

Final Report on Cae Haidd Round Bale Sheep Feeding Study

With winter approaching faster than most of us would like, soon many of you will be thinking of your feeding regime in preparation for next year's lambing crop. Feeding big bales in round feeders is a common method, and as part of the project undertaken by Gethin Prys Davies and Dr Dave Davies, Silage Solutions Ltd at Cae Haidd last spring we tried to answer two key questions.

1. How much of the silage is wasted either through deteriorating quality or physically not consumed as it is dragged out of the ring feeder and trampled into the surrounding soil?
2. Is sufficient silage available to meet the expected nutritional requirements of pregnant ewes?

METHOD

Two groups of 30 and 60 ewes were established, which were matched for stage of pregnancy and breed with an average live weight of 65kg. In total 5 bales were fed to each group in succession starting in January 2017. Immediately after opening the bales they were weighed and a silage sample taken (for NIRs predicted analysis). Silage samples were subsequently taken on an almost daily basis from within the ring feeder until little remained and a new bale was fed with the same sampling regime. Also, on an almost daily basis wasted silage from outside the ring feeder was removed, weighed and sampled (NIRs predicted analysis). In addition a subsample of each sample was dried in the oven to obtain an accurate assessment of the %DM. Temperature was also measured in the bale to assess aerobic spoilage of the silage.

RESULTS

The mean compositional analysis of the 5 bales/group and bale weight are shown in Table 1. Also in the table are the mean number of days each bale was fed for and together with the bale weight, %DM and group size a mean daily silage DM consumption has been calculated, in this instance assuming that all silage within the bale was consumed.

Table 1: average results for weight, nutritional quality and maximum potential daily intake/ewe.

| | 30 Ewe | 60 Ewe |
|--|--------|--------|
| Days feeding | 8.25 | 4.25 |
| % DM | 37.9 | 47.6 |
| D Value (%) | 59.1 | 57.5 |
| ME (MJ/Kg DM) | 9.45 | 9.2 |
| Crude Protein (% DM) | 11.24 | 11.01 |
| NDF (%DM) | 49.72 | 49.66 |
| ADF (%DM) | 31.03 | 31.18 |
| WSC (%DM) | 3.38 | 4.84 |
| Ash (%DM) | 6.62 | 6.32 |
| pH | 4.54 | 4.75 |
| Bale (FW Kg) | 635 | 621 |
| Bale (DW Kg) | 240.7 | 295.6 |
| If all eaten weight consumed/day/ewe kg/DM/ewe | 0.97 | 1.16 |

Once the wasted silage is taken into consideration (see Table 2) then it is clear to see that this has a significant impact on the quantity of silage DM consumed per ewe/day.

Table 2 Indication of the Kg DM lost, the % of the bale lost and the total silage DM intake/ewe/d

| | 30 Ewes | 60 Ewes |
|-----------------------|---------|---------|
| Silage kg DM wasted | 69.38 | 56.33 |
| Kg DM wasted per ewe | 2.31 | 0.94 |
| % DM wasted | 29.38 | 20.99 |
| Total intake kg/ewe/d | 0.69 | 0.86 |

In terms of the nutrition of the ewes they were consuming 28.9% and 25.9% less silage DM than would be expected if there were zero losses. This is unlikely to be occurring on an equal basis both in terms of day to day or by ewe to ewe. It is likely that certain ewes in the group on certain days after feeding are likely to have a much lower intake and these ewes are those that are then likely to lose their lambs or have low milk production post lambing and so produce lambs with slow growth rates.

If a figure of £120 to produce 1T of silage DM and an average bale weight of 268 kg of DM/bale is used then a bale costs £32.16 to produce. The DM losses/bale equates to a monetary value/bale of £9.45 and £6.75 respectively for the 30 and 60 ewe groups. It also means that approximately 30% and 21% more silage is required to be produced than is utilised with the associated loss of productive land for other enterprises and the associated greenhouse gas imprint associated with these production losses.

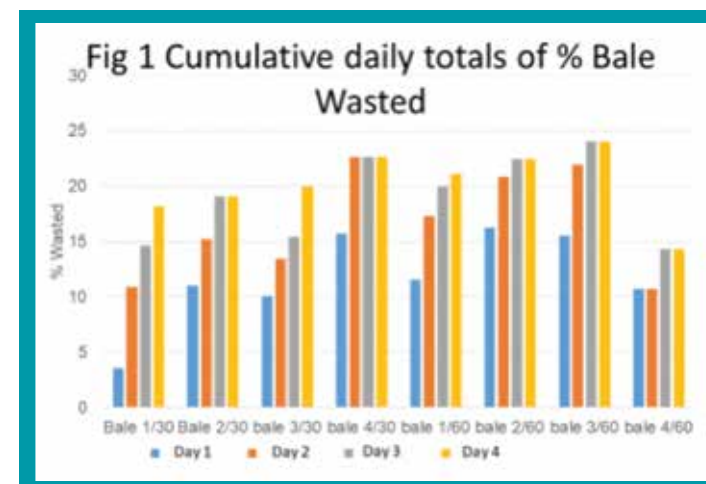


Figure 1 indicates the cumulative daily losses over the feeding period. The data shows that the 30 ewe group had lower losses on day 1 than the 60 ewe group but due to the longer feeding period the losses were greater.

NB. Only the first 4 days are shown in the graph, which represented most of the feeding period for the 60 day group whereas an average further 4 days of feeding were required on the 30 ewe group.