

NADIS Health Bulletin



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Health Quiz

Use of scanning and weaning results in sheep flocks

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The comparison of scanning results (Fig 1) with subsequent weaning data (Fig 2) can provide some very revealing data in most sheep flocks because these results are based upon actual numbers and not perceived production figures or losses (see Table1). Many low ground crossbred flocks comprised of mule ewes have scanning results around 205 per cent but industry figures have consistently show weaning percentages of 155 to 160 per cent for the past 30-40 years. How, when and why are these potential extra 45 to 50 lambs lost?

Conception rate

Sheep have a high fertility rate with more than 90 per cent of animals of appropriate bodyweight and body condition score conceiving during one cycle of the normal breeding season to a fertile ram (Fig 3). This figure may be as high as 95 per cent when fertile rams are run with ewes at a ratio around 1:40. Less than 2 per cent of females should be non-pregnant after a restricted breeding period of only 35 days (two reproductive cycles).



Fig 2: Industry figures have consistently show weaning percentages of 155 to 160 per cent.

Barren rate

The most common reason for an increased barren rate is a sub-fertile ram especially when individual rams are run with a group of ewes (1:40) rather than

Table1 - Number of lambs produced per 100 ewes

	%	Lambs per 100 ewes
Scanning data		205
Barren ewes	2	-4
Abortions	2	-4
Deaths	3	-6
Perinatal mortality	15	-25 to 30
Losses to weaning	5	-10
Weaning		156



Fig 1: Many low ground crossbred flocks comprised of mule ewes have scanning results around 205 per cent



Fig 3: Less than 2 per cent of females should be non-pregnant after a restricted breeding period of only 35 days.

three rams with 120 ewes. The farmer should be aware of this problem of ram infertility prior to scanning because of the number of regular returns to service during the second 17 days' service period.



Fig 4: Abortion (note the empty appearance of the right abdomen) should not exceed 2 per cent.

Embryo loss

Embryo/foetal loss and abortion (Fig 4) can be largely controlled by vaccination (enzootic abortion and toxoplasmosis), and good husbandry (*Campylobacter* and *Salmonella* spp.). Toxoplasma infection during early pregnancy may be manifest as embryo/early foetal loss with an increased number of returns to service after irregular extended periods. As the ram is often removed after a breeding period as short as 5 to 6 weeks, these returns to service are not noted unless a vasectomised ram is present with the ewes. Embryo/early foetal loss is then manifest as an increased barren rate, often above 8 to 10 per cent when 4 per cent is acceptable and 2 per cent the target after a 6 week breeding period. Often the highest number of barren sheep is in the youngest age group.

It may prove difficult to establish a definitive role of toxoplasmosis in an increased barren rate in a group of sheep. Blood should be collected from 6 to 10 barren ewes and their serological titres compared with an equal number of pregnant sheep; the former group should show higher titres and a higher seroprevalence when the cause is toxoplasmosis.

Discrepancy in foetal number/size

Occasionally, ewes scanned for triplets produce only twins, and these twins are of different sizes. The birth of twins with disproportionate weights e.g. 5.5 kg versus 3.5 kg (Fig 5) probably indicates that three embryos implanted and underwent early development but one foetus failed to develop further and was resorbed. Placental development would initially have been limited by two foetuses in the same uterine horn and no compensation could have occurred even though one foetus was lost.



Fig 5: The birth of twins with disproportionate weights e.g. 5.5 kg versus 3.5 kg probably indicates that three embryos implanted but one foetus failed to develop further and was resorbed.



Fig 6: Failure to recognise first stage labour with subsequent death of the lambs in utero then death of the ewe due to toxæmia.



Fig 7: Few sheep farmers record lamb losses.

Ewe mortality

Ewe deaths around lambing time in lowground flocks in the UK are quoted as 3 to 5 per cent with an estimated 70 per cent caused by dystocia. Losses result from pregnancy toxæmia, complications of vaginal and uterine prolapses, not recognising first

stage labour with subsequent death of the lambs in utero then death of the ewe due to toxæmia (Fig 6), trauma during assisted lambing, and infection introduced at lambing. Loss of the ewe will also typically result in death of the lambs. Data show veterinary attendance of one lambing problem per 800 ewes. Such limited professional intervention will have no impact on overall flock productivity.

After lambing, diseases of the ewe such as gangrenous mastitis should not cause death of the lambs when supplementary feeding is provided but such lambs can be lost to bloat and other ailments common to orphan lambs.

Lamb losses at lambing time (perinatal mortality)

Few sheep farmers record lamb losses (Fig 7) but this value can be estimated from the industry's own production figures shown in Table 1. Losses within the first three days of life (perinatal mortality) are variably quoted as 10 to 25 per cent. A perinatal mortality value around 15 per cent balances the scanning data with the weaned lamb sales shown in Table 1. Data consistently show that the mortality rate of triplet lambs is 2-5 times higher than twin lambs, and 10 times higher than single lambs. Are triplet litters (Fig 8) desirable? Do they make economic sense?



Fig 8: Are triplet litters desirable if the weaning percentage is 155 per cent and half the ewes only rear a single lamb?



Fig 9: Flushing - do sheep farmers really need more lambs at lambing time.

Flushing

The provision of improved nutrition by means of a good grass sward (Fig 9) to ewes for up to one month before mating and during the breeding season ("flushing") increases ovulation rate and embryo implantation rate with a resultant increase in litter size. However if we compare ultrasound scanning data during mid-gestation (often 205% for lowground flocks) to the weaning rate (often 155%), the question arises do sheep farmers really need more lambs at lambing time and is such nutritional management a sensible strategy?

Reducing perinatal mortality from the present unacceptable rates, variably quoted as between 10 to 25 per cent, is much more important than producing even more weakly triplet lambs to ewes with insufficient milk on a farm where there is limited skilled labour to deal with such highly susceptible neonates. Flushing may ensure improved ewe condition scores at mating but this can also be achieved by timely weaning and appropriate management thereafter. It should also be remembered that triplet-bearing ewes are more prone to pregnancy toxæmia, vaginal prolapse, and rupture of the prepubic tendon. On many farms artificial rearing of orphan lambs is a chore and rarely are these lambs well managed. The majority of these orphan lambs typically take twice as long to reach slaughter weights (Fig 10) compared to naturally reared lambs.

Advantages of flushing

- Flushing for four to six weeks should provide for a 0.5 to 1 unit increase of condition score at mating time.
- Flushing increases ovulation and implantation rates which is beneficial in hill breeds producing F1 hybrid females i.e. twins on improved pasture compared to singles when maintained on hill ground.

Disadvantages of flushing

- Fields must not be grazed for 4 to 6 weeks to ensure a good (8 cm) grass sward for late September/early October.
- Extra fertiliser required.
- Reduced grazing for weaned lambs or purchased store lambs.
- Flushing increases ovulation and implantation rates in hybrid ewes resulting in more than one third of ewes producing triplet litters.
- Too many low birthweight triplets with consequent high perinatal losses.
- Cost and labour involved with rearing orphan lambs.
- Welfare implications of rearing orphan lambs.



Fig 10: On many farms artificial rearing of orphan lambs is a chore and rarely are these lambs well managed.



Fig 11: Industry figures show 10 lambs are lost per 100 ewes between three day-old and weaning.

Losses from 3 days to weaning

Industry figures show 10 lambs are lost per 100 ewes between three day-old and weaning. Losses could be high from clostridial diseases in the 20 per cent of flocks that do vaccinate routinely (Fig 11), respiratory disease (Fig 12), umbilical infections/peritonitis, joint ill, and possibly severe parasitic gastroenteritis such as nematodiriasis. A target value of 1-2 per cent should be achievable in most flocks.



Fig 12: Respiratory disease is a common cause of lamb deaths.

Conclusion

The comparison of scanning results with subsequent weaning data can provide some very revealing data in most sheep flocks because these results are based upon actual numbers and not perceived production figures or losses. Review of this information during the annual review of the flock health plan may highlight areas for further investigation and increased profit.

Adequate ewe nutrition during the last six weeks of pregnancy, when 75 per cent of foetal growth occurs, is essential to ensure appropriate lamb birthweight. The reader is directed to an earlier health bulletin detailing the monitoring of ewe nutrition during late gestation.

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