

Project number: 5674
Funding source: Teagasc

Date: September 2012
Project dates: Oct 2006 – Dec 2011

Effects of shearing strategy on the performance of ewes and finishing lambs



Key external stakeholders:

Sheep producers, ruminant nutritionists, agricultural consultants, extension officers, Department of Agriculture, Food and the Marine

Practical implications for stakeholders:

- Shearing ewes at housing increases lamb birth and weaning weights by up to 0.6 and 2.0kg/head respectively.
- Relative to shearing at housing, shearing prior to mating has no effect on ewe fertility or litter size but produces lighter lambs.
- Relative to shearing in June or prior to mating shearing ewes at housing increases fleece weight by 0.3 and 0.5 kg respectively.
- Results obtained from research studies at Athenry are repeatable on commercial farm.
- Shearing finishing lambs, which are housed, increases food intake by 8%, has no impact on carcass gain therefore reduces efficiency of carcass gain from 5.23 to 4.71 g of carcass per mega joule of metabolisable energy intake.

Main results:

- Shearing ewes at housing increases lamb birth weight and subsequent performance, thus enabling lambs to be drafted up to 2 weeks earlier.
- Increased lamb birth weight from shorn ewes is probably due to reduced heat stress which subsequently results in increased food intake until lambing.
- Shearing prior to mating has no beneficial effect on pregnancy rate or litter size.
- Results achieved at Athenry were replicated on commercial farm.
- Shearing lambs at finishing had no beneficial effects on lamb performance.
- Diet type, and consequently metabolisable energy intake, did not effect the response to shearing of finishing lambs.

Opportunity / Benefit:

The results of this project demonstrate the benefits of shearing ewes at housing on ewe and subsequent lamb performance. The benefits include heavier lambs at birth and increased daily gains to weaning thus increasing weaning weight and reducing the age at drafting. Whilst shearing prior to mating provides an alternative opportunity to shear ewes, there is no benefit in terms of ewe fertility or litter size. Furthermore, the results of this project show that, regardless of diet type there is no benefit to shearing lambs which are finished during the winter indoor feeding period.

Collaborating Institutions:

N/A

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1. Project background:

Ewes are normally shorn once yearly, normally in early summer, to maintain sheep welfare by reducing potential ectoparasite problems. Winter conditions in Ireland are characterized as being relatively mild. Consequently, ewes which are housed unshorn may have difficulty dissipating body heat due to the unique insulating properties of the fleece, leading to ineffective heat regulation. Results from a previous study undertaken at Athenry (Project 4925) demonstrated that ewes which are shorn at housing produce lambs of similar birth weight to ewes which are extended grazed during pregnancy.

Shearing ewes at other times of the year may impact on ewe and lamb performance. In Ireland, currently there is a paucity of data on the effect of pre-mating shearing on ewe fertility and performance. Many lamb winter finishers shear at housing with the expectation of achieving higher daily live weight and carcass gains. However, there is a paucity of data on the effect of shearing finishing lambs on animal performance during the finishing period.

As the commercial producer is the end user of new technology developed at Research Centres it is essential to demonstrate that benefits to technology are replicated on commercial farms.

2. Questions addressed by the project:

- What is the impact of shearing at housing on the performance of pregnant ewes and their lambs?
- What is the effect of season of shearing on ewe fertility and litter size of March lambing ewes and on subsequent lamb performance?
- Are benefits to technology achieved in Research Centres replicated on commercial farms?
- What is the effect of shearing on the performance of finishing lambs?
- Does the response to shearing of finishing lambs depend on diet type and energy intake?

3. The experimental studies:

Experiment 1. *Effects of winter shearing and grass silage feed value on ewe and lamb performance.* Eighty crossbred ewes (40 first and 40 second crop; initial liveweight 67.6kg) were allocated to 4 treatments in a randomized design study from mid-December to lambing in mid-March. The 4 treatments were 2 shearing treatments (shorn at housing, unshorn) X 2 silage feed values. All ewes were offered a total of 23.4kg concentrate during the last 6 weeks of pregnancy. All ewes and their lambs were turned out to pasture within 3 days of lambing. Ewes rearing singles or twins and their lambs received no concentrate supplementation post lambing. Ewes rearing triplets were grazed as a separate flock and received a daily allowance of 1kg concentrate until 5 weeks post lambing and their lambs had access to a maximum of 300g of concentrate per lamb daily until weaning. All lambs were weaned at 14 weeks of age.

Experiment 2. *An evaluation of the effect of season of shearing on ewe and progeny performance.* One hundred and thirty ewes (66 first crop, 64 second crop) were allocated to four shearing treatments as follows: conventional (C), prior to mating (M), housing (H) and twice yearly (MH) and were shown on 29th May, 9th September, 30th November and 29th May and 9th September respectively. The ewes on the M and H treatments had been shown the previous December whilst the ewes on the C and MH treatments had been shown the previous May. The ewes were managed as one flock from the partition prior to the study. Post lambing the ewes were turned out to pasture within 3 days of lambing and managed as described for Experiment 1.

Experiment 3. *An on-farm evaluation of the effects of season of shearing on ewe and subsequent lamb performance.* The study was undertaken on a commercial farm. A total of 353 ewes were allocated at random in September 2006 to one of the three shearing treatments as follows: shorn prior to mating (September 2006), at housing (December 2006) and conventional shorn (June 2007). Subsequently, the ewes on the prior to mating, at housing and conventional shorn treatments were shorn on 7th September 2007, December 2007 and 13th June 2008, consequently all ewes had been shorn 12 months previously. All ewes were mated at natural oestrous in autumn 2007, as one flock to rams which were joined with the ewes on 21st October. The ewes were housed in mid-December and offered hay until mid-January. Subsequently, the ewes were grouped according to litter size (based on ultra-sonic scanning) and received a straw-based diet supplemented with concentrates. Post lambing ewes and their lambs were turned out to pasture.

Experiment 4. *The effects of shearing on the performances of finishing lambs offered a range of diets.* A total of 264 store lambs (Suffolk X, initial liveweight 39.0kg) were allocated to dietary treatments designed to vary metabolisable energy intake by 60%, and thus daily performance. The lambs were housed in groups of 6 in slatted pens for 54 days prior to slaughter. Half of the lambs on each dietary treatment were shorn at the beginning of the study. The lambs were slaughtered at an EU approved abattoir under continuous veterinary inspection by the Department of Agriculture, Food & Marine.

4. Main results:

Experiment 1.

- Shearing at housing increased silage intake by 15%.
- Ewe weight and condition post lambing was not influenced by shearing prior to housing.
- Shearing ewes at housing increased lamb birth and weaning weights by 0.58 and 2.0kg respectively.
- Shearing ewes at housing improved lamb growth rate from birth to weaning by 15g / lamb daily.

Experiment 2.

- Shearing ewes twice yearly had no beneficial effect on lamb performance.
- Shearing ewes at housing increased lamb birth and weaning weights by 0.54kg and 1.3kg respectively.
- Shearing ewes prior to mating tended to improve lamb birth weight by 0.31kg and increased weaning weight by 2kg.
- Season of shearing had no effect on litter size or number of lambs reared per ewe joined.

Experiment 3.

- Shearing ewes prior to mating and at housing changed fleece weight by -0.2kg and +0.3kg respectively.
- Season of shearing had no effect on litter size or number of lambs reared per ewe lambing.
- Shearing prior to mating had no effect on lamb birth or weaning weights.
- Shearing at housing tended to increase lamb birth and weaning weights by 0.24kg and 1.0kg respectively.

Experiment 4.

- Shearing lambs increased food intake by 8% and final liveweight by 1kg (due to presence of the fleece).
- Lambs which were shorn had a higher kill out percentage (47.4% vs 46.7%) due to the absence of the fleece.
- Shearing had no effect on daily liveweight or carcass gains or on final carcass weight.
- Shearing at housing reduced the efficiency of conversion of metabolisable energy (ME) to carcass gain. For the unshorn and shorn lambs the efficiency of carcass gain was 5.23 and 4.71 grams of carcass per mega joule of metabolisable energy intake, respectively.

5. Opportunity/Benefit:

- Shearing pregnant ewes at the appropriate time (i.e., at housing) increased subsequent lamb performance thus enabling lambs to be drafted up to 2 weeks earlier.
- From an animal's performance point of view, there is no benefit to shearing finishing lambs.
- The information for this project has been disseminated to the industry and to the knowledge transfer personnel through presentations and articles to the scientific, technical and producer communities.

Dissemination:

Main publications:

Keady, T.W.J. and Hanrahan, J.P. (2007). 'Effects of extended grazing, grass silage feed value and winter shearing on ewe and lamb performance'. *Proceedings of the Agricultural Research Forum*, p 49.

Keady, T.W.J. and Hanrahan, J.P. (2008) 'Effect of season of shearing on ewe and progeny performance'. *Proceedings of the British Society of Animal Science*, p 124.

Keady, T.W.J. and Hanrahan, J.P. (2009) 'Effects of shearing at housing, grass silage feed value and extended grazing allowance on ewe and subsequent lamb performance'. *Animal* 3: pp143–153.

Keady, T.W.J. and Hanrahan, J.P. (2009). 'An on-farm evaluation of the effects of season of shearing on ewe and subsequent lamb performance'. *Proceedings of the British Society of Animal Science*, p165.

Keady, T.W.J. and Hanrahan, J.P. (2012). 'The effects of forage type and feed value, concentrate feed level and protein concentration and shearing on lamb performance'. *Proceedings of the XVI International Silage Conference, Hameenlinna, Finland*, pp 168-196.

Popular publications:

Keady, T.W.J. (2007). 'Season of shearing impacts on subsequent lamb performance'. *Irish Farmers*

Journal Vol. 60, No. 37, p 22.

Keady, T.W.J. (2008). 'Making the most from shearing'. *Irish Farmers Journal, Vol. 61, No. 22, Part 3, p7.*

Keady, T.W.J. (2010). 'Shearing ewes at housing increases flock profitability'. *Irish Farmers Journal, Vol. 63, No. 51, p 28.*

Keady, T.W.J. (2012). 'Season of shearing impacts on flock profitability in Technical Updates on Sheep Production'. *Teagasc, pp 85-89.*

6. Compiled by: Dr. Tim Keady
