possible. The untreated navel is an excellent route for infectious agents to enter the lamb causing internal abscessation or joint ill. An iodine solution is the most common disinfectant used. It is either sprayed onto the navel or the navel is dipped in a small container of the solution. If dipping the navels, replace the disinfectant solution in the container after every tenth lamb.

Castration

If the market lambs are to be kept beyond three months of age, they need to be castrated.

Again, whether rubber rings, crushing or cut and pull is used, this should be done before seven days of age. (Code of Practice for Sheep).

Whether tattoos, ear tags, or ear notching is used, the lamb must be identified before it leaves the lambing pen.

FOSTERING

For any one of a variety of reasons, a lamb may need to be fostered onto another ewe. If possible fostering should be considered as an option before bottle feeding for the orphan.

Fostering should be as soon after birth as possible. If the lamb has not dried off, so much the better. If fostering from a set of triplets, choose the strongest lamb. Keep the ewe and the fostered lamb in a lambing pen until you are certain that the adoption has succeeded.

To persuade the ewe to accept the lamb, one of several techniques can be used. Rub the lamb in the placenta of the ewe's own lamb; if you are replacing a dead lamb, put its skin onto the adoptee; if the ewe still refuses, she can be put into a head gate to prevent her pushing the lamb away when it attempts to suckle. After a few days in the headgate, the ewe will usually accept the lamb.

John Martin is a Veterinary Scientist, Sheep, Goat and Swine, Agriculture and Rural Division, OMAFRA, Fergus.

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TREATING HYPOTHERMIA (CHILLING) AND HYPOGLYCEMIA (STARVATION) AND HYPOGLYCEMIA IN VERY YOUNG LAMBS

Items to Have on Hand BEFORE Lambing Begins:

- ✓ Digital rectal thermometer to measure subnormal body temperatures (as low as 20°C).
- ✓ Frozen colostrum in small batches (150-250 mL or 5-8 oz).
- ✓ Lamb stomach tube and feeding syringe (60mL) or squeeze bottle (250 mL).
- ✓ Warming box with heater and thermostat.
- ✓ Aftercare unit: draft free pens that are warm, dry and well-bedded.
- ✓ Bottle of sterile 50% dextrose (500 mL bottle).
- ✓ Kettle for boiling water.
- ✓ Sterile 60 mL syringe with 20 gauge (pink) 1 inch needles.

Recognizing and Treating Hypothermia

The best way to recognize hypothermia is by taking the lamb's rectal temperature and observing its behaviour. The normal temperature of a lamb is 39-40°C. The rectal temperature of any dull, weak lamb that seems unable or unwilling to suckle, should be checked. The SOONER action is taken, the better the lamb's chances of survival.

The basis of treatment of the hypothermic lamb is to warm it up and provide a source of energy to start heat production again.

Symbol definitions:

- ≤ less than or equal to
- > greater than
- < less than

Mild Hypothermia – Any Age

Temperature between 37 – 39 °C

Lamb is weak, depressed, appears empty but can stand.

ACTIONS

- Move lamb into shelter and dry off if wet.
- Feed colostrum by stomach tube (within the first hour of birth is best). Feed 50 mL/kg of bodyweight slowly over 5-10 minutes.
- Additionally feed 200 mL/kg bodyweight spread over three more feedings within the first 24 hours.
- Keep lamb with dam provided she is in a sheltered area.
- ENSURE lamb is nursing.
- Lamb is recovered once rectal temperature returns to normal; lamb and ewe can return to flock.

Small lambs < 1.5 kg (3 lbs) at birth, may not have sufficient fat reserves to initiate heat production, even with colostrum.

ACTIONS

- In addition to colostrum, feed these small lambs an extra 50 mL/kg of a 20% dextrose solution by stomach tube 1 hour after the colostrum feeding.
- For small lambs (under 2 kg), wool pullovers worn for 2 to 4 days, helps to maintain body temperature. These very small lambs may do better in the orphan lamb pen.

Moderate to Severe Hypothermia

Temperature ≤ 37 °C

How old is the lamb?

Lambs over 5 hours old should be considered hypoglycemic (starved) as well as hypothermic. Do not warm before administering colostrum or glucose.

Can the lamb suckle and swallow?

Lambs with a suckle reflex can be tube fed. Lambs without a suckle reflex will need to be revived using intraperitoneal dextrose and then warmed prior to being tube fed.

If ≤ 37 °C; < 5 Hrs Old and Suckle Reflex (Able to Swallow)

Lamb is weak, empty, depressed and may be unable to stand.

ACTIONS

- Remove lamb from ewe and dry off if wet.
- Place in warming box until rectal temperature is >37°C.
- Administer warm colostrum by stomach tube. Feed 50 mL/kg bodyweight.
- Additionally feed 200 mL/kg body weight spread over three more feedings within the first 24 hours.
- Move to hospital pen with heat source and feed until strong and maintaining normal temperature of 39°C.
- Once strong, return to dam but make sure lamb is nursing (identify using livestock paint or marker).

If ≤ 37 °C; > 5 Hrs Old and Suckle Reflex (Able to Swallow)

Assume that lamb has no fat stores and is hypoglycemic (starved). You must provide an energy source before warming. Lamb is tucked up, empty appearing and depressed.

ACTIONS

- Remove lamb from dam and dry off if wet.
- Administer warm colostrum by stomach tube. Feed 50 mL/kg bodyweight prior to warming!
- If you warm the lamb first, it will convulse and die.
- Place in warming box until rectal temperature is > 37°C.
- Again administer warm colostrum by stomach tube. Feed 50 mL/kg bodyweight. Additionally feed 200 mL/kg bodyweight spread over three more feedings within the first 24 hours.

(continued)

If ≤ 37 °C; > 5 Hrs Old and Suckle Reflex Continued

- Move to hospital pen with heat source (e.g. box in warm environment) and feed until strong and maintaining normal temperature (39°C).
- Once strong, return to dam but make sure lamb is nursing (identify using livestock paint or marker).

If ≤ 37 °C; > 5 Hrs Old and No Suckle Reflex (Not Able to Swallow)



Do not attempt to stomach tube as this will result in the milk / colostrum being deposited in the lungs, which will kill the lamb. Lamb is often unable to stand.

ACTIONS

Reverse the hypoglycemia first before warming or lamb will convulse and die!

- The lamb must first be injected with a sterile solution of warm 20% dextrose at a dose rate of 10 mL/kg body weight into the abdominal cavity (intraperitoneal).

See techniques used to revive hypothermic and hypoglycaemic lambs below.

- Place in warming box until rectal temperature is > 37°C.
 - Once revived and with a suckle reflex, administer warm colostrum by stomach tube. Feed 50 mL/kg bodyweight.
 - Additionally feed 200 mL/kg bodyweight spread over three more feedings within the first 24 hours.
 - Move to hospital pen with heat source (e.g. box in warm environment) and feed until strong and maintaining normal temperature (39°C)
 - Once strong, return to dam but make sure lamb is nursing (identify using livestock paint or marker)
- As in all conditions, prevention is the best cure for hypothermia. Good nutrition during gestation, good lambing environment, an awareness of weather conditions, observation of the ewe and lamb at lambing, and assisting where necessary, will go a long way to preventing lamb losses from hypothermia.

Lambing and Neonatal Care (continued)



Lambing and Neonatal Care (continued)

Techniques Used to Revive Hypothermic and Hypoglycemic Lambs

Using a Stomach Tube to Administer Warm Colostrum

- Sit with the lamb restrained on your lap. Measure the tube.
- The tube is passed into the side of the mouth in the space between the front and side teeth.
- Using gentle pressure, the tube is slid into the esophagus and down to the stomach.
- The tube will move easily. ANY resistance or COUGHING indicates that the tube has entered the windpipe and it should be removed immediately.
- The accidental passing of colostrum into the lungs will result in aspiration pneumonia and the death of the lamb.
- The esophagus is behind/beside the windpipe on the lamb's left. By placing your fingers on each side of the lamb's throat, you should be able to feel two tubes while sliding the stomach tube in; you will feel the windpipe and the tube passing down the esophagus.
- Slowly administer the warm colostrum either using a 60 mL feeding syringe or a 250 mL squeeze bottle.
- Colostrum should be administered over five minutes.
- Crimp the end of the tube over prior to removing to prevent aspiration.



Sourcing and Warming Colostrum to Feed to Hypothermic Lambs

- Colostrum from a lamb's dam is best, other options listed in order of preference:
1. Individual healthy ewe colostrum from the same flock.
 2. Pooled ewe colostrum from the same flock.
 3. Pooled ewe colostrum from another flock (same disease status or better).
 4. Pooled cow colostrum (use 30% more; feed every five hours in the first 24 hour period).
 5. Any combination of the above.
 6. Commercial colostrum replacement product.

CAUTION
Johnhe's Disease can be spread from infected cows and ewes through their colostrum. Use cows from a Johnhe's tested herd only.

Occasionally lambs may develop severe anaemia from cow colostrum. Always identify source of colostrum so problem colostrum can be discarded.

Thaw frozen colostrum in a water bath at 35°C. Never microwave colostrum; it will destroy the proteins, destroying the antibodies in the colostrum.



Administering Dextrose Solution Using an Intraperitoneal (IP) Injection

- With a sterile 60 mL syringe, draw up 20 mL of sterile 50% dextrose using a sterile needle.
- Boil clean water and draw up 30 mL of this water into the same syringe.
- This will provide 50 mL of warm (38 – 40°C) 20% dextrose solution.
- The dose is 10 mL per kg bodyweight; 50 mL is sufficient for a 5 kg lamb.
- The lamb is suspended vertically by the forelimbs.
- The injection site is 2.5 cm (1 in.) below and to the side of the navel.
- Use a 20 gauge (pink) 1 inch needle.
- The needle is inserted at a 45 degree angle to the body wall (the needle is pointed in the direction of the lamb's pelvis). Ask your veterinarian to show you how to do it.
- The internal organs will be pushed away by the needle and not damaged.
- Both the **conscious** and **comatose** lamb can be injected in this manner.



Warming a Hypothermic Lamb

If temperature $\leq 37^\circ\text{C}$

Slowly warm the lamb to restore body temperature (until it rises to 37°C). There are several acceptable methods to warm a lamb but some are more effective at increasing temperature.

Warming a Hypothermic Lamb Continued

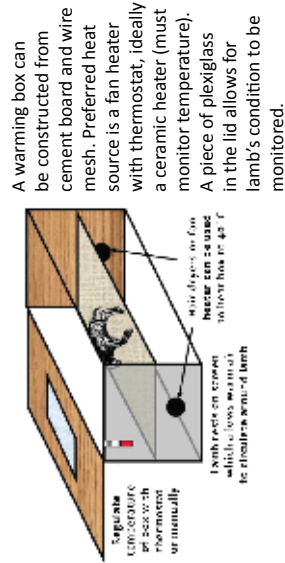
1. A warming box which allows circulation of warm air around the lamb (see diagram below).
2. A water bath warms most quickly but requires holding the lamb to prevent drowning, and immediate drying (towels and hair dryer) to prevent chilling again. This requires the most labour.
3. Heating pad and radiant heat. Both will warm the lamb but there is a risk of burning if used improperly.
4. Heat lamp alone is not recommended as it only warms one side.



Do not warm before administering an energy source (i.p. dextrose or warm colostrum).

Check rectal temperature every 30 minutes to avoid over heating.

A warm air heater is the preferred method.



If temperature 37°C to 39°C

1. A heat lamp can be used to warm the lamb along with warm colostrum.
2. Keep separate from the dam until strong.
3. Suitable containers are disposable cardboard boxes, washable tubs or small pens made with square straw bales.
4. Make sure that can disinfect area if a disease outbreak occurs (e.g. scours)
5. Return to the dam once lamb is strong enough to nurse unaided.
6. Identify the lamb with livestock marker and keep in a small area so can observe easily. Watch for signs of rejection.
7. Lamb may need to be reared artificially if fails to thrive on the ewe.



Caring for the Hypothermic Lamb

