

## **Concentrates for ewes – focus on ingredient composition**

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During late pregnancy nutrient requirements of ewes increase dramatically. For example during the last 6 weeks of pregnancy the metabolisable energy and metabolisable protein requirements of twin bearing ewes increase by 60% and 35%, respectively.

Some concentrates are manufactured using least cost ration formulations, therefore, the ingredient composition will vary dramatically. Many concentrates currently offered to ewes in late pregnancy do not contain soya bean meal or cereals. Soya bean meal, whilst expensive, is a good source of microbial protein, the demand for which increases in late pregnancy. The aim of this paper is to present results from a recent study undertaken at Athenry which evaluated the effects of source of concentrate protein and concentrate feed level on the performance of ewes in late pregnancy and the performance of their progeny.

### **Athenry study**

The study was undertaken using twin and triplet bearing ewes in late pregnancy which were due to lamb in mid March for the first time as 2 year olds. The ewes were housed in mid December. Whilst housed the ewes received grass silage (74% DMD) *ad-libitum*. During the last 6 weeks of pregnancy the ewes were offered either low or high levels of concentrate supplementation. The low and high levels of concentrate supplementation offered to the twin bearing ewes were 16 and 28 kg and to the triplet bearing ewes were 21 and 32 kg, respectively. Two concentrates were offered, containing either soya bean meal or by-products as the main protein ingredients. The two concentrates were formulated to contain similar crude protein (18% fresh weight) and metabolisable energy (12.4 MJ/kg DM) concentrations. The soya bean meal based concentrate contained barley, soya bean meal, citrus pulp, soya hulls and sugar beet pulp as the main ingredients. The by-product based concentrate contained maize

gluten, rapeseed meal, maize distillers, barley, citrus pulp, soya hulls and sugar beet pulp as the main ingredients. Concentrate was offered to the ewes once daily

The effects of concentrate protein source on ewe and lamb performance is presented in Table 1. Ewes offered the soya bean meal based concentrate, regardless of concentrate feed level, produced lambs which were heavier at birth (+0.35 kg) and at weaning (+0.9 kg).

Table 1. Effect of concentrate protein source on ewe weight and lamb performance

	Crude protein source	
	Soya bean meal	By-Product
Ewe weight post lambing (kg)	53.2	51.4
Lamb weight (kg) - at birth	4.02	3.67
- at weaning	30.9	30.0

(Keady and Hanrahan 2012)

The effects of concentrate feed level on ewe and lamb performance is presented in Table 2. Increasing concentrate feed level in late pregnancy did not significantly affect lamb birth or lamb weaning weights.

Table 2. Effect of concentrate feed level on ewe weight and lamb performance

	Concentrate feed level	
	Low	High
Ewe weight post lambing (kg)	51.2	53.5
Lamb weight (kg) - at birth	3.86	3.84
- at weaning	30.2	30.8

(Keady and Hanrahan 2012)

The results of this study clearly showed that concentrate ingredient composition had a greater effect on animal performance than increasing concentrate feed level by 75%.

### **Costs and benefits**

The soya bean meal based concentrate cost €20/t more than the by-product based concentrate. Therefore for twin bearing ewes which were offered 16 kg concentrates in late pregnancy, offering the soya bean meal based concentrate increased concentrate cost by only €0.32/ewe whilst increasing individual lamb weaning weight by 0.9 kg. For twin bearing ewes soya bean meal inclusion in the concentrate in late pregnancy increased the weight of lambs weaned per ewe by 1.8kg for a cost of only €0.32. To put this in perspective, to increase lamb weaning weight by 0.9 kg due to creep feeding pre-weaning would require 7 kg of concentrate per lamb which is equivalent to a cost of €4.20 per set of twins.

Increasing the feed level of concentrate to ewes in late pregnancy from 16 kg to 28 kg increased concentrate costs by €3.12 per ewe, without a significant improvement in subsequent lamb performance.

### **Conclusion**

1. Soya bean meal inclusion increased lamb birth and weaning weights.
2. Including soya bean meal in the ewe ration resulted in a greater increase in lamb performance than increasing concentrate feed level by 75%.
3. The soya bean meal based concentrate was only €20/t more expensive than the by-product based concentrate (equivalent to only €0.32 per ewe) but increased the weight of lamb weaned per twin rearing ewe by 1.8 kg.
4. Focus on ingredient composition when purchasing concentrate.