

Lamb performance from grazed grass at Athenry in 2013

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In mid-season prime lamb production it is essential to optimise lamb performance from grazed pasture to minimise costs and so improve margins from sheep production. This is achieved by continuously supplying high feed value herbage for the duration of the grazing season. Feed value is a combination of nutritive value (i.e. digestibility) and intake characteristics (which is a combination of herbage supply and digestibility).

The current grazing season (up to early May) was challenging on many sheep units due to low herbage supply. This was due to a low accumulation of herbage during the previous autumn and winter and exceptionally low growth rates during March and April. Due to poor grass growth rate, and subsequently low herbage supply, many producers supplemented ewes with concentrate post lambing. Ewes rearing singles or twins at the Athenry Research flock did not receive any concentrate supplementation. The objective of this paper is to present information on how the Athenry Research flock was managed and the lamb performance achieved pre-weaning from grazed grass as the sole diet. The effects of grassland management on lamb performance post-weaning is also discussed.

Description of the Research flock

This flock consists of 303 ewes and has the following age structure: 82 two year olds, 84 three year olds, 78 four year olds, 59 five years or older. The ewe breeds are as follows: Scottish Blackface X Belclare, Belclare, Mule and Scottish Blackface X Charmoise. This flock is used for nutritional and grazing studies. Excluding artificially reared lambs, the flock reared 1.74 lambs per ewe. For this year only, for experimental purposes, a large portion of the triplets had one lamb removed and were artificially reared, and thus are not included in the number of lambs reared per ewe. The ewes were stocked at approximately 14 ewes/ha. The national stocking rate is 7.2 ewe/ha

Management of the flock to weaning

Prior to lambing ewes scanned to be carrying singles, twins and triplets received 12, 20 and 26 kg concentrates respectively in the 6 weeks pre-lambing. Ewes rearing singles and twins received no concentrate supplementation post turn-out to pasture and neither did their lambs. Ewes rearing triplets received 0.5 kg concentrate per ewe daily for 5 weeks post-lambing whilst their lambs had access to up to 300 g concentrate daily until weaning. Ewes are grouped by week of lambing and subsequently managed as separate grazing groups. The ewes were stocked at 14 ewes/ha. There are a total of 5 grazing groups, including one group of triplets. All lambs were weaned at 14 weeks of age.

Lamb performance

The effects of lamb birth and rearing type on lamb performance (regardless of dietary treatment) are presented in Table 1. Lambs born and reared as singles achieved target performance averaging 38.7 kg at 14 weeks of age. Lambs born and reared as twins averaged 31.2 kg at weaning. Lambs born and reared as triplets were 1.3 kg heavier than twins, and this was due primarily to access to up to 300 g concentrate per lamb daily. The lambs were approximately 0.5 kg lighter at birth than target. Previous studies at Athenry have shown that an increase in birth weight of 0.5 kg equates to an increase in weaning weight of 1.5 kg. It is interesting to note, from a productivity view point, that ewes rearing singles, twins and triplets weaned 38.7, 62.4 and 97.5 kg of lamb liveweight, respectively, thus clearly illustrating the impact of prolificacy on efficiency of prime lamb production.

The pre- and post-grazing sward heights for two grazing groups (groups 1 and 2) are presented in Figures 1 and 2, respectively. Grass supply was tight for all the grazing groups. Post-grazing sward height was at or below 3.5 cm for most of the period prior to mid May. Pre grazing sward height was also below 5 cm for most of the grazing season prior to mid May. After mid May grass growth rate increased thus enabling post grazing sward height to be increased towards 6 cm.

Table 1 The effect of birth and rearing type on lamb performance

		Birth/rearing type		
		Single	Twin	Triplet
Lamb weight (kg)	- birth	5.3	4.5	3.7
	- weaning	38.7	31.2	32.5
Live weight gain (g/day)	- birth - 5 weeks	396	296	321
	- 5 – 10 weeks	344	288	285
	- 10 – 14 weeks	262	228	256
	- birth – 14 weeks	341	273	291

Would there have been a response to concentrate feeding to the ewes in April?

One measure of the effect of sward grazing management, thus grass availability on ewe and lamb performance is ewe condition score loss from lambing to 5 weeks post lambing (peak lactation). Ewe condition score changed by only -0.01, -0.15 and -0.04 condition score units for ewes rearing singles, twins and triplets respectively, thus indicating that the ewes were receiving adequate nutrient intake. Consequently it is unlikely that an economic response would have been obtained from concentrate supplementation to the ewes in April or early May. This clearly illustrates that ewes can graze to low residual sward heights early in the grazing season without negatively impacting on animal performance.

2013 lamb performance compared to previous years

The effects of birth and rearing type on lamb performance at the Athenry Research Flock (includes all animals on different dietary treatments) are presented in Table 2. Lamb performance in 2013 was equal to or better (depending on birth/rearing type) to the average for the years 2008 to 2012, and better than achieved in the years 2011 and 2012, respectively.

Table 2 Daily live-weight gain to weaning (g/day) and weaning weight (kg; in parentheses) at Athenry from 2008 to 2012 (g/day)

Year	Birth/rearing type		
	1	2	3
2008	335 (38.8)	284 (32.9)	308 (34.3)
2009	330 (38.5)	279 (32.5)	277 (31.3)
2010	331 (37.8)	282 (32.2)	281 (31.4)
2011	311 (36.6)	264 (30.7)	291 (32.5)
2012	<u>323 (37.3)</u>	<u>262 (30.3)</u>	<u>272 (30.2)</u>
Mean	326 (37.8)	274 (31.7)	286 (31.9)

Implications for drafting

Using data from the Athenry Research Flock from 2008 to 2012 inclusive clearly illustrates that each 1 kg reduction in weaning weight, increases the age at slaughter by an average of 7 days. Therefore, if post weaning performance in 2013 is similar to previous years, lambs reared as twins should be fit for slaughter 6 and 3 days earlier than in 2012 and 2011 respectively and 7, 9 and 12 days later than in 2010, 2009 and 2008, respectively.

Figure 1 Pre and post grazing sward heights for Group 1

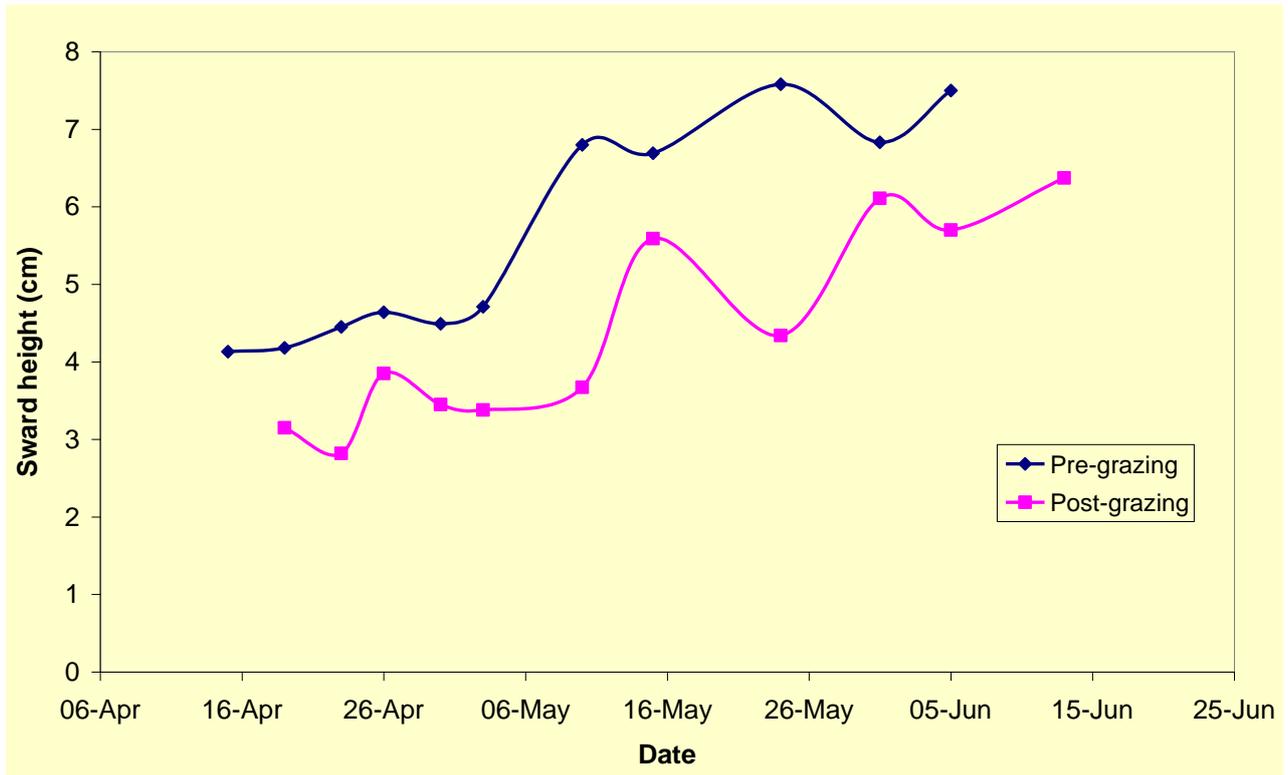
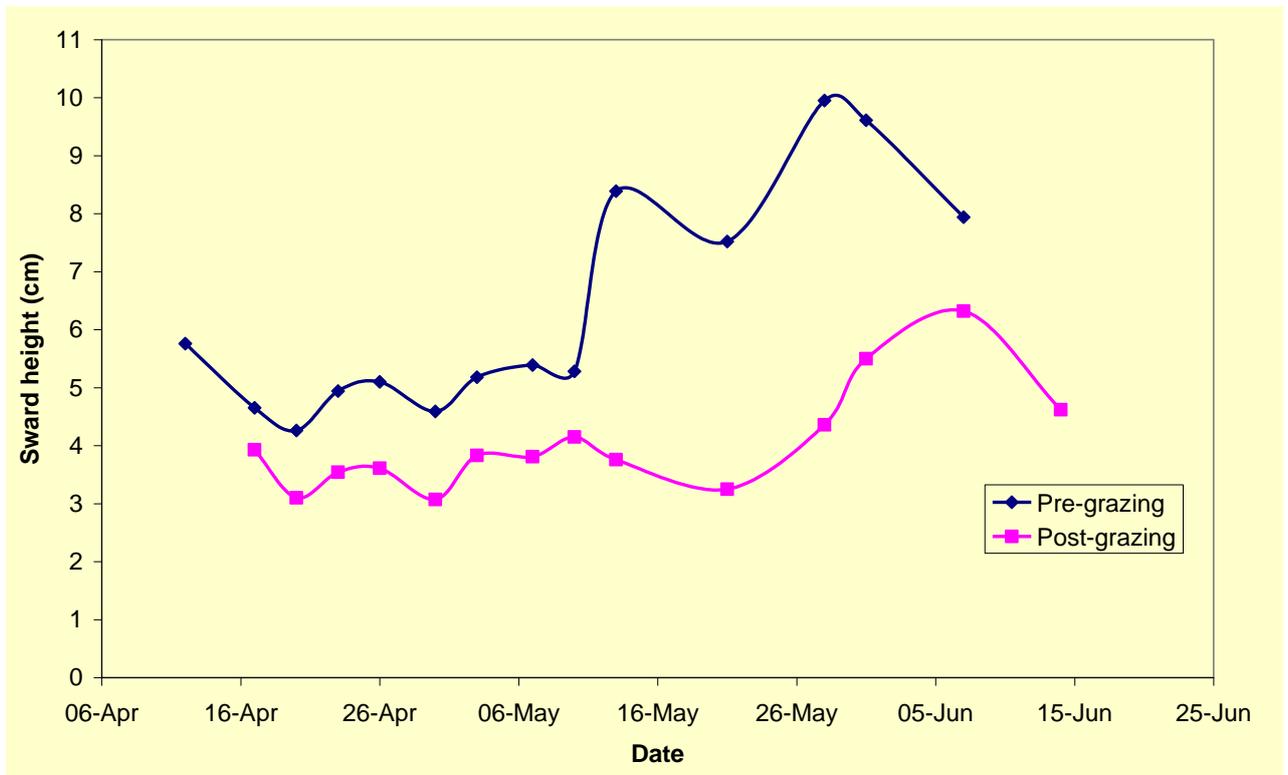


Figure 2 Pre and post grazing sward height for Group 2



Lamb performance post weaning

To achieve optimum level of lamb performance from grazed grass, pasture must be managed to maximise the proportion of leaf in the sward canopy, thus maintaining herbage digestibility and intake potential. This is achieved by grazing swards to different sward heights during the grazing season. Target post grazing sward heights, based on many studies undertaken at Athenry, which differ for rotational and set stocked grazing systems are summarised in Table 3. Lambs should not be forced to graze below the heights in Table 3 for a rotational grazing system. However when lambs are removed from the paddock, dry ewes can be used to graze the pastures down to 4 cm, thus resulting in a leafy re-growth for lambs on the next grazing rotation. If grazing silage or hay after-grass lambs can be let graze down to 5 cm prior to moving to a new paddock.

Similar levels of lamb performance are achievable from well-managed set stocked and rotational grazing systems. The main advantage of the rotational grazing system is that it facilitates the removal of excess herbage (paddocks) from the system, due to periods of rapid grass growth, for forage conservation and enables the inclusion of extra herbage when grass growth declines. Also the rotational grazing system facilitates higher grass utilisation consequently reducing cost of production.

Table 3 Post grazing sward heights for target lamb performance (cm)

	Grazing system	
	Rotational (post-grazing)	Set stocked
June	5.5 – 6	6 – 7
July	6	7 – 8
August	6	7 – 8
September	6	8

(Keady, 2010)

Level of performance post weaning

Using good grazing management (as outlined previously) high levels of lamb performance can be achieved post weaning from grazed grass, be it from new reseeded or old permanent pasture (Table 4). The data presented in Table 4 illustrate that for the first 3 weeks post weaning (up to 300 g/lamb daily) and from weaning to slaughter (last lambs slaughtered in early December) high daily liveweight gains are achievable from grazed grass offered as the sole diet.

Table 4 Effect of sward type on lamb performance

	Sward type					
	Perennial ryegrass (PRG)	Tyfon + PRG	Tyfon only	Chicory + PRG	Chicory only	Old permanent pasture
Live-weight gain (g/day)						
- weeks 1-3	308	244	184	240	167	284
- start to finish	226	220	213	190	226	219
Carcass weight (kg)	19.0	18.9	19.0	19.6	19.8	19.0

(Keady and Hanrahan 2010)

Alternative forages – have they a role?

The results of a study undertaken at Athenry which evaluated tyfon and chicory either as the sole forage or in combination with grazed grass is presented in Table 4. The results presented in Table 4 clearly show that, tyfon or chicory, either offered as the sole forage or in combination with

perennial ryegrass had no beneficial effects on lamb performance relative to a new perennial ryegrass reseed or to old permanent pasture.

Conclusions

1. Lamb performance achieved pre-weaning from grazed grass in 2013, stocked at 14 ewes/ha, without concentrate supplementation was equivalent to the mean achieved for the last 5 seasons.
2. Ewes can be grazed to low post grazing sward heights for April and early May, without adversely impacting on ewe condition.
3. Lamb performance declined during the last 4 weeks prior to weaning.
4. Post weaning
 - high levels of lamb performance is achievable from grazed grass.
 - move lambs to new pasture when the post grazing sward height reaches 6 cm
 - remove herbage in the sward horizon of 6 cm to 4 cm by grazing with dry ewes
5. Alternative forages have no beneficial effect on lamb performance relative to well managed old permanent pastures.