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INFRA-RED LAMB WARMERS

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Losses of lambs at birth and up to three days old are considered to be of the order of ten to fifteen per cent of all lambs born. This loss is much higher than is often realised, chiefly because shepherds at lambing are too busy to count dead lambs. In any case, it is the live lambs which produce the returns, making it easy to forget the dead.

Anyone who has shepherded a flock of ewes through a lambing will realise the discomforts and difficulties involved, more especially during inclement weather. Chilling of new-born or young lambs is always likely and calls for constant attention and care to avoid serious losses.

The relatively short growing season of Canterbury makes it necessary to lamb early to take maximum advantage of the spring flush of feed. This calls for lambing from late July to mid-September, during which time night temperatures are still low and the possibility of storms still great. Under these conditions, lambs when dropped are subject to some degree of chilling which causes them to become less mobile and inclined to exert less energy in suckling. This combination leaves the shepherd with weak and sometimes mis-mothered lambs to be cared for. Lambs, being individuals, vary in their inherent stamina and ability to resist hardship, so that some require more attention than others over a period of three days. Not to be overlooked when considering the cause of loss in young lambs is the ewe. She can have a difficult birth and so produce an injured or tired lamb, or she may not be well enough to take an immediate interest in her lamb. Some ewes are naturally poor mothers and still others, poor milkers. All these factors lead to weak lambs which require some attention if they are to survive.

The first requirement of weak lambs is warmth. That this has been well recognised in the past is evidenced by the number of lambs that have spent time in a warm kitchen, in an oven, or wrapped in a sack with a hot brick or hot-water bottle or given a warm bath. These treatments, although the best previously available, leave much to be desired; lambs walk away from fires and at best get only unregulated heat on one side at a time, while bricks and water bottles lose their heat.

NEED FOR A LAMB WARMER

Obviously, then, some device is required which will have the following characteristics: provide controllable warmth, with emphasis on the "controllable" feature; enable the lamb to be warmed from all sides at once and

to breathe warm air; allow the lamb freedom of movement; be of moderate cost; safe to operate and to operate with little attention from the shepherd. Brooders have been used for chickens and piglets, so why not a warming device for lambs.

Several attempts have been made to develop a device of this description, sometimes called a lamb brooder, sometimes called an incubator. Some have met with reasonable success, others have been of doubtful value and some are hazardous to both lambs and operator alike. In an attempt to meet all the requirements of what was considered essential, a warmer using infra-red lamps was developed and has been in operation during the past two seasons with satisfactory results.

DETAILS OF CONSTRUCTION

Maximum efficiency with minimum cost was the aim. With the exception of the electrical installation the warmer can be built by any " handyman ", with suitable materials.

(a) As an example, two packing cases, one upside down on top of the other and battened together, were used to build the outside case. This component was then 30 inches square and 5 feet high. A warmer of this size ensures that the lambs are surrounded by a mass of warm air rather than being exposed to direct heat at short range.

(b) The lower half of one wall was hinged to serve as a door. This provides access, prevents damage to electrical installation and reduces loss of warm air.

(c) To prevent draughts and loss of heat hardboard was used to line all the inside except the floor. Any other suitable material could have been used.

(d) A galvanised tin tray was used as the floor to reflect heat and collect urine and faeces.

(e) A rigid galvanised wire $\frac{3}{4}$in. mesh was adequately supported 6in. above the tin tray to allow reflection and radiation of heat from the tray to take place to warm the under-side of the lamb.

(f) From the roof of the warmer were suspended two 250-watt infra-red reflector-type lamps. To prevent dissipation of heat, shades were found to be an advantage. These lamps were on a sufficient length of flex to allow them to be adjusted to any height. Each lamp had a separate switch so that one or both could be used according to the heat intensity required.

(g) One $\frac{1}{4}$in. hole in the centre of the top was made to allow the slow escape of warm moisture-laden air. On occasions when numbers of wet lambs are put in the warmer, special care is necessary as increasing humidity distresses lambs.

As none of these measurements are considered vital, such materials as are on hand may be used and should be successful as long as the general principles are adhered to.

MANAGEMENT AND USE

The warmer described will accommodate four lambs with ease at any one time and if necessary, up to seven for short periods. With the larger number there is a danger of some lambs reviving sooner and walking or falling on to the weaker ones, thereby retarding their revival.

When first put into the warmer, lambs should be warmed quickly and when showing signs of improvement such as quickened leg movements and opening eyes, the heat should be reduced by raising the lamps or turning one off. At soon as warmth has brought the lamb back to consciousness, and it has sufficient strength, a warm drink must be given in small quantities. A useful drink is one consisting of:

1 pint cow's milk,
2 whole eggs, slightly beaten,
2 teaspoons of glucose or lactose (sugar of milk).

All ingredients are warmed to blood heat, each lamb receiving a small quantity, depending on its condition, every four hours. Glucose has a loosening effect on the bowels and should therefore be used with care, or not at all, for lambs being retained inside for a number of days.

Revival will usually take place within an hour or two, even very weak lambs often responding within four hours.

After being thoroughly warmed, given at least one drink and being able to stand up, the lamb may be removed from the warmer with safety.

This rapid revival is a distinct advantage because it enables lambs to be re-mothered the same day, providing the weather is not too cold and wet. The less time a lamb is away from its ewe the easier will be the re-mothering. Once a lamb is strong enough to be re-mothered, every attempt should be made to make the re-mothering successful as soon as possible, because lambs becoming weak again do not revive as readily the second time.

POST-WARMER TREATMENT

After experience with the warmer described, it was found that lambs revived quickly and soon regained strength enough to drink and stand up. It was observed, however, that on cold days lambs still required warmth after removal from the warmer. Additional, less concentrated, warmth was also found to be a definite advantage when lambs were retained inside for any time awaiting re-mothering. Following storms, when the warmer alone could not cope with the number of lambs requiring treatment, some warmed holding space was required. Also, some lambs are weak but not so weak as to require full warmer treatment.

To provide these conditions a pen was arranged with draught-proof sides, open at the top, over which one infra-red lamp was suspended in a fixed position approximately 30 inches from the floor. This pen may be of any size, depending on the number of lambs being dealt with, but should be large enough to allow them to move without walking over any lambs lying down. The floor should be given a good covering of straw or hay which requires changing regularly to prevent it from becoming wet, soggy and cold.

CONCLUSION

The warmer and pen discussed have been in operation over two seasons and found to be far more successful than any other method of reviving weak lambs. Of the 3600 lambs tailed in those seasons over three and a half per cent received warmer treatment within three days after birth. Although some of these lambs would have survived without passing through the warmer, it is believed that most of them would have succumbed. In this case it could be claimed that there was a saving of nearly three per cent of all lambs born.

With experience of warmer management and increased confidence in re-mothering the number of lambs handled, it is felt that the usefulness of the warmer can be increased still further.

The warmer can be housed in a garage or shed, thereby eliminating the need to take lambs into the house, at the same time keeping all lambs being treated, in one place.

Various types of commercial lamb warmers, called brooders or incubators, some with and some without infra-red lamps, are available on the market.

The infra-red warmer has been described in this Bulletin because it can be built for less than £10 by anyone handy with tools and it embodies the essentials at present thought necessary for the speedy revival of weak lambs.