

2001/VO5



## Producer Research Support

### Identifying Lamb Losses

Hamilton Prime Lamb Breeders



#### The project

In 2000, pregnancy scanning was performed between day 70 and day 90 after the start of mating, at four properties in the western district of Victoria. The properties had a mating period between 35 and 42 days. Lambs were marked when the youngest lamb was approximately one week old. At lamb marking between 18 and 26 percent of lambs detected at scanning were not present.

The Hamilton Prime Lamb Breeders were concerned about the differences between the number of lambs at pregnancy scanning and the number at lamb marking.

The group created a project to determine the number of lambs lost, and the causes of death. A further four sheep producers were invited to participate in the project and obtain a richer data set.

#### Objectives

1. Determine the causes (and numbers) of lambs lost between pregnancy scanning and lamb marking on properties in Western Victoria, and recommend management strategies to reduce the lamb wastage; and
2. Increase meat production per hectare by increasing lamb retention and survival.

#### What was done

The project was conducted in 2002, with each of the properties lambing during August and September.

Twelve mobs of ewes from eight properties were submitted for the study. Four properties submitted two mobs of ewes and the others just one mob. Mob sizes ranged from 113 to 263 ewes, of varying ages and genetic composition.

The properties were within a radius of 60 kilometres so were subject to differing climatic conditions.

Each mob was selected immediately after pregnancy scanning, 70 to 90 days after mating. The mob was grazed separately until lamb marking was completed.

All ewes were again scanned ten to 14 days prior to lambing. Ewes that had aborted were identified, and any aborted fetuses recovered were submitted to a veterinary diagnostic laboratory for diagnosis.

Each of the sheep producers, and their farm staff, were trained in post-mortem technique for examining perinatal lamb mortalities (McFarlane, 1965). Producers were supplied with recording sheets to record the history and findings of each post-mortem. Records were collected at the end of the study and diagnoses established.

Each producer supplied the number of ewes at the start of the study, the percentage of fetuses present at pregnancy scanning, and the numbers of ewes and lambs present at marking, when the youngest lamb was approximately one week old. Any death of ewes was recorded.

A perinatal mortality survey was conducted on twelve mobs of ewes on eight properties. Dead lambs were post-mortemed and causes of loss assessed. Major losses were identified from conception to marking, averaging 22 percent.

Seven main causes, or categories, of lamb death were identified. More effective management could reduce deaths caused by predation, dystocia, exposure and starvation.

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## What happened?

One property withdrew from the study as work priorities prevented the collection and post-mortems of all the dead lambs. This property has not been included in the results.

The average lamb loss was 22 percent, with a total range from six to 44 percent. Of the total number of lambs detected at the first pregnancy scanning, 253 of the total of 3020 (8.4 percent), were not accounted for. The ewes in the study were all lambed in flat paddocks adjacent to the woolshed so it is unlikely that the producers would have missed any dead lambs.

The average loss of foetuses during pregnancy was 3.4 percent, with a range between zero and 12.2 percent. No aborted foetuses were seen on any of the properties, so no diagnosis was established. One property had campylobacteriosis confirmed in several mobs of ewes on the property. Another property had an outbreak of campylobacteriosis the previous year, but in the year of the study the incidence of the disease was low. This latter mob was kept isolated from the remainder of the flock.

Seven main causes, or categories, of lamb death were identified:

1. aborted foetuses;
2. exposure;
3. birth trauma;
4. starvation;
5. scavenged;
6. predators; and
7. congenital abnormality/disease.

Significant variation in the numbers of lamb deaths by category was observed between the participating properties. In five of the seven categories there were no losses in at least one mob.

The greatest loss was the result of exposure. During the period of the study there were three episodes of heavy rain with strong winds over a three to five day period. The number of lamb losses was related to the duration of cold conditions and the number of lambs born during that time. Two mobs from the same property sustained the highest losses from exposure. These losses were higher than recorded as not all lambs that died during this period were post-mortemed, but were presumed by the owner to be exposure deaths.

An average of 16 percent of lambs died as a result of birth trauma (dystocia). Not all of these lambs were born dead. Several of the lambs died of starvation at three or four days old. On post-mortem these lambs showed haemorrhages within the cranium as a result of pressure during birth. It is assumed that these lambs were unable to suckle and subsequently died of starvation (Hughes, 1964). Many of the lambs that died of dystocia were from maiden ewes, either one or two years old, but the losses from mature ewes were still significant.

Many lambs died of starvation. The average loss was 16 percent with a range between zero and nine percent. Although the losses were higher in the mobs with twin lambs, the losses were also high in some of the mobs with singles. This does not appear to be related to breed.

The cause of death for some of the dead lambs collected could not be determined as their vital organs and tissues had been removed by predators. Those lambs that had not walked, had no evidence of death due to dystocia,

## Key points

- The average loss of lambs was 22 percent.
- The major causes of lamb loss were predation by foxes (9 percent), exposure (56 percent), starvation (16 percent) and dystocia (16 percent).
- The reduction of losses to an acceptable level of 15 percent would have a large effect on the profitability of an enterprise.



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or had never breathed, were categorised as being scavenged. This accounted for 6.2 percent of losses. A further 1.4 percent of dead lambs were killed by predators, determined by the age of the lamb, the normal appearance of the organs, and the presence of wounds and blood on the carcase.

One lamb had a congenital abnormality of the heart and died after breathing, but never walked.

One lamb died of enterotoxaemia at approximately 21 days old.

The loss of ewes between first scanning and marking was 1.3 percent. Ewe loss was greater than three percent in only two of the twelve mobs.

## Discussion

The losses of lambs were much higher than the 15 percent expected by participating producers.

The number of lambs unaccounted for was high considering the terrain and supervision of the lambing paddocks. Some ewes may have been incorrectly diagnosed as pregnant, or the test results incorrectly recorded. Some lambs may have escaped into adjacent paddocks of ewes and lambs. The most probable reason agreed by the participants was that lambs were taken by foxes. Some of these lambs may already have died of other causes before being taken by foxes. The number of lambs found scavenged, together with the number of lambs dead from predation indicates that foxes were active among these mobs.

The high loss of lambs as a result of exposure is not surprising given the adverse weather conditions. The producer with the highest losses was at the peak of lambing during the worst period of rain and wind. The paddocks selected to graze the trial mobs were based on proximity to the woolshed rather than the amount of shelter provided.

Deaths as a result of dystocia were also significant. The two year old ewes had a higher loss, but the one mob of ewe hoggets lambing at 12 months old recorded only six dystocia deaths from the 495 lambs born. Many of these losses are probably the result of ewes with a small pelvis. This may be genetic, or the result of low growth rates as ewe weaners, which could compromise skeletal development.

Starvation losses were also high. This occurred in all but two of the trial mobs. There appears to be little difference between the mobs with single lambs and those with twins. The mothering ability of ewes needs to be improved so they do not desert lambs. The selection of ewe replacements from ewe lambs that have been successfully reared as twins needs to be implemented to implant this behaviour in the ewe flock.

## Next Steps

More effective management could reduce deaths caused by predation, dystocia, exposure and starvation. Losses from abortion require further investigation to establish a diagnosis. If the loss across flocks is shown to be primarily the result of campylobacteriosis then there is a need for the production of an effective vaccine to protect flocks in which the organism is endemic.

The producers have established a regime for the early destruction of foxes using professional shooters and fox baits to reduce the fox population and hence the demand for food.

Dystocia deaths can be caused by malpresentation of the lamb or lambs, disproportionate size of the ewe's pelvis in relation to the size of its lamb, and lack of uterine contraction of the ewe. The small pelvic area can be the result of poor weaner growth, and a large lamb can result from over feeding ewes in the last two months of pregnancy. Ewe weaner growth needs to be monitored, and ewe nutrition allocated according to the requirement of the ewe and her lambs, especially in years of high pasture growth prior to lambing. This was unlikely to be the cause on the participating properties as most of the mobs were of the same pregnancy status.

The provision of shelter is paramount. Ewes with twins should lamb in the paddocks that have the most shelter, as their lambs will be lighter at birth.

Lambs die of starvation if they are deserted or unable to follow the ewe. Ewes in sub-optimal health, either as a result of malnutrition or subclinical disease, are more likely to desert one or both lambs. There is also a heritable component of the mothering ability of ewes, which can be incorporated into flocks by selecting ewe replacements from ewes that successfully rear at least two lambs, and purchasing rams from flocks with high lambing percentages.

The loss of ewes was lower than an acceptable loss of about two percent. All ewes had been vaccinated against the clostridial diseases according to the recommendations of the manufacturers. No ewes died from pregnancy toxemia indicating that the nutrition available to pregnant ewes was appropriate.

If it is accepted that a loss of 15 percent can be achieved under good management, then the loss of a further seven percent of lambs is significant. Current market conditions value a lamb at approximately \$40.00 at weaning. The loss in these trial mobs would therefore average \$3.40 per ewe. Extrapolating this figure across a whole flock, demonstrates high losses of income and profitability.

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