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FarmLink Research Report 2019

Exclusion Lamb Feeder Trial

Report Authors

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Trial Site Location

Matt Dart - Arian Park, Micheal Kemp - Bimbi,
Darryl Kitto - Beckom, Colin Geddes - Holbrook.

Introduction

Sheepmatters has been engaged by FarmLink to look at an Exclusion Lamb Feeder Trial involving grower participants.

The hypothesis of the trial is that lambs will have better weight gain through a creep feeding system, which excludes the ewe having access to the feeder. Other research indicates that early exposure of lambs to grain allows the lamb to develop its rumen more rapidly, which in turn, allows the lamb to put on more weight more quickly. An added advantage of the exclusion feeder system is the ability to target supplementary grain feeding of lambs rather than ewes. In a typical feeding situation, ewes dominate consumption of grain and the benefits of lamb growth rates are not realised. The exclusion systems allows early exposure to grain feeding for lambs, which in theory results in accelerated growth rates, greater efficiency and cost effectiveness of supplementary grain feeding.

Project Partners



Gaynor
Exclusion Panels

Funding Partner



Project code - L.PDS.2001

Objective of the Exclusion Lamb Feeder Trial

The objective of the trial is to examine the effect and effectiveness of exclusion feeding on lamb weight gain. By measuring a control and trial mob of ewes with lambs, we will understand across FarmLink members, weight/weight gain (conversion) performance of the lambs by introducing the lambs to supplementary grain earlier while still on their dam (mother) using the creep feeding system vs lambs that are not. It is important that the lambs that don't have access to the creep feeding system normally wouldn't have access to any grain while on their dam, but due to drought conditions across all participants' properties, the control mob will still have access to grain via trail feeding or feeders.

Method

Active participants involved in the exclusion lamb feeder trial have all followed the same methodology to measure lamb weight/weight gain while they are on their dams (ewes) and through to weaning and post weaning in both the control mob (no exclusion) and trial mob (exclusion).

All sheep in the trial (ewes and lambs) were tagged with an electronic ear tag (eID) so that all relevant information will be recorded against each individual animal in the two mobs. 200 ewes was the maximum mob size for each group (control and trial mobs). Both mobs had to be twin or single ewes, or an equal mix of twin and single ewes. eID tags for the lambs were donated by Shearwell Australia.

The lambs were inducted with an eID tag at lamb marking with their body weight.

Each grower involved needed to have a minimum of two feeders and portable sheep panels to section off one feeder. The creep panels were supplied by FarmLink to the growers for the trial.

Given ewes are lambing for a six-week period and the majority of the ewes lamb at the end of the first cycle (17 to 22 days) and lamb marking is two weeks after the end of the six-week lambing, then on average the majority of the lambs would be around 36 to 42 days old (at lamb marking).

The daily energy required by the lactating ewe



Figure 1: Grower participants looking at the Gaynor Creep Feeding Panels.

(50kg twin as an example) is on the decline from a high at 20 days post birth of lamb of 26.8 Mega Joules of Metabolising Energy (MJ/ME). This energy requirement will continue to rapidly decline to weaning at around 65 days post birth of lamb to 16.7 MJ/ME.

From day 50 post birth of lamb, there is a rapid decline in energy required by the ewe, which affects the production of milk. At this same stage the young developing lamb is increasing in energy required.

In understanding the declining energy requirements of the ewe and the increasing energy requirements of the lamb it is important to understand when is the best time to introduce the creep feeding system to maximise the benefit of allowing the lambs access to the feeder but not the ewe.



Figure 2: Exclusion panels around feeder, Ariah Park.



Diet: Milk only



Diet: Milk and hay



Diet: Milk and grain

Figure 3: Developing rumen of lambs under different dietary regimes.

The best time for lambs to have access to the excluded feeders is after lamb marking, if lamb marking is two weeks after the end of lambing.

To get a successful introduction of lambs onto the excluded feeders, ewes and lambs must have access to the feeders at the end of lambing, so in fact the ewes are 'training' the lambs onto the feeder leading up to lamb marking.

This training method is often referred to as 'imprint feeding'. By introducing the lamb on to the feeder at this early stage, the immature rumen of the lamb will start to develop the essential bacteria needed to breakdown hard feed. This is initially done by the creation of saliva (used to transport down hard feed), which has a high density of bacteria. While sucking on its dam's milk, the lamb's rumen remains 'lazy', as milk is a bypass protein and doesn't need to be broken down like hard feed by the rumen. Therefore, there is no environment to create any bacteria in the lamb's rumen while on milk. This initial imprint period is essential to create a 'working' rumen in the lamb so when the exclusion feeding system is introduced their rumen has been prepared to break down the grain with their growing demand of energy required which as time goes on the ewe will not meet.

Individual Timetable

- **Trial and Control mobs** of ewes selected and inducted (pre lamb)
- Lambing paddocks identified and pasture assessed (Type and KG/DM/HA)
- Feeders introduced at end of lambing to both mobs
- Lambs inducted with eID tag, weighed, sexed and identified to mob type (control or trial) at lamb marking
- Paddocks identified and pasture assessed at lamb marking (Type and KG/DM/HA)
- Creep panels introduced to trial mob feeder at lamb marking
- Weaning four to six weeks after lamb marking, both mobs brought in and lambs weighed.
- Paddocks identified and pasture assessed at weaning (Type and KG/DM/HA)
- Four weeks post weaning, third and final weight of lambs. If any sold before the four weeks they will be weighed before leaving farm
- Paddocks identified and pasture assessed at post weaning (Type and KG/DM/HA)

Results

Due to continuing drought conditions across all participants properties there many challenges faced.

There was very limited pasture available throughout trial, and as a result both trial and control mobs were given supplementary grain. The trial mob had the exclusion panels introduced after lamb marking and the control mob did not. It would normally be expected that the control mob would not have access to grain at all with lambs just having access to their dam on pasture.

There was very limited pasture to assess and so there was very little pasture assessment data validation.

There was also the threat of bushfires at Colin Geddes, Holbrook.

Breed Type

Dart, Arian Park – Dohne Dam x Poll Dorsett Sires

Kemp, Bimbi - Corriedale Dam x Corriedale Sires

Kitto, Beckom – Poll Merino Dam x Poll Merino Sires

Geddes, Holbrook – LambPro Composite Dams x LambPro Composite Sires

From the active producers in the trial, despite the drought, all producers recorded a positive weight gain in the trial lambs vs the control lambs.

On average there were 201 lambs in the control lamb groups and 228 in the trial lamb groups.

There was a total of 802 lambs in the control mobs and 913 in the trial mobs. A total of 1,715 lambs were measured.

All producers saw a positive weight gain of the trial over the control lambs from lamb marking to weaning.

The average weight gain of the trial mobs vs control mobs for the producers from lamb marking to weaning was 1.6kg (25 grams/day) over an average of 64 days.

The average weight gain of the trial mobs vs the control mobs from weaning to post weaning (no data from Geddes due to fire threat) was 533 grams (16 grams/day) over an average of 34 days. At weaning, all lambs were boxed into one mob of weaner lambs.

The average overall weight gain of the trial mobs vs the control mobs from lamb marking to post weaning was 2.1kg (24 grams/day) over an average of 97 days.

On the following page are the growers' summarised individual data. The headings in the data are abbreviated and are explained in the key.

As can be seen by the data collected from the producers that there was an initial weight gain in the trial lamb mobs of 1.6 kg over the first 64 days and then there was a slight plateauing of the weight gain from weaning to post weaning. The overall weight gain over an average time period of 97 days per producer was 24 grams/day for the trial mob. The monetary value of this additional weight gain in the trial mob was approximately \$5.91 per head compared to the control mob (lamb body weight x 50% yield x \$7.50 kg/dressed).

Overall, the trial mob gained additional weight valued at approximately \$7.52 compared to the control mob (lamb body weight x 47% yield x \$7.50kg/dressed). It is important to note that the control mobs were boxed together at weaning on all properties.

The hypothesis of the project was that lambs exposed to feeders through exclusion panels around self-feeders (exclude the ewes) would have better weight gain through earlier rumen development. Even in a drought year, there was an overall higher weight gain on average of 10.9% by the trial lambs vs the control lambs over an average of 97 days (lamb marking to post weaning).

All participants will be involved in the project for the second year, to validate Year 1 data.

We thank all who were involved in the project including the active producers, Farmlink, Gayners exclusion panels, Shearwell and Sheepmatters.

HD = Number of lambs

Lamb BW = Lamb Body Weight

WW = Weaning Weight

WG1 = Weight Gain 1
(from lamb marking to weaning)

DWG1 = Daily Weight Gain 1
(from lamb marking to weaning)

PWW = Post weaning weight

WG2 = Weight gain 2
(from weaning to post weaning)

DWG2 = Daily weight gain 2
(from weaning to post weaning)

OWG = Overall weight gain
(lamb marking to post weaning)

ODWG = Overall daily weight gain
(lamb marking to weaning)

Individual Producers Summarised Report

Dart, Arian Park	HD	Lamb BW	WW	WG1 (64 Days)	DWG1	PWW	WG2 (34 days)	DWG2	OWG (98 days)	ODWG
Trial	219	11.7	27.5	15.8	0.247	38.3	10.8	0.316	26.6	0.271
Control	207	11.3	24.6	13.3	0.209	35.6	11.0	0.323	24.3	0.248
Difference		0.40	2.90	2.5	0.038	2.7	-0.200	-0.007	2.3	0.023
Mob Average		11.5	26.0	14.5	0.227	36.9	10.9	0.320	25.4	0.259
Total	426									

Kemp, Bimbi	HD	Lamb BW	WW	WG1 (50 Days)	DWG1	PWW	WG2 (34 days)	DWG2	OWG (84 days)	ODWG
Trial	228	23.8	31.0	7.2	0.144	33.9	2.9	0.116	10.1	0.134
Control	213	26.2	32.1	5.9	0.118	33.5	1.4	0.055	7.3	0.097
Difference		-2.4	-1.1	1.3	0.025	0.4	1.5	0.061	2.8	0.037
Mob Average		25.0	31.6	6.5	0.131	33.7	2.1	0.086	8.7	0.116
Total	441									

Kitto, Beckom	HD	Lmb BW (kg)	WW (kg)	WG 1 (71 days)	DWG1	PWW	WG2 (37 days)	DWG2	OWG (108 days)	ODWG
Trial	186	13.9	28.3	14.4	0.202	35.0	6.8	0.183	21.2	0.196
Control	192	13.5	26.8	13.3	0.188	33.3	6.5	0.176	19.9	0.184
Difference		0.4	1.4	1.0	0.014	1.7	0.3	0.007	1.3	0.012
Mob Average		13.7	27.5	13.9	0.195	34.2	6.7	0.180	20.5	0.190
Total	378									

Geddes, Holbrook	HD	Lamb BW	WW	WG1 (71 Days)	DWG1
Trial	280	16.9	43.1	26.2	0.369
Control	190	14.2	39.0	24.8	0.349
Difference		2.7	4.1	1.4	0.020
Mob Average		15.5	41.0	25.5	0.359
Total	470				

Producers Combined Weight Gain Data Summarised

	HD		WG1(kg)		DWG1 (grams/day)		WG2 (kg)		DWG2 (grams/day)		OWG (kg)		ODWG (grams / day)	
Growers	Control	Trial	Control	Trial	Control	Trial	Control	Trial	Control	Trial	Control	Trial	Control	Trial
Dart	207	219	13.3	15.8	0.209	0.247	11	10.8	0.323	0.316	24.3	26.6	0.248	0.271
Kemp	213	228	5.9	7.2	0.118	0.144	1.4	2.9	0.055	0.116	7.3	10.1	0.097	0.134
Kitto	192	186	13.3	14.4	0.188	0.202	6.5	6.8	0.176	0.183	19.9	21.2	0.184	0.196
Geddes	190	280	24.8	26.2	0.349	0.369								
Average	201	228	14.3	15.9	0.216	0.241	6.3	6.8	0.185	0.205	17.2	19.3	0.176	0.200
Total	802	913												
G Total		1715												
Difference			1.6		0.025		0.533		0.020		2.1		0.024	