

Lamb performance at Athenry

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Introduction

We are approximately half way through the sheep production year, which began with start of the breeding season last October. The busiest time of the sheep year on most lowland sheep farms is coming to an end as the majority of the ewes have lambed. Now is an opportune time to reflect on the recent past and look to the future. Whilst many issues influence farm profitability, factors within their own farm gate are the most readily influenced by each farmer.

The aim, in this tenth article of the current series, is to present data on the performance of lambs in the research flock at Athenry from 2007 to 2016.

Factors affecting lamb performance

Results from studies at Athenry over the years have shown that lamb performance to weaning is influenced by many factors; some occur prior to birth, others after birth. For example: late pregnancy nutrition affects birth weight, an increase in lamb birth weight of 1 kg results in an increase of approximately 3.2 kg in lamb weaning weight; lambs that are born to ewes shorn at housing (December) are approximately 0.7 kg heavier at birth than from unshorn ewes; litter size influences lamb birth weight; plane of nutrition offered up to weaning influences weaning weight etc.

Plane of nutrition at pasture is influenced by grass feed value (which is impacted by grazing management) and level of concentrate supplementation.

Athenry system

In the research flock at Athenry ewes are shorn at housing and offered high feed-value grass silage until lambing. Post lambing ewes are turned out to pasture and grouped at

approximately 20 ewes per paddock. After approximately 1 week these groups are amalgamated to groups of about 40 ewes. A week later the groups are further amalgamated to yield final grazing groups of about 100 ewes. Male lambs are not castrated.

No concentrate supplementation is offered post turn out to ewes or lambs where the lambs are being reared as singles or twins. Ewes rearing 3 lambs are managed separately from these nursing singles and twins. Ewes rearing triplets receive 0.5 kg concentrate daily for 5 weeks post lambing, while their lambs are offered up to 300 g concentrate daily until weaning. All lambs are treated for internal parasites at 5, 10 and 14 weeks of age. The treatment at 5 weeks is aimed at control of *Nematodirus*. The drench which will be administered at 5 and 10 weeks is levamasole based while the drench at 14 weeks (weaning) is an ivermectin. Post weaning, all lambs are grazed together until drafted for slaughter. Lambs are drafted every 3 to 4 weeks post weaning. After every second draft remaining lambs are treated with anthelmintic for internal parasites. Male and female lambs are grazed in separate groups from mid-September until drafting.

This year at Athenry ewes that were scanned to be carrying singles, twins and triplets received a total of 17, 23 and 29 kg concentrate, respectively, during late pregnancy. Post lambing ewes were turned out to pasture that had a mean sward height of 6.1 cm.

Performance to weaning

The post-lambing management system described above has been the same over the last 10 years. Lamb weaning weight at Athenry for the years 2007 to 2016 is presented in Figure 1. The data presented in Figure 1 include all lambs, regardless of dietary treatments offered to their dams during the rearing phase or during pregnancy. The data presented are for lambs born and reared as either singles, twins or triplets. On average over the 10 years singles, twins and triplets weighed 37.0, 30.6 and 31.1 kg at weaning and had daily live-weight gains of 320, 265 and 277 g from birth to weaning. While lamb performance varied among years the performance in any year was within 0.75 kg of the overall average (in the case of twins) with the exception of 2007 and 2009 – thus consistent performance is achievable from grass based systems.

The differences in lamb performance between grazing seasons reflects year effects but also other factors such as dietary treatments the ewes were offered during pregnancy; this flock has been used to evaluate a wide difference in nutritional regime over the period from 2007 to 2016. Previous studies at Athenry have shown that each 1 kg increase in birth weight increased weaning weight by 3.2 kg. Thus, any pregnancy nutrition that changes birth weight will have a significant impact on weaning weight.

Nevertheless, the evidence shows that whilst lamb performance to weaning varied among years all lambs were drafted for slaughter prior to the end of the grazing season (early-December).

Sward height

The ewes that were rearing singles and twins were managed at pasture in 3 groups during 2016. Each group was managed in a rotational grazing system. The mean pre- and post-grazing sward heights are presented in Figure 2. Swards were grazed to a low-post grazing height early in the grazing season (March, April). Then, as the grazing season progressed post-grazing sward height increased. Mean post-grazing sward height was 3.7, 4.2, 5.5 and 6.6 cm in March, April, May and June, respectively. Grazing to a low sward height early in the grazing season results in delayed stem elongation and this ensures the production of more leaf and, thus, herbage of higher digestibility and intake characteristics. Grazing to a low sward height, particularly during the last 4 to 6 weeks prior to weaning impair lamb performance because the lambs are forced to graze herbage in the lower part of the sward horizon, which is lower in digestibility. Also, as weaning time approaches the proportion of the lamb's nutrient intake accounted for by milk declines rapidly and they rely more and more on pasture for their daily nutrient requirements.

Sward height pre-grazing also increased as the season progressed: 6.3, 7.3, 10.2 and 10 cm for March, April, May and June, respectively. Thus, the mean mass of herbage dry matter pre-grazing was 840, 990, 1860 and 1800 kg/ha for March, April, May and June, respectively.

Performance in 2016

The performance of the lambs at Athenry in 2016 is summarized in Table 1. Lambs born and reared as singles, twins or triplets were 39.5, 31.9 and 29.4 kg, respectively, at weaning. Twins and triplets were a similar weight and age at drafting. Lambs born and reared as singles were drafted for slaughter 5 weeks earlier than twins and triplets. The data in Table 1 implies that age at drafting for any particular flock will be influenced by flock productivity, i.e. the number of lambs reared per ewe joined.

Drafting pattern in 2016

No lambs are drafted prior to weaning at Athenry to enable the collection of growth data to weaning on every lamb reared. Thus drafting commences at weaning. During June, July, August, and subsequently ram lambs are drafted at 43, 46, 47 and 48 kg, while ewe lambs are drafted at 42, 45, 46 and 47 kg, respectively. The drafting pattern for the flock is presented in Figure 3. By the time all lambs were weaned in late June 8% of the lambs had been drafted. By early August and mid-September 39 and 63% of the lambs were drafted for slaughter. The final draft occurred on 28 November.

The effects of rearing type on drafting pattern are presented in Figure 4. Singles were drafted earlier than twins and triplets. By mid-July 59% of singles were drafted compared to only 21 and 18% for twins and triplets respectively. However by mid-October similar proportion of singles, twins and triplets had been drafted. The drafting pattern for twins and triplets were similar. The data presented in Figure 4 implies that in flocks where ewe productivity (lambs reared per ewe joined) is low (many singles) the proportion of the lambs drafted by early July ought to be high.

Conclusions

1. As we are half way through the annual sheep production cycle, and nearing the end of the busy lambing season, it is a good time for some reflection
2. Lamb performance to slaughter is impacted by plane of nutrition prior to and post birth
3. At Athenry all lambs are drafted prior to the end of the grazing season.
4. Litter size affects drafting date – by mid-July the drafting rate was 59% for singles but only 21% for twins.
5. Flock drafting pattern is influenced by ewe productivity.

Table 1. Effect of litter size on lamb performance to slaughter in 2016

	Birth/rearing type		
	1	2	3
Weaning weight (kg)	39.5	31.9	29.4
Weight at slaughter (kg)	47.2	48.7	48.6
Age at slaughter (days)	150	187	184

Figure 1. Weaning weight at Athenry for singles, twins and triplets from 2007 to 2016

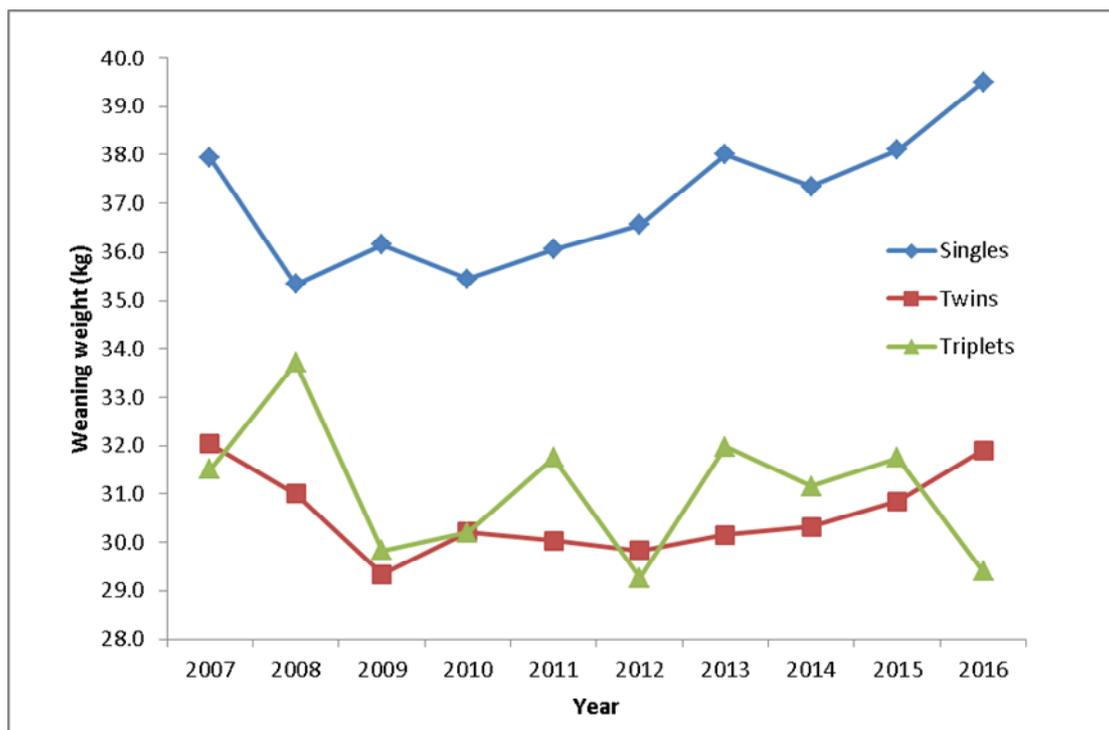


Figure 2. Mean pre and post-grazing sward height, average for 3 groups of sheep at Athenry in 2016

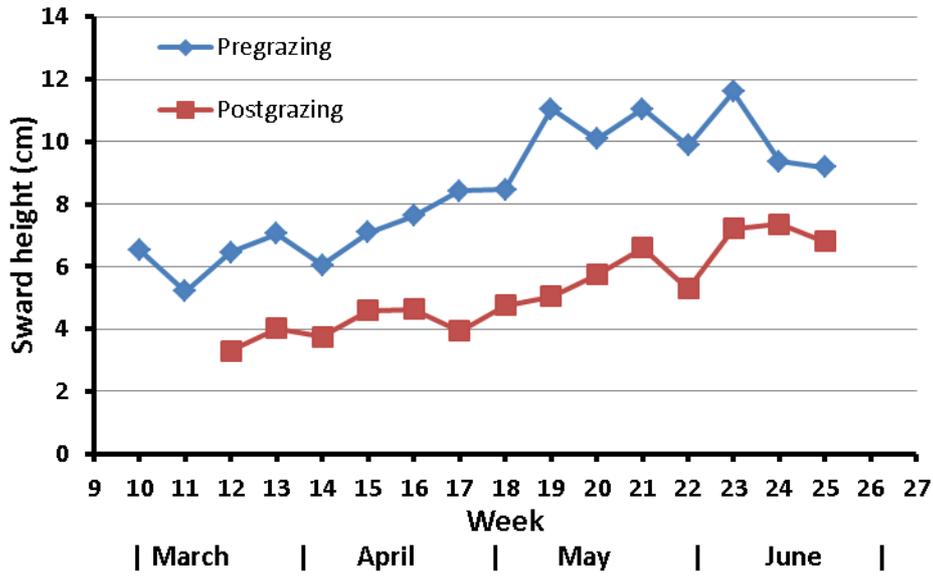


Figure 3. Overall drafting pattern for lambs at Athenry in 2016

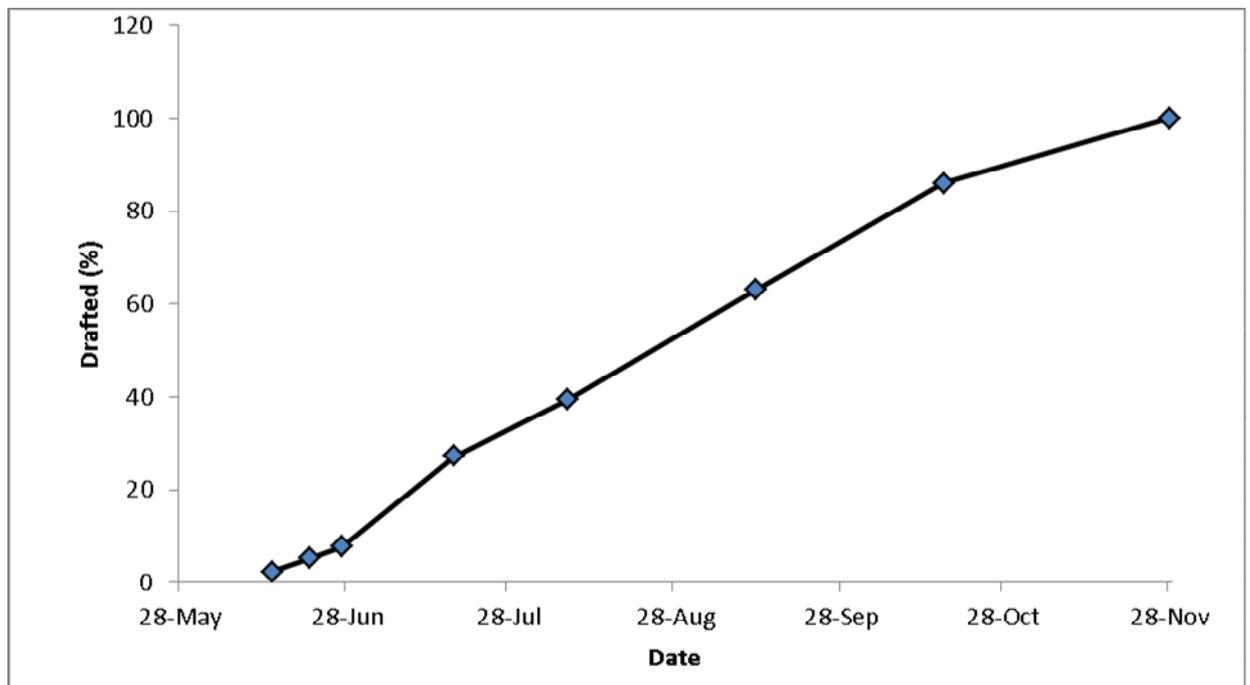


Figure 4. Effect of rearing type on drafting pattern.

