

R&D BRIEF 103: EFFECT OF FLUSHING ON OVULATION RATE

AIM

To assess the effect flushing has on lamb production from highly fecund ewes (Finn/Romney-cross) and low fecundity Romney ewes. In particular, the project tested the effect ewe weight at the start of tupping (light vs. heavy) had on the flushing response of 'high fertility' ewes.

To test the benefits of grain supplementation during flushing.

This information could help farmers make decisions about prioritising feed, and whether to supplement with grain. Flushing occurs when ewes experience liveweight gain just prior to mating, and have a subsequent increase in ovulation rate.

FLUSHING AND HIGH FERTILITY SHEEP

Past research has suggested that high fertility sheep may have a limited response to flushing, as their ovulation rate is already high.

Key findings

Results suggest high fertility ewes can respond to flushing just as well as traditional breeds.

High fertility ewes flushed with grain had a significant response. Ewes fed 0.3kg/hd/day of barley and silage over the 35-day flushing period, had 0.15 more eggs ovulated/ewe.

As the trial was carried out in only one year, the results are indicative rather than conclusive.

METHOD

This one-year trial tested the performance of 'fecund' sheep at different weights, tupped during either static or rising weight gain. In the trial, Finn/Romney-cross and Romney ewes were run on four different nutritional treatments. The treatments lasted for five weeks, through to a synchronised ovulation in April.

Figure A: Average feed allowances for the different nutritional treatments (kgDM/ewe/day)

	(low feed level)		(high feed level)	
	1	2	3	4
Pasture allowance (for all the ewes)	1	1.5	2	4
Barley and silage supplement (for half the ewes)	0.3	0.3	0.3	0.3

Ovulation rate was tested using laparoscopy. Barley was fed to half of the ewes, using silage as a 'training carrier'. This was to encourage the ewes to eat the grain (a novel feed source for most of them).

The silage amounted to 130gDM/ewe/day so it made a contribution, although its energy content was lower than the grain (8 vs. 13.5 MJME/kgDM). Around 150 grams of barley was fed per ewe each day, bringing the total supplements to around 0.3kgDM/hd/day.

The ME content of the pasture offered to the ewes varied from 7.5 at the start of the treatment period (very poor quality), to about 10 for the remaining two thirds.

Average ewe weight was 49kg at the start of the trial. Weights at the end of the trial differed between the treatments however.

RESULTS

The different feed treatments affected ewe liveweight gain, with the restricted ewes losing -85g/hd/day on average. The better-fed ewes gained 50g/hd/day.

Note As the results are only from one year's data, they are trends, rather than robust conclusions.

1. Finn/Romney-cross ewes can respond as well as traditional breeds to flushing

The results suggest high fertility ewes can respond to flushing just as well as traditional breeds. All the ewes responded similarly to increased pasture allowance, with an increase in ovulation rate. The exception was the heaviest groups of ewes which had a nil or a minimal response to flushing.

Figure B: Ewes had similar 'ovulation increase' response to pasture allowance, despite breed.

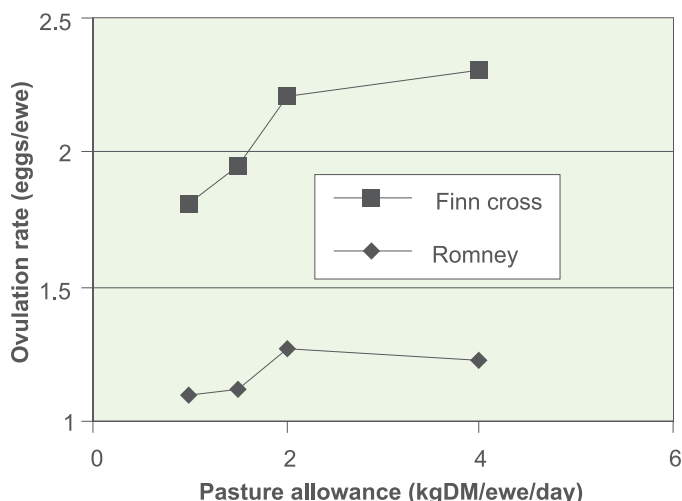
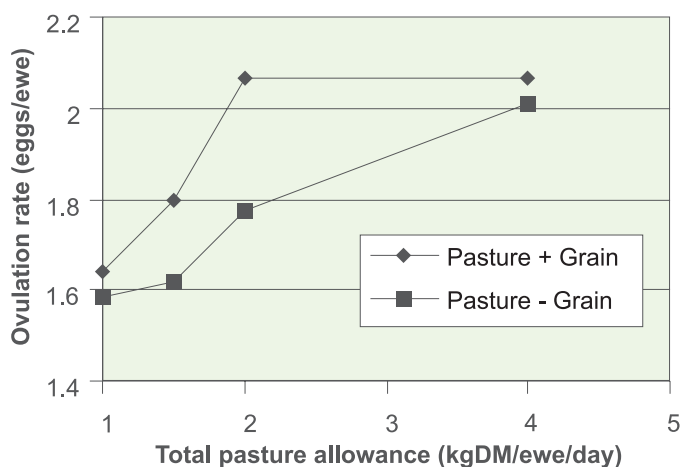


Figure B also shows that ovulation rate increase tailed off once pasture allowance was over around 2.5kgDM/hd/day.

2. Big response to feeding grain

All Finn/Romney-cross lines responded to grain and the silage except the heaviest group of ewes. As Figure C (below) shows, ewes fed 0.3kg/hd/day of barley and silage over the 35-day flushing period, had 0.15 more eggs ovulated/ewe. When reproductive wastage of 0.04eggs/ewe is taken into account, this works out at an extra 110 lambs born over 1000 ewes.

Figure C: Response to feeding grain



Strategic supplementation immediately prior to mating, of either extra pasture or pasture and grain can give extremely good benefits. The lighter or poorer condition Finn/Romney-cross ewes were more responsive than heavier animals.

CONCLUSIONS

In a practical farm situation, farmers cannot always provide excellent nutrition to ewes at all times especially in the summer-early autumn. This project concludes that strategic grain feeding is worthwhile,

especially if ewes are lighter or in poorer condition than desired. The project could not confirm that the ovulation advantage through better feeding would be carried through to lambing. However, it would be expected that supplementation would favourably benefit lambing percentage.

COST-BENEFIT ANALYSIS

Barley: 150g/hd/day @ \$400/tonne = \$0.06 hd/day
 Silage: 130g/hd/day @ \$0.40/kgDM = \$0.052 hd/day
 So over 35 days (35 x \$0.112) = \$3.92 feed cost/hd

For 1000 ewes —

Feed	\$3,920
Time/vehicle	\$1050 (35 hours at \$30/hr)
TOTAL COST	\$4,970

0.15 extra eggs/ewe less wastage of 0.04 = 0.11 lambs/ewe. 1000 x 0.11 = 110 lambs.

110 lambs @ \$60 if sold store at weaning = \$6,600
NET RETURN \$6,600 - \$4,970 = \$1,630 net profit

If the ewes were already heavy, a financial loss may occur as there would be few extra lambs from the investment in supplementary feed.

Summary on flushing Ewe liveweight has an effect on ovulation rate in two key ways —

- The static effect where heavier ewes at mating have a higher ovulation rate than lighter ewes
- The dynamic effect whereby increasing rates of liveweight gain result in higher ovulation rates

Some sheep do not respond to flushing. It is important that ewes not only reach a good tupping weight at mating, but are also increasing in liveweight during the mating period.

Ewes need 1 to 1.3kgDM/hd/day (average to good quality pasture) to hold body condition score during mating.

For more see 200 by 2000, A Guide to Improved Lambing Percentage and Making Every Mating Count, from Beef + Lamb New Zealand.

MORE INFORMATION

Beef + Lamb New Zealand would like to acknowledge the contribution from AgResearch in producing this R&D Brief. For further information freephone Beef + Lamb New Zealand on 0800 BEEFLAMB (0800 233 352) or email enquiries@beeflambnz.com or visit www.beeflambnz.com

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