Managing ewe lambs during late pregnancy and early lactation

Dr. Tim Keady

Animal and Grassland Research and Innovation Centre,
Teagasc, Athenry, Co Galway.

Introduction

On many sheep farm ewe lambs were mated last autumn. Evidence from the BETTER Farms and from ultrasonic scanners indicates that litter size can be as high as 1.7 in individual flocks: thus a large proportion of the dams are carrying twins in such flocks.

The plane (level) of nutrition offered during pregnancy has a major influence on the development and body reserves of the ewe lamb herself, and on the birth weight, vigour and survival of her lambs and on colostrum production; all of which effect labour requirements around lambing, weaning rate and weaning weight. Consequently, appropriate nutrition and management during mid and late pregnancy is one of the key factors influencing the productivity, and thus profitability, of ewe lambs lambing at 1 year of age.

My objective in this article is to summarise results from an Athenry study evaluating the productivity of ewe lambs. The management of the ewe lambs during pregnancy and post lambing will be discussed.

Foetal development

Whilst the placenta is fully developed by 8 weeks prior to lambing, the foetus has only reached approximately 15% of its weight at birth. The weight of the foetus increases by 70, 50 and 20 % during the last 6, 4 and 2 weeks prior to lambing, respectively. At the point of lambing the lamb(s) account for approximately 60% of the weight of the uterine contents.

Nutrient requirements

The metabolizable energy (ME) requirement of ewes, regardless of age, increases rapidly during late pregnancy due to the rapidly growing foetuses and requirements for proper udder development (for colostrum production). However, ewe lambs also need to gain weight to enable them progress towards mature body size. Thus, relative to a mature ewe of similar weight, a ewe lamb requires an additional 2.5 megajoules (MJ) of ME (equivalent to 225 g of barley) daily during pregnancy to enable her to gain 50 g daily in live weight.

The ME requirement of a 55 kg ewe lamb carrying twins increases by 50 % over the final 6 weeks of pregnancy; the corresponding increase for a single is 30 %. Thus, the daily ME requirement of a twin-bearing ewe lamb weighing 55 kg increases from 12 to 18 MJ. Considering that each 1 kg of barley (14 % moisture) contains only 11.4 MJ of ME, ewes need to be well supplemented in late pregnancy.

Management during pregnancy

Unlike mature ewes, ewe lambs during mid and late-pregnancy require a plane of nutrition that sustains a live weight gain (excluding foetal weight) of approximately 80 g/day. This is required to enable ewe lambs progress towards their normal mature body size. Consequently, ewe lambs require high feed-value silage supplemented with concentrate after housing. The level of concentrate supplementation depends on silage feed value and expected litter size.

Energy is normally the first limiting component in the diet of pregnant ewe lambs. When formulating a ration for ewe lambs it is essential to make allowances for requirements for maintenance, live-weight gain, wool growth, stage of pregnancy and expected litter size (as determined by ultrasound scanning). Ewe lambs during their first pregnancy should gain approximately 80 g/day to enable them to reach mature body weight. As a general rule, a pregnant ewe lamb requires an extra 2.5 megajoules of ME (metabolizable energy) relative to adult ewes of similar live weight at the same stage of pregnancy and carrying the same litter size. The additional energy allowance is to enable continued growth of the ewe lamb.

Management at Athenry

At Athenry in 2012 and 2013, ewe lambs were mated as part of a study evaluating the effects of age at first lambing (1 or 2 years) on the performance of ewes over their lifetime. This study is on-going. Ewes lambs of 3 differing genotypes were used namely Belclare, Belclare x Suffolk and ewes that had >75 % Suffolk ancestry. The ewe lambs (most mated in late October/early November) were housed in mid-December, penned according to expected lambing date, shorn post housing and offered high feed value grass silage (75 % DMD) as the sole diet. In mid-January the pregnant ewe lambs received 200 g of concentrate daily. Concentrate allowance was increased to 250 g/day in late January. Following pregnancy scanning (late January) the ewe lambs were penned according to expected litter size and lambing date. Ewe lambs carrying triplets had their concentrate allowance increased to 300 g/day in mid-February. During the last 6 weeks of pregnancy (mean lambing date late March) ewes carrying singles, twins and triplets received a total of 18, 26 and 33 kg concentrate per head.

The concentrate offered was formulated to contain 191 g crude protein per kilogram fresh weight (19.1 %) and contained (kg/tonne): 200, 190, 170, 145, 100, 80, 50, 40 and 25 kg of soyabean meal, maize meal, barley, soya hulls, beet pulp, rapeseed meal, molasses, maize distillers, and minerals and vitamins, respectively. This concentrate was offered in a pelleted form.

The feeding schedule required to deliver different concentrate feed levels, varying from 10 to 35 kg per ewe in late pregnancy, are presented in Table 1.

If the quality of the silage available is poorer than that used at Athenry then increased concentrate supplementation would be required over the period from housing to lambing.

Management post lambing

Ewe lambs rearing twins were treated the same as mature ewes rearing triplets, i.e., they were managed in a separate flock and had access to 0.5 kg concentrate daily for 5 weeks post lambing, whilst their lambs had access to up to 300 g concentrate daily.

Ewe lambs rearing singles, and their lambs, received no concentrate supplementation for the first 5 weeks post lambing. From 5 weeks of age until weaning at 14 weeks, all lambs had access to up to 300 g concentrate daily. Concentrate supplementation ceased at weaning.

Ewe lamb performance at Athenry

The effects of ewe genotype on litter size and lamb performance are presented in Table 2. Ewe genotype had a major effect on litter size (difference of 0.39 lambs) and number of lambs reared per ewe lambing (0.31 lambs). The value, for Belclare ewe lambs, of 1.32 for lambs reared per ewe lambing equates to 1.19 lambs reared per ewe joined. The national average value for lowland ewe flocks (essentially adult ewes) in Ireland is 1.2. Consequently the performance of the Belclare ewe lambs was close to that recorded from the lowland flock in Ireland. Mean lamb mortality to weaning was 17%. It is of interest to note that the weight of ewe lambs had a significant effect on productivity. For example ewes that lambed but failed to rear a lamb were, on average, approximately 7 kg lighter at lambing than those that reared at least 1 lamb.

Lambs from Belclare ewes were on average 2.0 kg lighter at weaning than lambs from the >75% Suffolk ewes. However, the Belclare ewes weaned 33 % more lamb live weight (due to their larger litter size) per ewe lambing than the >75% Suffolk ewes (Table 2). Lamb daily live weight gain was 255, 279 and 269 g for lambs from the Belclare, Belclare x Suffolk and >75%Suffolk dams, respectively.

Effect of age at first joining on the performance of ewes lambing as 2 years of age

Whilst the study of the impact of lambing at 1 year on lifetime performance is in its infancy half of the ewes in the flock have lambed at 2 years of age. Thus we have initial evidence on the possible effects on adult performance. The effects of age at first joining on performance as 2 year old ewes are summarised in Table 3. There was no effect on litter size or the number of lambs reared per ewe lambing. However, the lambs from 2 year old ewes that were joined as ewe lambs were 2 kg heavier at weaning than lambs from 2 year old ewes that were joined for the first time at 18 months of age. These results show that animals that had been joined as ewe lambs were better mothers when lambing at 2 years of age. The mean value for the number

of lambs reared per ewe joined was 1.69, 1.51 and 1.32 for the Belclare, Belclare x Suffolk and >75% Suffolk ewes respectively. Therefore weaning rate differed by 0.37 lambs/ ewe joined due to ewe genotype.

Conclusions

1. Breeding from ewe lambs can yield a level of productivity that is close to that recorded for the national lowland (essentially adult) ewe flock.
2. Feed ewe lambs to gain live weight throughout pregnancy.
3. As a rule of thumb ewe lambs require an extra 2.5 megajoules of ME (equivalent to 225g of barley) per day relative to a mature ewe of the same live weight. Thus at Athenry ewe lambs, which were offered 75 % DMD silage received concentrate supplementation from mid-January until lambing.
4. Group pregnant ewe lambs by litter size and predicted lambing date (7 – 10 day intervals) to facilitate good concentrate feeding management and offer supplementary concentrate accordingly.
5. When offering more than 0.5 kg concentrate per ewe lamb daily split it in 2 equal feeds.
6. Manage ewe lambs rearing twins the same as mature ewes rearing triplets.
7. Ewe genotype has a big impact on litter size, the number of lambs reared and the weight of lamb weaned.
8. Preliminary results show that mating ewe lambs does not impact negatively on reproductive performance at 2 years of age - rather it increases the weight of their progeny at weaning (by 2 kg).

Table 1. **Daily** c**oncentrate allowance (kg/ewe) required for different total concentrate inputs during late pregnancy**

	Desired concentrate input in late pregnancy (kg/ewe)		
Week prior to lambing	20	25	35
7			0.4
6	0.3	0.3	0.5
5	0.3	0.5	0.7
4	0.4	0.6	0.8
3	0.5	0.7	0.8
2	0.6	0.7	0.9

1	0.8	0.8	0.9

Table 2. Effect of ewe genotype on litter size and lamb performance

		Genotype		
		Belclare	Belclare x Suffolk	Suffolk
Litter size		1.65	1.41	1.26
No reared/ewe lambing		1.32	1.19	1.01
Lamb weight (kg)	-birth	4.2	4.4	4.4
	-weaning	29.0	31.9	31.0

Table 3. Effect of ewe age at first joining on the performance of 2 year old ewes.

	Age at first joining (months)	
	7	19
Litter size	1.64	1.73
No reared/ewe lambing	1.40	1.46
Lamb weaning weight (kg)	31.4	29.4