

LINCOLN UNIVERSITY DAIRY FARM, NOW A CROPPING FARM?

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Introduction

Lincoln University Dairy Farm (LUDF) is achieving excellent levels of profitability through growing large amounts of high quality grass and harvesting this to produce over 1700 MS/ha and 425 kgs MS/cow. Managing pastures is the most important activity on a dairy farm. The cows are your clients and you have to supply them with the ideal crop of grass (quantity and quality) to graze on every day, particularly in the first half of the season.

Two facts

1. Pasture eaten is the greatest driver of farm profitability
2. Well managed pasture is the ideal food for cows to achieve high production.

Six strategies

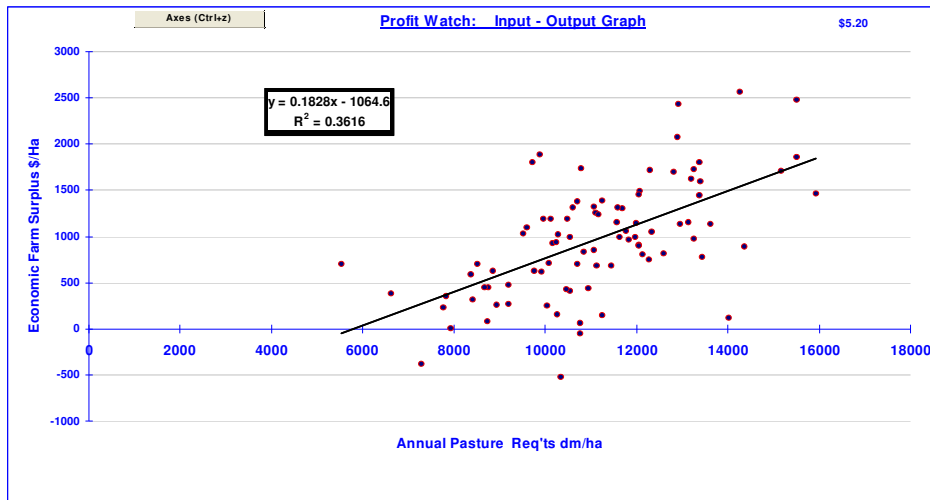
1. Correct stocking rate.
2. Clean out pastures in the autumn
3. Have a target Average Pasture Cover (APC) at drying off.
4. Have a target APC and feed wedge shape at Planned Start of Calving (PSC)
5. Allocate feed in the spring – Spring Rotation Plan
6. Measure APC every week – plate every paddock for an A+ result or ride through every paddock to rank them and just plate the longest and the one just grazed for a B+
7. Identify and remove surplus feed early.

Two results

1. High-energy intakes for the cows all year.
2. More \$ for less effort

Why?

Pasture eaten is a key driver of farm profitability (Profit Watch 2003). Eat more ⇒ make more \$.



Meeting our customers' needs

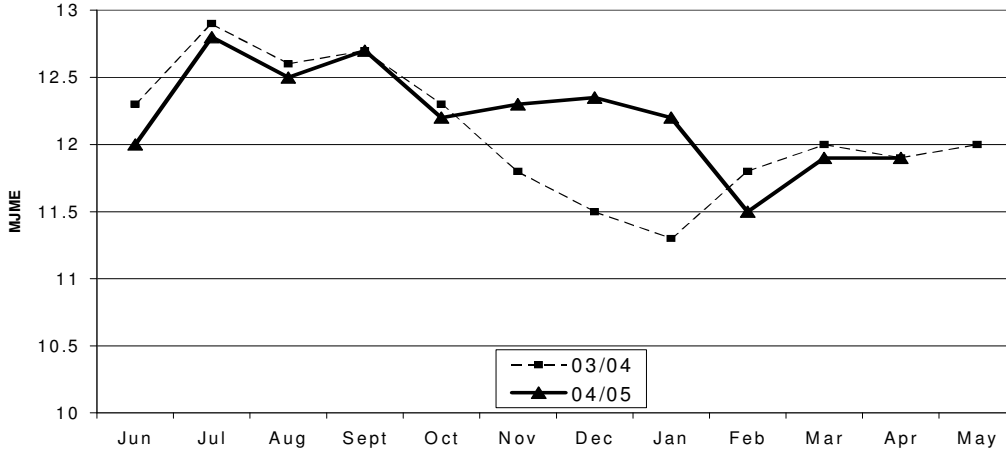
Table 1: Target pasture to deliver to the cows

Amount	18 plus Kgs DM/cow at peak
Energy level	12 ME plus
Fibre (%NDF)	Between 35 and 40%
Dry Matter	Above 15%
Protein	Between 20 and 28%

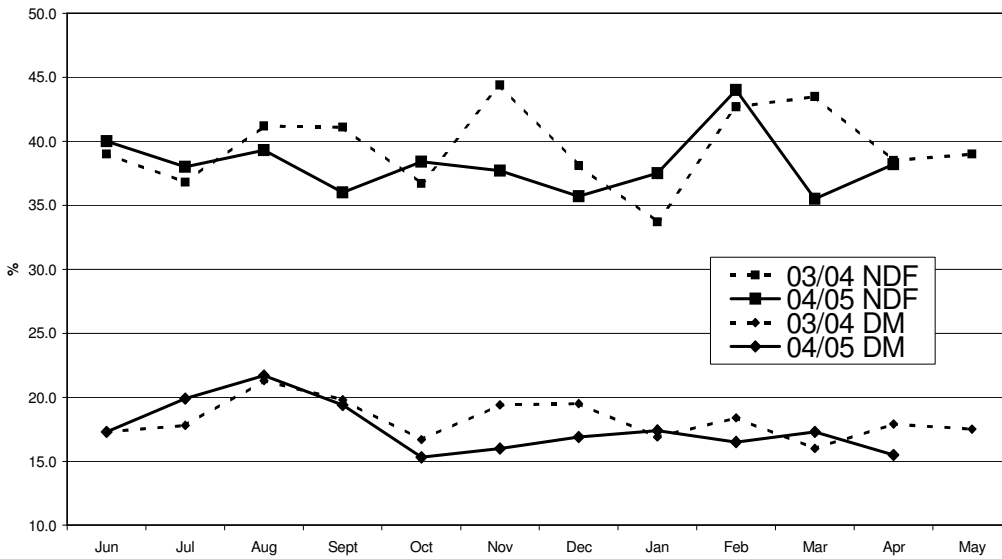
Refer to "Is Past Enough?" Wybe Kuperus at SIDE 2002

Can it be done?

**LUDF Pre Grazing Pasture ME
Bronsyn/Impact/clover**



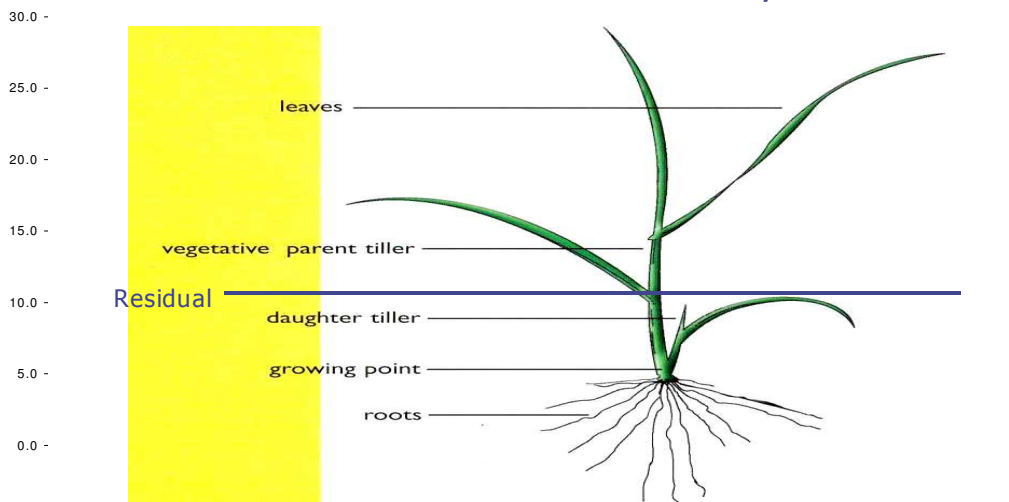
LUDF %NDF & % DM



Graze to remove 3 to 4 leaves

Graze to remove seed heads early

LUI



Step 1

Allow pasture to grow until the fourth leaf has appeared. This allows the crown and roots to top up their reserves to start the next cycle of growth after grazing.

Step 2

Graze to 7 compressed half centimetres on the Rising Plate meter. This results in most of the new growth being harvested and few old leaves remaining to accumulate as dead matter at the base of the sward. Grazing at this height also means that most of the developing seed heads are eaten while they are still very digestible and before they appear. New daughter tiller development and clover growth are also encouraged by this practice.

The strategy is to leave the paddock after grazing all set up to grow another ideal grass crop.

Get the stocking rate correctly

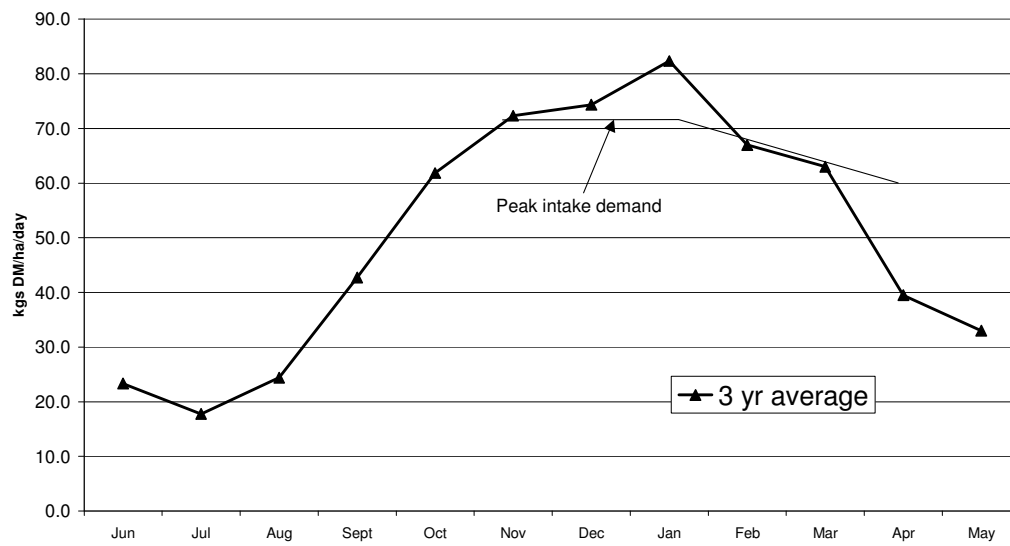
- Match cows/ha to total annual feed inputs CSR (Comparative Stocking Rate)

Table 2: LUDF 2003/2004 season CSR

Total pasture grown (from plate meter readings)	18.5 t/ha
Additional Supplements fed on Milking platform	1.15 t/ha
Winter grazing	2.6 t/ha
Total feed	22.25 t/ha
Kgs Live weight per Ha	1960
CSR (target range is between 80 and 90)	88

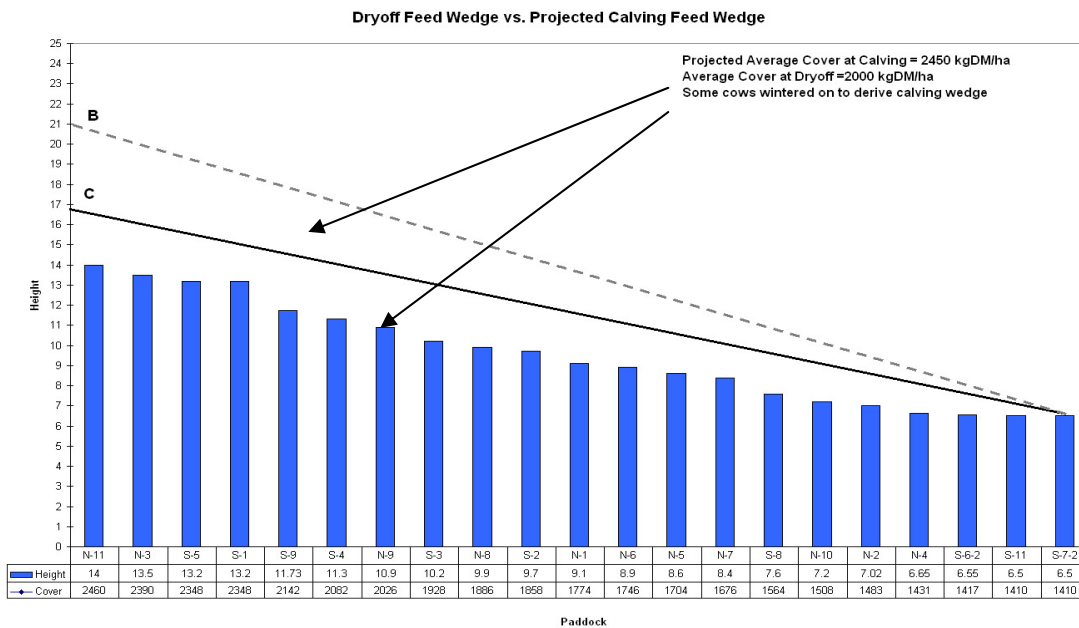
- Match cow intake demand to pasture availability for as long as you can

LUDF Pasture Growth



LUDF planned start of calving is 1 August. A key part of the strategy is to have flexible winter grazing arrangements. If there is sufficient cover, cows can be brought back to the milking platform to calve. In most cases the cows are calved on an adjacent runoff. Supplements are fed out in the autumn to extend lactation. Many farm system trials have shown this to give the greatest economic return for supplements.

LUDF APC and feed wedge at drying off and calving

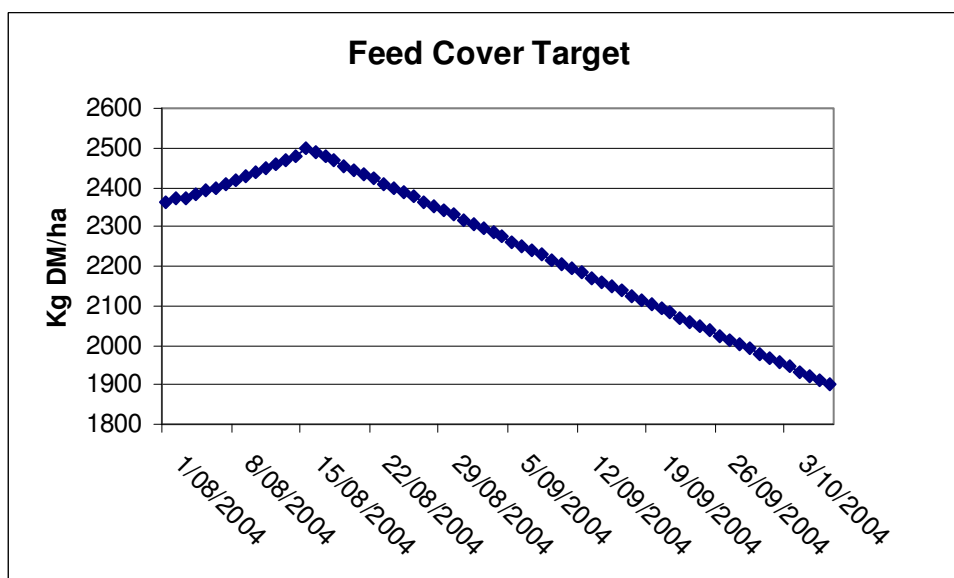
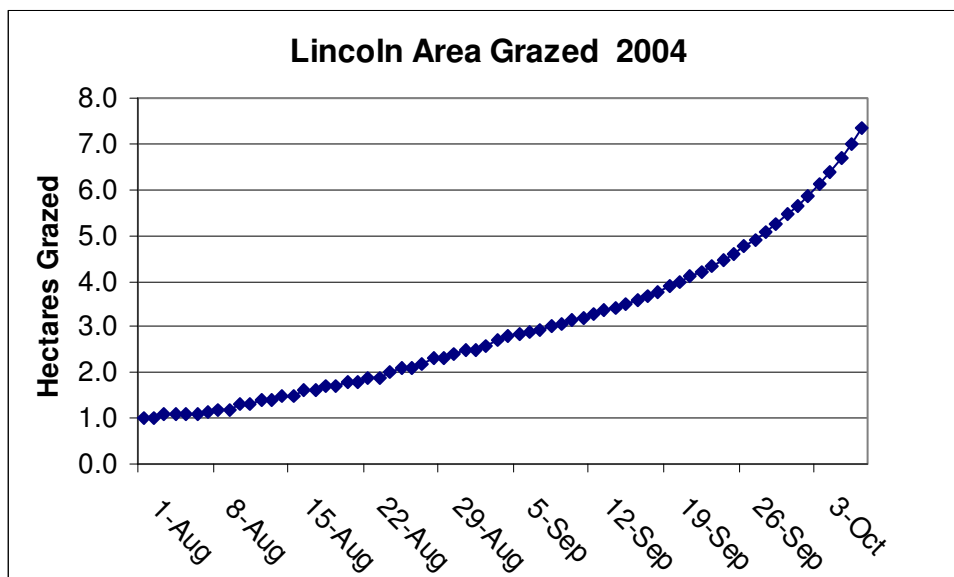


The main challenge between drying off and calving is not only to lift the APC to the target calculated by the feed budget, but also to change the shape of the feed wedge so that there is a smooth progression of cover from the longest paddock down to the one that has just been grazed. When we have achieved this, the longest paddocks have enough pasture cover to feed the newly arrived cows on a small area. Having a wedge right down to paddocks that have just been grazed means that we will have excellent pasture cover all through the spring.

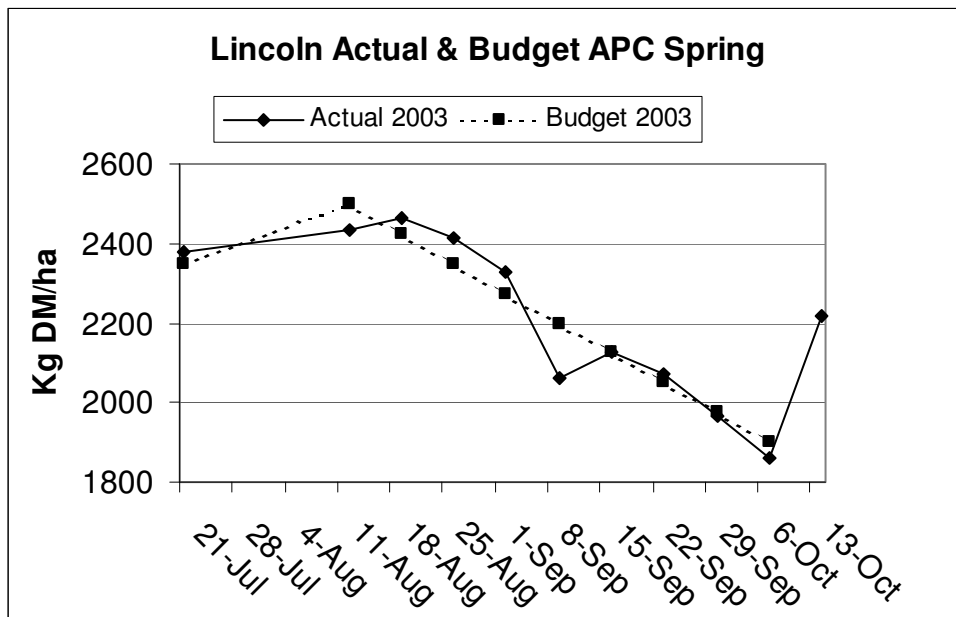
Spring rotation plan

(See 'Making a Spring Feed Plan Work', Session 3, Side 05)

It is vital to have both a plan for area to graze each day and a target pasture cover graph.



APC will rise for the first two weeks as cow numbers are building. The 1900 target cover on 7 October is very helpful to stay in control of pasture quality through the second and third round of grazing.

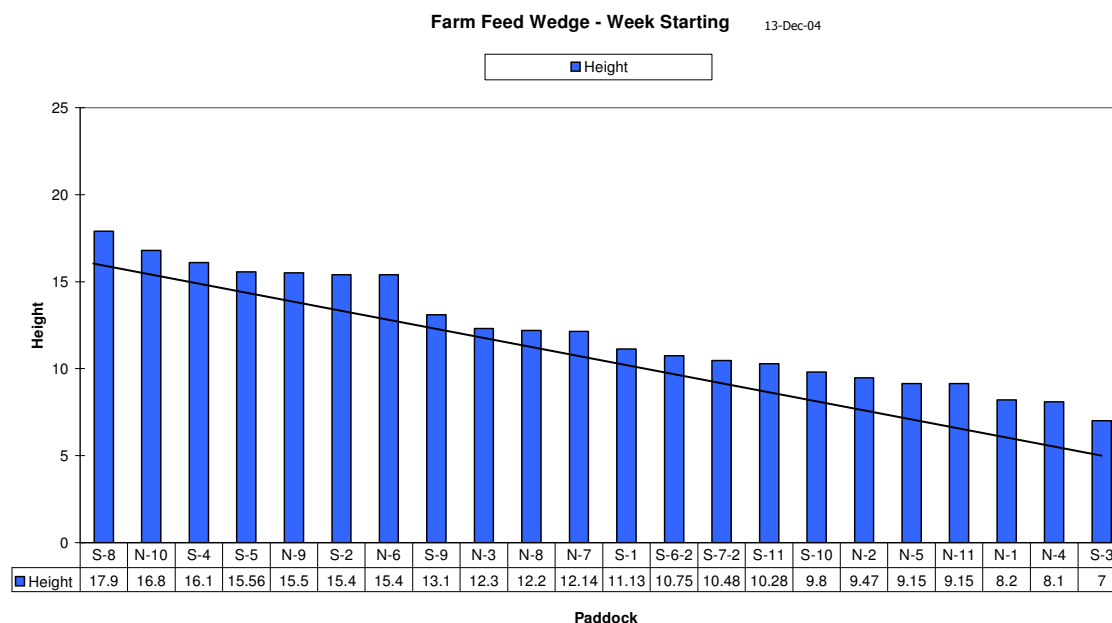


On LUDF, applying the Spring Rotation Plan is complex because the cows are coming back to the milking platform in small groups most days. Sticking to the area allocation plan is not enough. APC must be measured every week. If APC is above the budget, the planned daily allocated continues as per the plan. If APC is below the budget line (e.g. 8 Sept) the area allocated is not increased until actual pasture cover again matches the budget. The best quality grass silage (12 ME) was fed to the cows to keep intakes stable. Once the target cover has again been reached the area allocated continues as per the plan.

The key is to do a farm walk every week and plate every paddock.

The feed wedge

This is a graph of the cover on the farm. Each paddock as measured every week – plate every paddock for an A⁺ result or ride through every paddock to rank them and just plate the longest and the one just grazed for a B⁺.



If pasture growth matches demand i.e. 72 kgs DM/day then the feed wedge next week would look very similar. If pasture growth exceeds this, then in four days' time paddock N9 would be expected to have a pre-grazing cover in excess of the target, and paddocks S2 and N6 would have covers that are even higher. Average pasture growth for December is over 75 kgs DM/day and so the expectation would be that in one week's time there would be a surplus. Plans should be made to make up to two paddocks into silage. The grass crop should be cut down at the same level as the cows are grazing at. The advantage of making it immediately is that the paddocks will be ready with another ideal grass crop in 18 to 22 days' time.

Two results

High energy intakes for the cows all year because pasture quality remains high

	Lax Grazing	Grazing down to 7 “clicks”
Metabolisable Energy	11	12.5
Maximum DM intake	15 kgs	18 kgs
Daily Energy Intake	165 ME	225 ME

With lax grazing cows may appear fully fed because they are leaving lots of pasture behind, however there are at least three situations where these cows will have low energy intakes:

1. When % Dry Matter is below 14%. These cows will be consuming the maximum amount of wet weight grass that they can but there is insufficient Dry Matter to meet energy needs.
2. When the pasture has low digestibility and so low ME i.e. below 11.
3. When pasture has a high % NDF i.e. above 40% when it is going to seed.

Cows cleaning out pastures to low residuals can have either:

1. High energy intakes, or
2. Low energy intakes.

The difference will not be obvious to the casual observer. Pasture disappearance and M.E have to be measured. Energy intake is the real measure of a well-fed cow.

More \$ for less effort

	2002/03 Lax Grazing	2003/04 Lower grazing
Cows /ha	3.75	3.99
Peak kgs MS/cow/day	1.9	2.2
Total kgs MS/cow	380	422
kgs MS as a % of Lwt	77.5%	86%
Cows wintered	631	660
Maximum cows milked	604	644
Cows wintered on farm	0	0.8 /ha
kgs N /ha	200	200
Supplements fed to 30 Nov	150 kgs DM/cow	39 kgs DM/cow
Total purchased feed fed to milkers	550 kgs DM/cow	287 kgs DM/cow
Silage made on the milking area	0	98 kgs DM/cow
Area re-grassed	8 ha	98
Pasture grown (measured by plate meter)	18.2t	18.5t
Comparative stocking rate	78 (6.6t DM/cow)	88 (5.6t DM/cow)
Financials at a \$4 payout		
Farm Working Expenses (\$/kg MS)	\$2.99	\$2.59
Economic Farm Surplus (\$/ha)	\$1603	\$2752
Return on Asset (cash only)	4.8%	7.5%