

Oral presentation

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Causes of perinatal death in lambs in Oppdal and Rennebu, Norway

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Background

The frequency of stillbirths in flocks registered in the Norwegian Sheep Recording System (NSRS) is increasing. In 2001, 3.4% of born lambs were registered as stillborn, in 2006 the number had increased to 4.1%. Some farmers also report seeing more lambs that are weak at birth and die within a few hours. Post mortem examinations are not frequently carried out, unless there are large losses in the flock. The causes of stillbirths and death in weak lambs are thus to a large extent unknown in the "average flock". On this background, a study was carried out during the lambing season 2006, in order to identify causes of perinatal death in 9 herds in Oppdal and Rennebu in the county of Trøndelag.

Materials and methods

Nine flocks participated in the study (Table 1). Stillborn lambs and lambs who died within 48 hours after birth

were included. Lambs who died during the weekend were not included. Data on identity and age (ewe), size of litter, birth weight, gender and time from birth to death were registered on the farm. Post mortems were performed at the National Veterinary Institute, Trondheim. Samples were taken for histology and identification of bacterial infections. The dead lambs were also tested for *Toxoplasma gondii* and border disease virus. Eight of the herds were registered in the Norwegian Sheep Recording System, and additional data could be retrieved from this database.

Results

Seventy-four lambs, from 64 litters, were included in the study: 38 ewe lambs and 36 rams. There was some variation with regard to time from birth to death, age of mother, size of litter and birth weight (Table 2). The mean birth weight was 4.02 kg. This is low compared to the mean size of litter. A birth weight of 4 kg is the average for

Table 1: Characteristics of the nine study herds

Herd	No. of ewes	No. of born lambs per ewe (2006)	% stillbirths (2006)	No of lambs included in the study
1	145	1,77	4,3	3
2	246	2,11	5,6	14
3	156	2,21	2,6	11
4	98	1,90	2,7	6
5	212	1,89	2,2	3
6	110	2,12	3,4	8
7	191	2,11	4,0	14
8	475	1,76	2,7	11
9	183	1,53	1,9	4

Table 2: Characteristics of the 74 lambs included in the study

Results	
Time from birth to death:	0–42 hours. Less than 1 hour in 46 lambs
Mean age of mother:	3,2 years (min 1, max 7)
Mean size of litter:	2,6 (min 1, max 4)
Mean birth weight:	4,02 kg (min 1.5, max 6.6)

quadruplets in the NSRS. There was a higher proportion of lambs with birth weights less than 4 kg among the lambs in the study, compared to all lambs born in the study herds, and all lambs with registered birth weights in the NSRS.

The most common findings at the post mortem examinations were *no detectable changes* (n = 28) and *trauma* (n = 21). Unspecific changes (subcutaneous oedema and fluid in body cavities) were also common (n = 13). Other diagnosis were congenital malformations (n = 5), infections/enteritis (n = 5), drowning (n = 4) and torsion of the abomasum (n = 1). Two lambs were mummified and two lambs were cadaverous.

There was no difference in body weight between lambs with *trauma* and lambs with *no detectable changes*. *Toxoplasma gondii* was not found, and all lambs were negative for border disease virus.

Discussion and conclusion

Infections are not common as a cause of perinatal death in lambs in these herds. In many lambs no specific cause of death could be identified. This may indicate that the lambs died during birth, or died short time before birth due to impaired function of the placenta. The relatively low mean birth weights in the dead lambs also indicate that impaired function of the placenta can be a contributing factor. Analysis to differentiate between impaired function of the placenta and death during birth, were not carried out. However, this should be included in new studies.

Trauma can be caused by complications at delivery, as well as attempts of the mother to make the weak lambs stand up. The trauma (e.g. broken ribs) may thus not be the actual reason why these lambs died.

Further investigations are needed to gain more knowledge on causes and prevention of perinatal death in lambs.

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