

Management of the Hill Sheep Flock at Leenane with Special Reference to Lambing Supervision

Luke O'Malley and Seamus Hanrahan

Teagasc, Hill Sheep Farm, Leenane, Co Mayo

The purpose of this paper was to outline the performance of the ewe flock at the Teagasc Hill Farm with particular emphasis on management inputs around mating and lambing as an example of the performance that can be achieved in terms of ewe and lamb survival without round-the-clock supervision during the lambing season.

Farm Facilities and Production System

The Teagasc Hill Sheep Farm was located in the Sheffry hills near Leenane and consisted of 250 ha of hill land and 20 ha of reclaimed green land. The farm varied in altitude from 15 to 275 m above sea level and average rainfall at the farm was 2124 mm for the 10 years 1995 to 2005. The green-land area was re-seeded in 1991/92 and the swards were mainly ryegrass; it was possible to cut silage from about half this area.

There was a stock-proof perimeter fence and the green land was fenced into 10 paddocks – mostly sheep wire but has electric fence around the main lambing paddocks. There was a slatted sheep shed which accommodated 200 ewes. The handling facility was built alongside a 3-bay hayshed with the race and weighing scales under the shed roof; the hayshed also provided storage for farm equipment. There was also a small tractor, trailer and transport box, livestock trailer and block cutter on the farm. The flock consisted of around 280 Scottish Blackface (local type) ewes, 40 crossbred ewes and about 75 homebred replacements. The ewes were managed as two integrated systems:-

Hill System (200 purebred ewes) - ewes spent about 70% of the year on the hill and had use of 5.6 ha of green land for mating, lambing and for ewes with singles males to weaning. Wether lambs were sold to export market for light lamb – some were finished indoors.

Lowland System (120 ewes) – ewes spend about 30% of the year on the hill and had use of 14.4 ha of green land for mating and from lambing to weaning. Lambs remain on green land until sale or indoors for finishing from early October.

The replacement ewes were housed and fed silage with supplemented with concentrates from mid November to late April and spent the rest of the year on the hill. The ewes in the Hill system were bred pure (to generate flock replacements) while the ewes in the Lowland system were crossed (usually with Belclare rams) to produce prolific ewe replacements for sale. Purebred ewes spent

their first three breeding seasons in the hill system and usually were then transferred to the Lowland system where they remained until they had to be culled. Ewes were checked for breeding soundness (teeth, udder, feet) at weaning and those that were to be culled were identified; cull ewes were sold at an appropriate stage between weaning and late September. Broken mouth was the principal culling reason.

Management of Ewe Flocks

All ewes were on the hill grazing from weaning until just before joining with rams – with the exception of a small number of ewes in poor condition that were removed from the hill earlier. Between weaning and mating the green land was grazed by the lamb crop. Crossbred wether lambs were sold to slaughter at French market weights; purebred hill wethers went to the light lamb market; crossbred females were sold off the farm in early September. In early October, remaining lambs were housed (for finishing) to ensure that sufficient grass was available for the mating period. The mating system involves single ram groups for both Hill (5 rams) and Lowland (5 rams) systems so that sire and dam were known for every lamb. Ewes were put to ram in late October for the Lowland system and in the third week of November for the Hill system. The joining period was 35 days in both cases; rams were fitted with crayons and ewes mated within the first 10 days get a permanent colour mark to facilitate introduction to concentrate feed 10 days before the remainder of the flock and so that they can be put out to grass before the rest of the flock (Lowland system) - thus making best use of the scarce grass supply at lambing time. The paddocks on the green-land area were used for mating and when rams were removed all ewes were put to the hill until early January (Lowland system) or early February (Hill system). The management of the two flocks differed from this point until lambing. Only ewes from the Low Flock were scanned in mid-pregnancy to identify twin-bearing ewes. Because of the small number of twin bearing ewes in the Hill Flock it was felt that the cost of scanning was not justified in terms of the amount of supplementary feed saved.

Lowland flock: Ewes bearing twins (about 50%) in the Lowland flock were housed in a slatted shed in January and offered silage *ad libitum* and were separated into early and late lambing groups; ewes were offered a proprietary ewe-and-lamb ration (18% crude protein) starting at 230 g per day at week 6 prior to the expected lambing date. The allowance was gradually increased to 560 g per day before lambing. The remainder of the ewes were returned to the hill and were inspected every two to three weeks and any thin ewes from both flocks (condition score 2 or less) were drafted to the shed and separated into early and late groups and got 230 g of concentrates per day at week 5 increasing to 450 g per day for the final week before lambing. Ewes were put to pasture just prior to their expected lambing date (based on early or late mating). Concentrate supplementation was

continued outdoors depending on grass supply on a flock basis, using the daily allowance for singles. Ewes were drafted from the lambing paddock as they lamb and get no further concentrate.

Hill flock: When the sheep house was full any remaining ewes from the Hill Flock were drafted onto an enclosed area of the hill (4 ha) and offered concentrates – starting at 230 g per ewe per day and increasing gradually to 454 g at 3 weeks prior to onset of lambing. Ewes drafted for supplementary feeding remain in the enclosed hill paddock until they lamb. About 50% of the Hill flock ewes were off the hill by the third week of March the remainder stay on the hill until just prior to lambing when they were moved onto a paddock in the green-land area for lambing and got concentrates (450 g/day) until they lambed. All ewes were drafted from the lambing areas as they lambed. Ewes with twins or male singles were drafted to the same paddock while ewes with female singles were drafted to a separate paddock.



Supplementation started at 230 g per ewe per day and increased gradually to 454 g at 3 weeks prior to onset of lambing

Lambing Supervision

From the onset of lambing the first daily inspection was at 6:30 AM - this was the most important inspection of the day as any problems that had arisen during the night were identified. Newborn lambs that had bonded with their dam and were suckling satisfactorily were drafted, during late morning, to a nearby yard area. Immediately before entering the yard, lambs' navels were sprayed with iodine solution, then they were tagged, weighed and sexed, the mother's tag number was also recorded along with her condition score and weight. All dead born lambs were weighed and details

recorded. Udders were checked carefully for sufficient milk supply and mastitis before moving animals to the grazing paddock. Ewes were checked ~hourly during the day until around 4.30 PM; checking was done again between 6.30 PM and 9 PM, depending on daylight. There was nobody on the farm between the last check and 6.30 AM. Our records show that 40% of lambs were born during this period.

Ewe Performance

Details on the performance of the two systems are summarised in Table 1, for the 3 years to 2010. The proportion of ewes that lambed was higher for the Hill flock than the Lowland flock and the overall value was 91%. This was considered reasonably satisfactory given that single-sire mating groups were used (mostly ram lambs in the Lowland flock) and joining was limited to 35 days. A figure around 95% would be expected under conventional mating conditions.

Table 1. Summary of ewe performance for 2008 to 2010

	Hill system	Lowland system
Ewe live weight (kg)	41.1	48.4
Percent ewes lambed	92	89
Litter size	1.05	1.51
Lambs reared per ewe to ram	0.93	1.28
Lamb mortality (total) (%)	3.4	5.1
Annual ewe mortality (%)	4.5	3.1



Scottish Blackface Ews with her Belclare cross lambs

Lamb survival was good; the mortality shown in Table 1 includes all dead-born lambs and any that lambs die between birth and weaning. About two-thirds of all lamb losses were classified as perinatal (i.e. either born dead or died within 24 h of birth). The perinatal mortality was about 3% in both flocks. Annual ewe mortality was greater in the Hill flock. Ewe and lamb mortality were both well below the national figures for lowland or hill farms.

Distribution of Lambing

The spread of lambing over the lambing season is a key indicator of the labour required as supervision will be needed regardless of the number of ewes lambing on any given day. The pattern of lambing is shown in Figure 1 for the last 3 seasons – day 1 represents the first lambing day in each year. Because the Hill flock was put to the ram 3 weeks after the Lowland flock the total lambing season lasts for 42 to 45 days. The last few ewes in the Hill flock lambed during the first week of May.

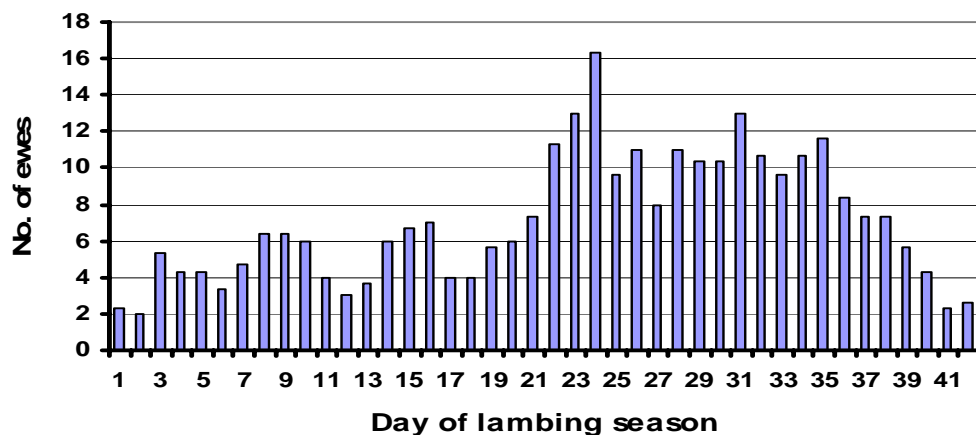


Figure 1. The actual daily incidence of lambing at Leenane – combined data for 2008 to 2010

In order to combine the information from both Hill and Lowland flocks to get the lambing pattern that would occur if all ewes were put to the ram on the same day the lambing date was expressed as the number of days relative to the mean date for each flock. The combined information gave the pattern shown in Figure 2. This shows that just over 92% of the ewes lambed within a 20-day period – a very compact lambing pattern. This pattern means that during the 20-day period 4% to 5% of the ewes would lamb each day – i.e. 8 to 10 ewes per day for a 200 ewe flock. This was about the number that lamb at Leenane under the mating programme for a 320 ewe flock. If all ewes at Leenane were put to the ram at the same time the number lambing per day would be around 14 to 17 ewes – this could have been managed without any difficulty given the present facilities at the farm.

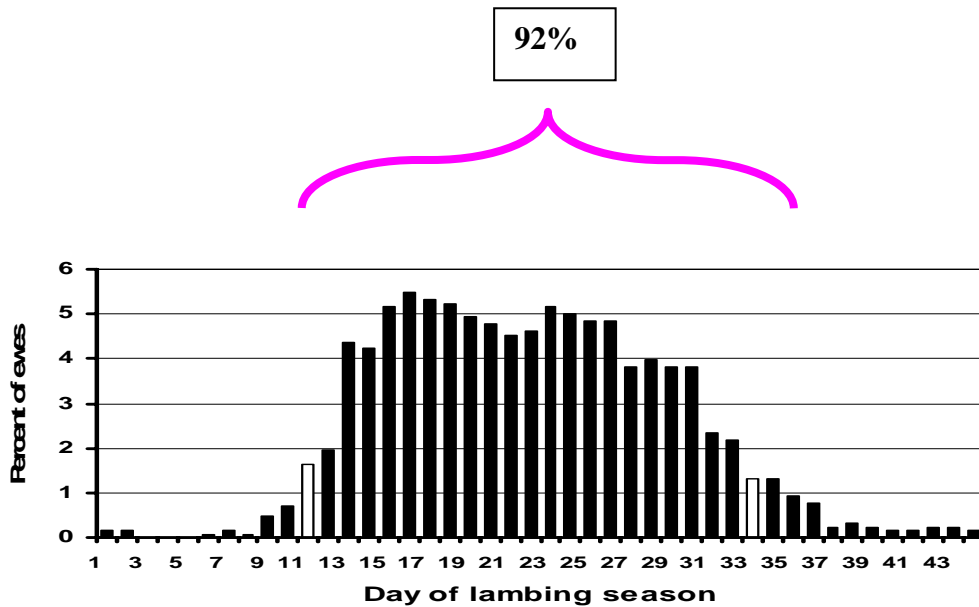


Figure 2. Expected pattern of lambing at Leenane if all ewes were put to ram at the same date – 92% of ewes lamb between day 12 and day 33, inclusive

Summary

- These results show what can be achieved on a farm that was well organised in terms of fencing and handling facilities and has a well defined annual management programme and with only the essential farm equipment for a sheep system.
- Total lamb mortality can be kept well below 10% for flocks lambed outdoors on lowland without any supervision during the hours of darkness – in the present case this represents the hours between 9 PM and 6.30 AM – and with a break between 4.30 and 6.30 PM.
- The high lamb survival recorded at Leenane was achieved despite the very high rainfall at that location and the exposed nature of the site.
- The Lowland flock was achieving an output of 1.28 lambs reared per ewe to the ram, which was equal to the performance for lowland flocks in the National Farm Survey. Thus, it can be argued that the performance of the Lowland flock in this study was a relevant and achievable target for well managed lowland flocks. However, the fact that ewes were lambed outdoors was probably a factor in the excellent level of survival being achieved in that it facilitated the expression of natural mothering instincts, which may be inhibited somewhat under crowded indoor lambing conditions.
- It is also suggested that even if all ewes were put to the ram on the same day one operator could manage the lambing as over 90% of the ewes would lamb within a 21-day period.

- Our results show that intensive night-time supervision is not essential; thus one of the periods seen as the major burden in flock management can be rationalised without prejudice to good animal survival - at least under the conditions that obtain at Leenane.