



FACT SHEET

JUNE 2014

ACHIEVING GOOD CATTLE GROWTH RATES WHILST MAINTAINING PASTURE CONTROL

Summary

The two objectives of achieving good cattle growth rates during the summer/autumn period on kikuyu pastures and maintaining pasture control, conflict with each other. Generally beef finishers want to grow young cattle as fast as possible. However, there are times when some lines of cattle can be held back for pasture control purposes with little consequence due to having time to recoup the foregone weight gain during a later season.

Running leader/follower grazing systems, where one group of cattle grazes ahead of another, is one approach to allocating different feeding levels while still maintaining good levels of pasture control. This approach was examined on kikuyu based pastures over two different seasons.

Leader/follower grazing resulted in good levels of kikuyu control during summer/autumn with no compromise in the growth rates of the leader cattle. Leader cattle were offered pasture with higher ME, higher proportions of green leaf and clover, and lower proportions of kikuyu stolon and dead material than follower cattle. In both studies, leader cattle put on 58 kg more liveweight gain (LWG) than follower cattle over the duration of the study. The cost of the compromised follower cattle will depend on the ability of those cattle to regain their foregone LWG.

Leader/Follower grazing systems are an effective approach to prioritising feed in order to achieve different LWG for different mobs whilst maintaining pasture control.



Project background

'Finished by 20 Months' is a Beef + Lamb New Zealand project supported by the MPI Sustainable Farming Fund and the Hine Rangi Trust. This project focused on how Northland beef farmers might improve farm profitability and sustainability through growing cattle faster and finishing them at a younger age.

Increasing young cattle LWG provides improvements in:

- Feed Conversion Efficiency
- Meat quality
- Less pugging damage (fewer big animals going through a second or third winter)
- Animal health and welfare
- Potentially more profitable, resilient and sustainable farm systems

The study reported in this paper focuses on how allocation of pasture to cattle can be prioritised by running leader/follower grazing systems.

Targeting different LWG for different lines of cattle

Beef finishers will often have a number of cattle classes within a farm system. These cattle classes will usually have different targeted LWG targets and timing of slaughter and carcass weights, or as with breeding stock, liveweight and condition score targets.

An example of two different targeted growth paths within one age class of cattle would be where a beef finisher targets to slaughter a proportion of cattle prior to the second winter, while the remainder are targeted for slaughter in the late spring. In this example one approach would be to split the cattle based on weight and target a faster growth path for the heavier line in order to achieve adequate weights by the earlier slaughter date. Accomplishing this might require reducing the feed allocated to the lighter line of cattle and 'finishing' them with good feeding during spring instead.

Providing more feed to one stock class over another may be achieved by allocating different classes of land, having different stocking rates, different grazing rotation lengths, having one mob grazing in front of another, or a combination of these factors.

Maintaining pasture quality with leader/follower grazing

If high growth rates are desired within a group of cattle then grazing residuals would normally need to be high. This can lead to a deterioration of pasture quality during summer and autumn. This is especially the case within kikuyu based pastures where lack of hard grazing during summer/autumn leads to a build-up of poor quality stolon material. This leads to a significant impact on winter/spring farm production due to poor quality feed being widespread and the growth of temperate grasses such as ryegrass being stifled.

Where one mob is prioritised above another then the low priority mob may do the pasture control by grazing behind the higher priority mob. This may be done by having one mob directly behind another which provides the greatest difference in feed allowance. The follower mob effectively pushes the leader mob forward. Grazing the follower mob directly behind the leader reduces the total length of grazing duration for the paddock which is good for maintaining productive pastures.

Mobs that can be held back and grazed behind other mobs with higher feeding priority are commonly breeding cows and older finishing cattle that are going through a second or third winter.



Kikuyu pastures must be 'controlled' to keep them in green leafy condition

Case study of a leader/follower grazing system

Geff & Dinah Cookson *Kawakawa, Northland*

Key points

- High growth priority bulls (leaders) were grazed immediately ahead of low growth priority bulls (followers) with only a single electric wire between
- Good pasture control was achieved on kikuyu based pastures during summer/autumn whilst achieving relatively high growth rates on leader cattle
- Leader cattle showed better weight gains and were able to achieve earlier slaughter dates or heavier carcass weights than would be achieved if on their separate rotation
- Leader cattle received a pasture with higher ME, a higher proportion of clover and green leaf, and lower proportion of kikuyu stolon
- Leader/follower grazing systems are an effective way to allocate different feeding levels without compromising pasture control

Farm background

The Cookson's farm 470 ha effective of rolling to steep hill land east of Kawakawa. The farm finishes Friesian and cross bred bulls. Permanent single wire electric fences are used extensively to reduce paddock sizes to around 1 ha on the easy to medium hill land. Water is available in all breaks. This provides the ability to intensively manage bulls within set systems with short sharp grazing durations.

Pastures are mainly kikuyu based with good ryegrass content during winter and spring. Geff has a high focus on hard grazing of kikuyu during autumn to maintain pasture quality and allow the ryegrass to come through to support winter pasture growth.

Geff buys a number of spring born Friesian bull calves. He targets to finish the best of these during autumn/early winter at between 18 and 22 months of age in order to avoid taking too many heavy cattle through the winter wet period on his vulnerable soils. Achieving good weights with these bulls by early winter is often a challenge. The remainder of this generation of bulls are commonly taken through winter and slaughtered during late spring at 27 months of age.

This study was undertaken to determine whether running high and low priority feeding mobs as a leader/follower grazing system could enhance the LWG of the leader mob while maintaining pasture control.

Study details

A 12 ha block of medium hill land was used for two studies, one in the 2011/12 season and the other in 2013/14 season. The block was intensively subdivided into 20 paddocks with water available within each paddock. In both studies a mob of bulls with a low target LWG were grazed immediately behind another mob with a high target LWG. In most circumstances there was only a single electric wire between the mobs. No mixing of mobs occurred during either study.

The first study commenced in September 2011 and ran through to May 2012. 13 month old Friesian bulls were split into a heavy and a light mob. The heavy mob had 34 bulls while the light mob had 18 bulls, a total stocking rate of 4.5 bulls/ha. The heavy mob was grazed immediately ahead of the light mob with the objective of slaughtering these heavier bulls prior to the second winter. The light mob was considered low priority feeding as they would be kept through winter regardless, and would somewhat compensate during spring to be finished at 27 months of age.

The second study sought to enhance the growth rates of bull calves during summer/autumn by running them ahead of older bulls which again were to be kept for the second winter and slaughtered at 27 months of age. There were 35 younger bulls and 30 older bulls, providing a stocking rate of 5.6 bulls/ha. Younger bulls were grazed immediately ahead of older bulls throughout the study.

2011/12 study

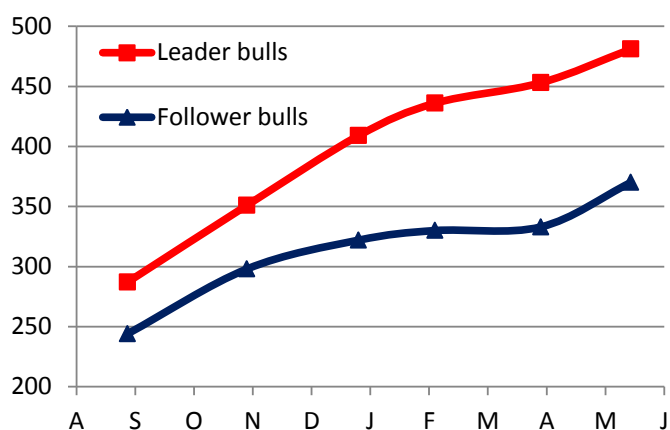
Bull liveweights

Leader bulls were not heavy at the start of this study, being <300kg average in early September. It was always going to be a struggle to get them up to slaughter weight before their second winter on hill land.

During this study the leader bulls averaged 0.76 kg LWG/day while the follower bulls averaged 0.49 kg LWG/day. Both mobs of bulls grew well during spring, however growth rates of follower bulls dropped off as maintaining pasture quality became more challenging through summer. The farm system was relatively highly stocked at 4.5 bulls/ha throughout this study and as a consequence LWG was compromised during the autumn period.

The 53 kg difference between mobs at the start of the study grew to 111 kg difference by the end of the study.

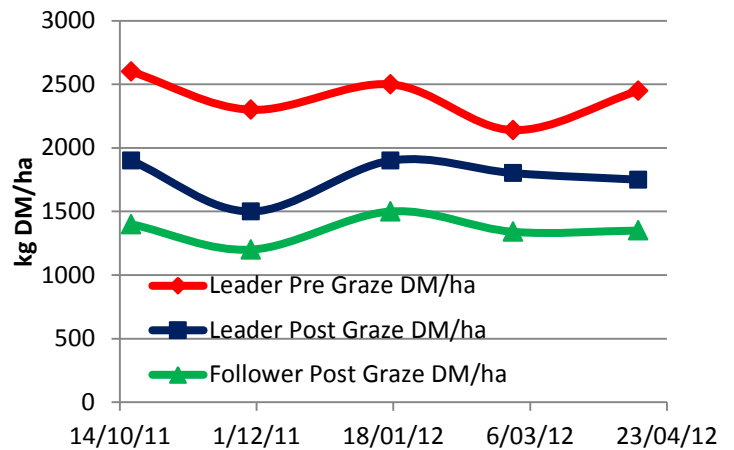
Figure 1. Average liveweights (kg) of the leader bulls grazing immediately ahead of follower bulls



Pasture conditions

Pasture covers are shown in the table below. Leader bulls were never pushed with average post-graze covers of 1790 kg DM/ha. The follower bulls did the clean-up with average residual covers of 1358 kg DM/ha

Figure 2. Pre and post-graze pasture covers for the leader and follower cattle



In addition to lower grazing levels, follower bulls were offered a lower quality pasture as shown in table 1. The difference in cattle LWG between the mobs is likely a consequence of differing pasture quality and quantity being offered.

Table 1. Measures of pasture quality in pasture samples collected to imitate bull pasture intakes during the 2011/12 study

	Leader bulls	Follower bulls
Average ME of pasture	10.3	9.7
Average % green leaf	86%	65%
Average % kikuyu stolon	5%	17%
Average % legume	13%	6%



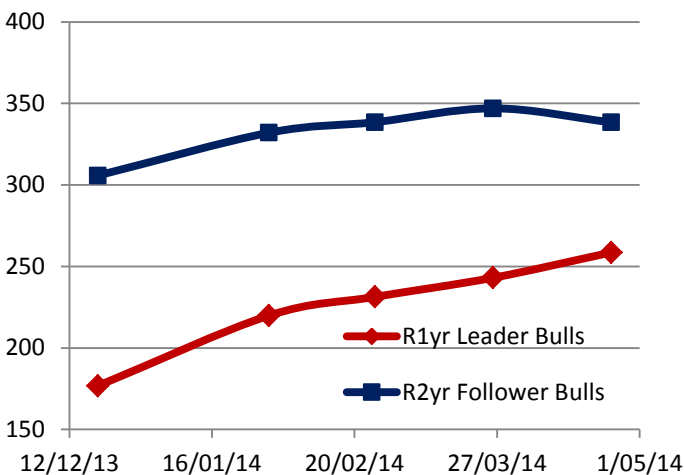
Follower bulls 'cleaning-up'

2013/14 study

Bull liveweights

Average LWG of the leader bulls was 0.68 kg/day compared with 0.46 kg/day for the follower bulls. Normally the older bulls cope with the summer/autumn conditions better than the younger and would be expected to show better growth rates. However, older bull growth rates were significantly compromised grazing behind the younger bulls during the late summer/autumn period.

Figure 3. Average liveweights (kg) of the leader bulls grazing immediately ahead of follower bulls



Leader bull calves getting the 'cream'

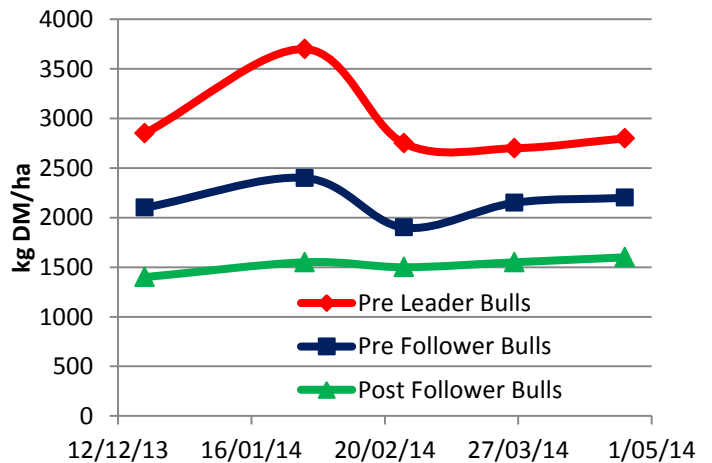


Follower bulls 'maintaining' kikuyu pasture

Pasture conditions

Leader bulls were well fed throughout the study with an average pre-graze pasture cover of 2960 kg DM/ha compared to the follower bulls at 2150 kg DM/ha. Though residuals for the follower bulls generally stayed around 1500 kg DM/ha, kikuyu growth was strong and much of the pasture offered was kikuyu stolon.

Figure 4. Pre and post-graze pasture covers for the leader and follower cattle



The quality of pasture offered to the follower bulls was significantly poorer than the leader bulls. Pasture offered to the leader bulls had a higher ME, higher proportion of green leaf, higher legume and a lower proportion of kikuyu stolon.

Table 2. Measures of pasture quality in pasture samples collected to imitate bull pasture intakes during the 2013/14 study

	Leader bulls	Follower bulls
Average ME of pasture	9.7	8.7
Average % green leaf	82%	52%
Average % kikuyu stolon	8%	21%
Average % legume	18%	7%

The leader/follower grazing regime resulted in short sharp grazings and good pasture control without compromising the LWG of the leader cattle. The follower cattle were compromised, however that was of little consequence due to them being older cattle that would compensate some of the foregone LWG and be finished six months later. This leader/follower grazing regime would be less useful during winter/early spring when control of pasture quality is less important.

For more information

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