Assessing the Economic Benefits of Confinement Feeding

Hosts: Walker Family (Green Range), Griffiths Family (Boxwood Hill) and Webster Family (Tenterden).

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KEY MESSAGES:

- **Confinement feeding allows for deferment of pasture paddocks resulting in increased pasture leaf area and growth rates.**
- **Confinement feeding reduces stock energy requirements by 8-15% (less walking for feed and water) & reduced supplement feed wastage by 5-10%.**
- **Manual stock feeding is quicker and easier.**
- **Stock health and weight can be easily monitored, and sale stock separated.**
- **Maintains paddock ground cover, reduces erosion, and maximises rain infiltration.**

Background

Earlier this year, SCF began our MLA-funded Producer Demonstration Site (PDS) project titled 'Assessing the Economic Benefits of Confinement Feeding. The project aims to examine the production benefits to farm businesses of different confinement feeding setups. Confinement feeding is an intensive feeding system where livestock are confined to a relatively small area and are hand-fed grain and hay. Feeding stock in a confined area allows producers to provide full or partial rations and for pastures to be rested. It is a valuable management strategy, providing numerous benefits; however, confinement feeding does have costs associated with it, mainly infrastructure and feed costs. As a result, confinement feeding may only be profitable some of the time and likely depends on other management aspects of the farm. For example, with a low stocking rate pasture will be less limiting and therefore increasing pasture production due to deferment or reducing animal energy requirements will not be as valuable.

Methodology/Treatments

Data collected from the three demonstration sites to date include ewe condition scores (10%) on two mobs each, feed tests on all grain feeds and roughage, pasture cuts for dry matter (DM) / feed on offer (FOO) calculations on two paddocks, as well as data on the volume of feed fed and the number of stock contained.

Each of the three host producers had different methods and rations to feed their sheep in confinement, including:

1. Full mixed ration, feeding three times a week in a communal feed trough pen.
2. Feeding a grain mix into fence-mounted troughs in each pen
3. Trail feeding a lupin-barley-oats mix that had been treated with Home n' Dry alkasystems product.

All were supplying ad-lib hay or straw on the ground in the pens and supplying water through water troughs. Test results show the variability in feed quality between farms and compared to industry-accepted average values.

Results and Discussion

Performance Metrics:

Producer 1: 4179 ewes were confined from the end of March until mid-May. In confinement, feeding time was reduced by 35% (63 hours total) and mortality was 1% lower because of improved monitoring. Extra FOO at

Table 1 - Overall producer confinement details.

	Period confined	Total ewes confined	Extra Pasture Growth (FOO increase %)	Days between cuts
Producer 1:	21/3/22 to 26/4/22 (36 Days)	4179	Pdk 1: 276.66% Pdk 2: 129.62%	7
Producer 2:	4/4/22 to 29/4/22 (25 Days)	2000	Pdk 1: 90.62% Pdk 2: 24.22%	17
Producer 3:	18/4/22 to 7/6/22 (50 days)	4377	Pdk 1: 68.08% Pdk 2: 175.80%	28

Table 2- Confinement feeding producer rations and dry matter gains.

	Feeding System	Ration Overall	Condition scores	Deferred pasture production
Producer 1:	Communal feed trough pen	35T Hay 6.7T Loose lick minerals 145T of grain mix – 40% lupins and 40% barley, 20% barley/oats/wheat seed - seconds	+ 0.2	+ 1383.33kg DM/ha - volunteer barley + 1166.67kg DM/ha - Clover/ ryegrass pasture
Producer 2:	Halved poly culvert pipes mounted outside pens	26T oat seconds, 13T lupins, 26T barley (mixed) 200 rolls - Ad-lib hay and straw bales on the ground	+ 0.4	+ 387.5kg DM/ha - chicory, lucerne and serradella mix + 966.67 kg DM/ha - medic pasture on canola stubble.
Producer 3:	Trail feeding	186T home & dry barley/ lupin mix 250 bales - Ad-lib hay/ straw	+ 0.4	Increase of 800kg DM/ha on pasture with tall dry grass Increase of 908.22kg DM/ha on wheat regrowth with seeded barley/clover

the end of confinement resulting from deferment was estimated to be 64kg/WGHa.

Producer 2: 4,377 head were confined from the start of April until mid-June. In confinement, feeding time was reduced by 54% (120 hours total). Extra FOO at the end of confinement resulting from deferment was estimated to be 241 kg/WGHa.

Producer 3: 2000 head were confined from the start of April until mid-May. In confinement, feeding time was reduced by 75% (101 hours total). Extra FOO at the end of confinement resulting from deferment was estimated to be 67 kg/WGHa.

Conclusion

In many cases, confinement feeding is used at the beginning of the year to defer pastures and increase future productivity. The value of deferring pastures depends on the value of feed throughout the year, which is affected by livestock and feed management throughout the year.

The value of confinement feeding is primarily due to:

- Reduced labour and cost of supplementary feeding

Table 3 - Confinement feeding performance metrics gains and cost benefit analysis.

	Producer 1:	Producer 2:	Producer 3:
Labour efficiency gains	10.75hrs/week	16.4hrs/week	24hrs/week
Reduced feeding time	35% (63hrs)	75% (101hrs)	54% (120hrs)
Reduced supplement wastage (5%)	2.33kg/hd	4.12kg/ha	3.55kg/hd
Pasture deferment gains (winter grazing ha)	64kg/WGHa	67kg/WGHa	241kg/WGHa
Pasture production gains (dry matter/ha)	64kg DM/ha	67kg DM/ha	241kg DM/ha
Energy Efficiency gains(megajoules)	0.80mj/d/hd	0.76mj/d/hd	0.73mj/d/hd
Reduced mortality rate	1%	0.50%	nil
Extra supplements	$0	$13,750	$30,591
Pasture deferment	$19,034	$19,449	$32,376
Labour reduction (@$40/hr in super & wc)	$2,520	$4,040	$4,800
Mortality reduction	$739	$369	$0
Gross margin	$22,293 $3.6/DSE $23.20/WGHa	$10,108 $3.4/DSE $5.62/WGHa	$6,585 $1.0/DSE $11.9/WGHa

- Reduced supplement wastage
- Increased energy efficiency of stock
- Increased pasture production due to deferring

The key findings were similar across all three producers' operations, with confinement feeding leading to an increase in profitability in all cases; however, it is important to note, that there was significant variability in the operational benefits across the three sites ranging from $6,500 to $22,200.

The pasture deferment makes up approximately 80-90% of the economic value of confinement feeding, and labour saved from confinement feeding offsets was 17-31% of the cost of the additional supplement.

Confinement feeding before the break of the season is less profitable because pasture is not being deferred.

In 2023 SCF will continue to monitor an extra 3 confinement feeding producer host sites before the completion of the project.

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