Tales from dead lambs: results of a survey of lambing losses

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Results of a survey of lambing losses

By S. M. DENNIS, B.V.Sc., Ph.D., Senior Veterinary Pathologist

During the past year the Animal Health Laboratory has been conducting a preliminary survey into the infectious causes of abortion in sheep and perinatal lamb mortalities. This work was prompted by:

- The diagnosis of vibrionic abortion for the first time in Western Australia in 1961, and
- The estimate that 30 per cent. of all ewes mated in Australia each year may fail to produce a viable lamb that survives to marking time.

This enormous lamb wastage is due to a variety of causes and the role of infectious agents has yet to be evaluated.
LAMBS and specimens from lambs and ewes were submitted to the Animal Health Laboratory from 132 properties in 69 areas. Post-mortem examination was carried out on 757 lambs and a further 1,065 specimens from 147 lambs were also examined. In addition, specimens from 57 species of native fauna were examined for evidence of being possible "carriers" of some of the diseases under consideration.

Infectious Abortion

The results showed that 35 or nearly a quarter (26.5 per cent.) of the properties submitting lambs were infected with a known abortion-producing disease and another five properties revealed abortions due to miscellaneous pathogenic bacteria. This meant that almost one-third of the properties involved in the survey showed definite evidence of infectious abortion.

Note: I want to emphasise that we are referring to the number of properties involved with these flock diseases and not the number of lambs involved.

The main causes of infectious abortion found on a flock basis were:

- Vibriosis (19)
- Listeriosis (12)
- Brucellosis (3)
- Toxoplasmosis (1)

Two of these diseases had not previously been diagnosed in the State until this survey, and brucellosis had only been incriminated as a cause of epididymitis (hard swollen testicles) in rams. In addition, 12 other species of pathogenic bacteria were isolated from 58 separate cases of postnatal lamb mortalities.

Post-mortem examination of the lambs revealed a number of pathological lesions, some of which were: broncho-pneumonia, enteritis, localised or generalised oedema or dropsy, ruptured livers, enlarged livers, starvation, broken ribs, encephalitis or inflammation of the brain, scattered small or large abscesses in the liver, kidney and lungs, navel-ill and peritonitis, enlarged thyroid glands, jaundice, congenital abnormalities of which the commonest was an imperforate or blind anus.

Non-Infectious Causes

The non-infectious causes of perinatal lamb mortalities encountered on a flock basis were:

- clover disease
- starvation/mismothering
- prolonged birth or dystocia
- exposure
- predators

A co-existence between infectious ovine abortion and clover disease was clearly demonstrated when about one-third of the known infections (31.4 per cent.) occurred on clover disease affected properties; this status was also suspected on more than one-third (40 per cent.) but was not known in the last third (28.6 per cent) of the properties investigated.

Classification of Lambs according to Time of Death

Just over a quarter of the lambs examined were born dead, nearly one-fifth died during birth and two-thirds (67.25 per cent.) died after birth.

The greatest single cause of death that accounted for almost one-third (31.8 per cent.) of all the post-mortem examinations was classified as starvation-mismothering. This was responsible for nearly a half (47.8 per cent.) of the losses that occurred after birth. These lambs walked, were active but did not suck and died within the first three days of life. On post-mortem examination, these lambs showed dehydration and depletion of the body fat reserves. Instead of the fat being abundant, firm and whitish, it was reduced in amount, red, soft and gelatinous in consistency. A number of these lambs showed varying degrees of predator damage inflicted during the terminal stages of life, or after death.

The second largest group was classified as neonatal weakness and was responsible for a quarter of the post-natal losses. These lambs died from a number of causes, infectious and non-infectious or both. Clinically these were seen as weak
DEFINITIONS

The following definitions are given so that the exact meaning of terms used in this article will be readily understood:

Abortion: The expulsion of a visible foetus or lamb before it is capable of independent life.

Premature Birth: The expulsion of a lamb before full term that is capable of independent life.

Stillborn: A lamb born dead at full term.

Dystocia: A difficult birth.

Uterine Inertia: Failure of the muscles of the uterus to expel the lamb at full term.

Uterine Prolapse: An eversion of the uterus—that is, turning inside-out of the birth bag.

Perinatal Mortalities: Death of lambs just before and during birth, and within seven days of birth.

Neonatal Mortalities: Death of lambs within the first three or four days of life.

Post-abortion: Occurring after abortion.

Symptoms

Infectious ovine abortion may be manifested by:

- The loss of lambs early in pregnancy without wool and hair covering (i.e., between 60-112 days).
- Loss of lambs with wool and hair later in pregnancy.
- Premature births.

If losses continue later in pregnancy they are referred to as perinatal mortalities and are manifested by:

- Stillbirths.
- Dystocias (difficult births).
- Weak full-term lambs that die within a few hours to three days after birth.

Predators

Predators only accounted for 1.3 per cent. of the losses and did not play a significant part in the deaths of the lambs examined. The predators appeared to act simply as scavengers and mainly confined their attention to dying or dead lambs.

There is a possibility, however, that predators, particularly the fox and the crow, may be of importance in the spread of infectious abortion-producing diseases in an area during the lambing season. This point has yet to be clarified.

Weight of Lambs

The weights of the lambs examined varied between 0.5 lb. to 17 lb. with an average of 7.02 lb. Most of the weights fell between 5 to 9 lb., the range accepted for viability.

Packing and Despatch of Lambs

The best specimens for examination were found to be the lambs with their placentas (afterbirth or membranes). Wherever possible, the placental membranes should be forwarded as these are usually more informative than the lamb carcasses on their own. The quicker the lambs reach the Animal Health Laboratory after death, the better. If possible you should bring the lambs directly to the laboratory yourself. If this is impossible then send the lamb carcasses by rail or bus. A safe effective way of packing the lambs is by wrapping each lamb with its membranes separately in a plastic bag (a nitrogen inner plastic lining is ideal).
Enclose all the separately wrapped lambs in a plastic bag then place inside two super bags (one inside the other) and close with a needle and twine. Address the package to:

Chief Veterinary Pathologist,
Animal Health Laboratory,
Department of Agriculture,
South Perth.

and mark it “URGENT—PERISHABLE”. Lambs wrapped like this last year arrived safely without leakage.

Number of Lambs

From a diagnostic point of view, the examination of one or two lambs might be misleading and result in missing a flock diagnosis of infectious abortion. Generally speaking, the more lambs that are submitted from a problem flock or property the greater is the chance of making a diagnosis of infectious abortion. For obvious reasons the fresher they are the better.

In Brief . . .

It is still too early to draw any definite conclusions from this survey. The results to-date suggest that infectious abortion may be of importance in Western Australia and that further investigations are needed to clarify the position. As a consequence this work will be continued again this year.

Continuation of the Survey

Farmers with sheep abortion or suspected abortion losses, or a number of stillbirths, or weak lambs dying soon after birth, (that is increased perinatal losses) are requested to contact their nearest Department of Agriculture veterinary surgeon, agricultural adviser, stock inspector or private veterinary surgeon without delay. Failing this, or alternatively, we strongly advise you to bring any suspected lamb or lambs, preferably more than one, together with their membranes directly to the laboratory for diagnosis as quickly as possible.

Sheep Abortion Questionnaire

Seven hundred and one replies were received from the sheep abortion questionnaires that were distributed last April. This represented a 10 per cent. response. The replies are at present being analysed and the results will be made known at a later date. If anyone still wishes to complete and return his questionnaire it is still not too late.

Acknowledgments

Investigations of this nature are impossible without the co-operation of many people. We wish to thank all the farmers and pastoralists who co-operated with the survey. We also wish to thank all the branch secretaries of the Farmers’ Union and the Pastoralists’ Association for their help in distributing the sheep abortion questionnaires.

WARNING

About half the agents which cause infectious abortion in sheep can be transmitted to man and are therefore a danger to human health. Strict hygiene should be observed in handling affected animals or animal tissues.

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