S I D D C

South Island Dairying Development Centre

Focus Day

Lincoln University Dairy Farm

Information Handout

8th October 2009

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Next Focus Day: Thursday, 25th February 2010

S I D D C – Partners networking to advance South Island Dairying

Lincoln University Christchurch New Zealand · DairyNZ · Plant & Food Research Rangahau Ahumāra Kai · Ravensdown · LIC · SIDE

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SEASONAL COMMENT

June – July and up to mid August growth rates were similar or lower than previous years. The good weather conditions made this calving quite easy and good pasture utilization was easy to achieve.

Figure 1: Monthly Growth Rates for June – October Period

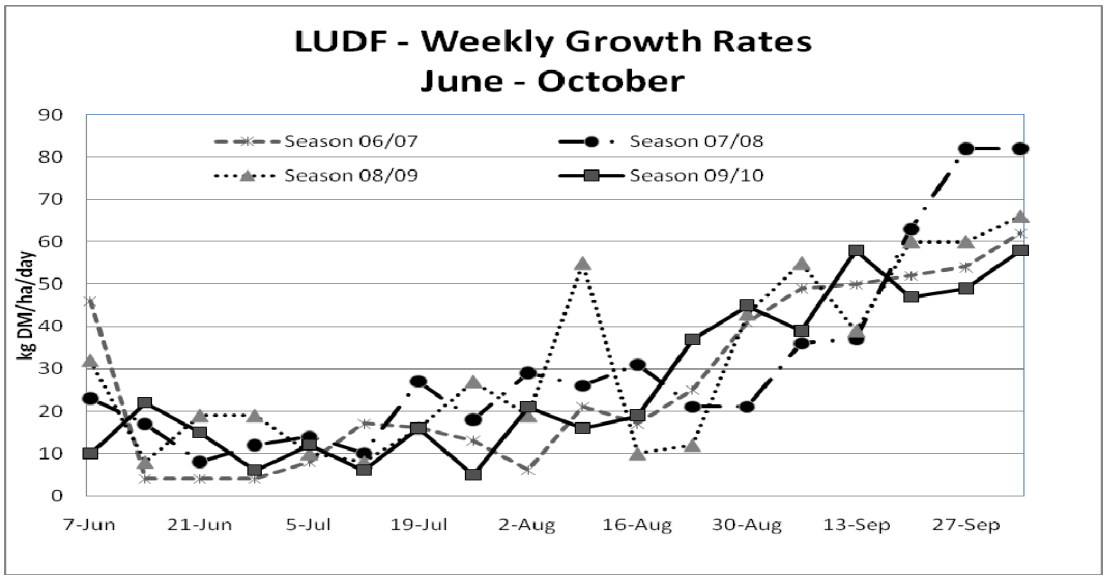
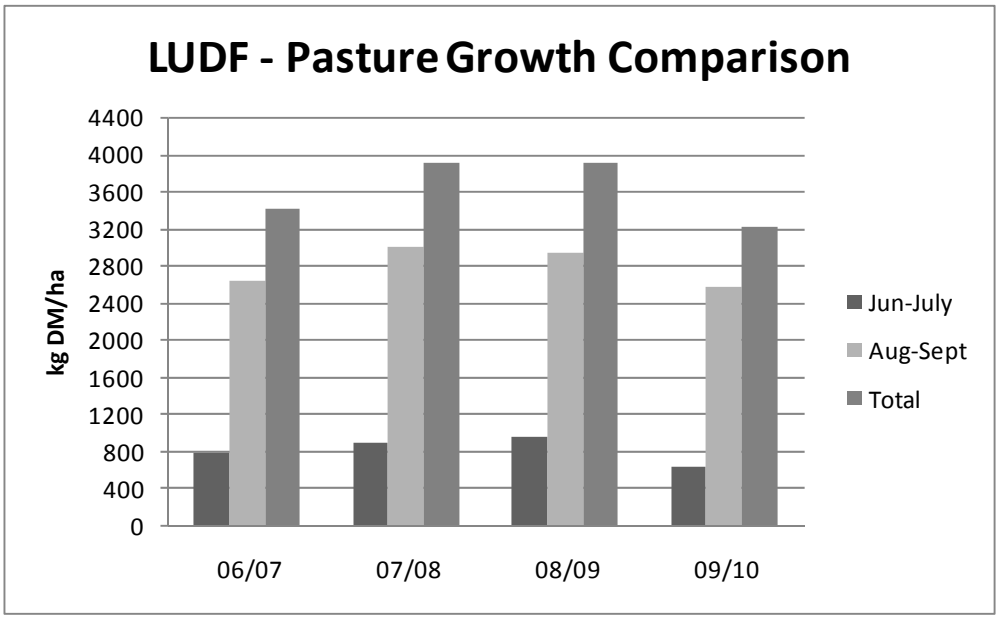
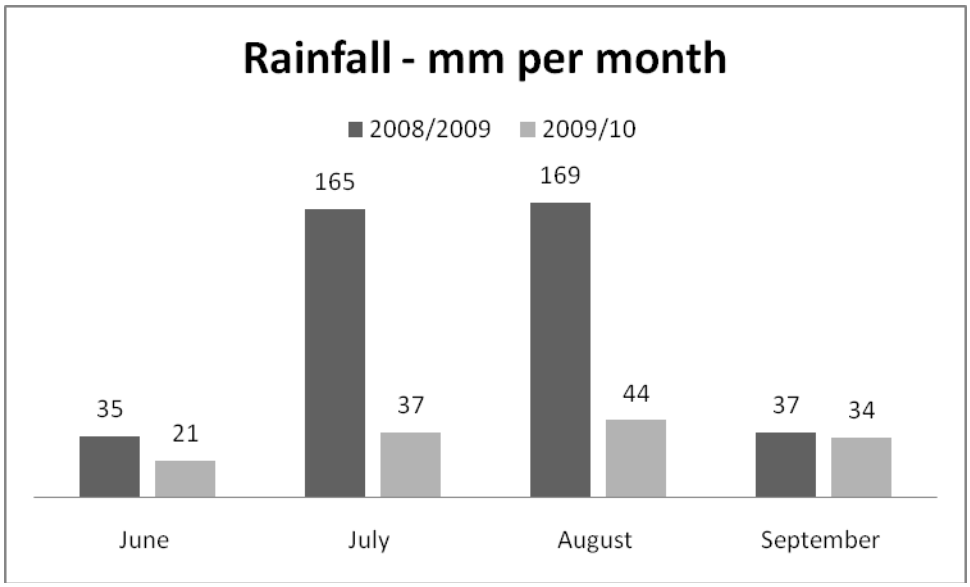


Figure 2: Accumulative Growth last 4 Seasons



As can be seen in the graph above total growth for the period June-October this year was lower than previous seasons despite having very good growing conditions from mid August. Last year we grew the grass but the utilization was very poor due to the wet conditions.

Figure 3: Rainfall for the last 2 seasons



Total Rainfall – June – September (2008/09) = 406 mm
Total Rainfall – June – September (2009/10) = 136 mm

Calving

The mature cows and heifers had a very compact calving this season with the heifers starting 2 weeks before the main herd. The Planned start of calving of the main herd was the 8th of August (5 days later than last year). This is a function of last years aggressive use of CIDR's and the focus on calving pattern over the last 4-5 years.

Table 1: Calving Performance last few Seasons

SEASON	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Days to mid (all herd)		22	23	14	12	16	21	**9**
Days to mid (cows only)		22	23	22	16	22	18	**15**
4 wk calving rate %	64	63	61	69	72	66	70	**81**
% still to calve 1 month PSM	14	17	12	12.6	9	7	7	**3.6**
% treated as Anoestrus		36.7	24.3	14.5	17	8	23.5	**-**

Cow Condition

The team was very pleased with the condition of the herd at calving with only a few cows below CS 5. Emphasis was put on Condition Score at Drying off and during the winter and the efforts paid off because the targets for cows and heifers were achieved.

We had only 9 deaths out of 683 cows wintered. From the 674 cows that were alive, 9 were empty leaving 665 cows at present for the herd.

Table 2: Cows Deaths Summary

Month		Season 06/07	Season 07/08	Season 08/09	Season 09/10
June		0	1 [Heart Failure]	0	4 (kale) 1(?_)
July	Accidental Milk Fever	2 2	0 0	0 0	0 0
August	Accidental Bloat Other Milk Fever	3 1 1 0	0 0 2 1	1 0 1 2	0 0 1 (twins) 0 3 (black M)
September	Liver Problems Bloat Milk Fever Other	2 3 0 0	0 0 1 0	0 0 0 2	0 0 0 0
October	Bloat Milk fever Johnnes	1 0 0	0 1 1	0 0 0	
Total		15	7	6	9 (1.3%)

Wintering Plan – Review

Drying off

The end of last season was quite challenging with a cold and wet April and May. Growth rates were below average for the month, cows were lighter than target, and pasture cover was also lower than target.

Target cover at drying off is 2050-2100kg DM/ha and Cow condition 4.5.

Autumn

Date	Action
9th April	The herd (560 cows) were milked Once a Day (OAD) from the 9th of April to promote condition gain since the herd was below target at this point.
10th April	20 of the thinnest early calving cows that were not gaining weight (identified with the over weighing information) were dried off on the 3rd of April and were sent off farm.
22nd April	47 not in-calf cows were sold and left the farm.
29th April	Whole herd was assessed for condition score (CS) and the average was 4.3. The 15 cows that were below 4 CS were dried off. 100 cows were CS 4.
12th May	All early calving cows and 3 yr olds with a CS below 4.25 were dried off leaving 389 cows in milk.
16th May	13 cows that lost their pregnancies since the February PD were culled and another 8 light cows were dried off. (Cows Milked 368)
21st May	Whole herd dried off (1,645 kg MS/ha & 385 kg MS/cow using 337 kg DM/cow of bought in silage). All cows treated with Dry Cow antibiotics at Drying off.

Winter Management

Date	Action
22nd May	230 cows, the cows calving after the 25th August, left the milking platform for winter grazing near Hororata (30 minutes away). Fed Kale and Straw. These cows were treated with teatseal as well as Dry Cow antibiotics.
23rd May	250 early calving cows were taken off the milking platform for a few days to help increase pasture cover on the farm.
28th May	265 cows came back to the milking platform (includes light cows dried off in Autumn).
31st May	150 cows were grazed off near Springston (5 Km away from the farm) eating Grass, straw and Kale (in mid winter). These cows were managed by the farm team.
9th June	Cow Condition of all herds was assessed as follows: 115 cows that had been on the milking platform (early thin cows that were dried off early) averaged 4.6 CS The 150 cows in Springston averaged 4.8 CS ave The 230 cows in Hororata averaged 4.4 CS with the range from 4-5.
29th June	The 188 heifers (R2's) were teat sealed and tagged. They also received a mineral drench.
30th June	The 110 cows on the milking Platform have been split into 2 herds according to CS (38 were CS 5+). All the cows were above 4.5 CS.
7th July	110 cows grazing the Milking platform were sent to East Block. All these cows were >4.5 CS. 17 cows that were not gaining weight on Kale at Hororata were brought back to the East Block to eat grass.
14th July	Cow condition was assessed: 213 cows in Hororata averaged 4.8 CS (up from 4.4 on 9th June) 150 cows in Springston are at calving condition (5 CS)
15th July	187 Heifers are grazing leased land close to the milking platform
16th July	76 Heifers were brought to the milking Platform
18th July	150 cows from Springston were brought to grass close to the milking platform (additional bought in grazing)
21st August	213 cows brought from Hororata to grazing close to the milking platform
1st September	The remaining 163 uncalved cows were brought to the milking platform

Summary of Winter Grazing Days per month

Month	Cows on Milking Platform	Cows off the milking platform	Total Cows
June	115x 30 days	568 x 30 days = 17040	683
July	115 cows x 7 days 76 Heifers x 15 days	188 heifers x 16 days= 3008 112 heifers x 15 days = 1680 115 cows x 21 days = 2415 380 cows x 30 days = 11400 Total = 18503	683
August	210 x 10 days 343 x 7 days 436 x 7 days 507 x 7 days	473 x 10 days = 4730 340 x 7 days = 2380 247 x 7 days = 1729 176 x 7 days = 1232 Total = 10071	683
		TOTAL = 45614 / 683 **67 days (nearly 10 weeks)**	

Feeding Management

Key tools in regular use are the detailed feed budget (updated weekly), simple graphs tracking average pasture cover, the weekly farm walk and feed wedge. As can be seen in Figure 4, from the end of June cover was below target and the situation didn't recover until mid August. All cows calved off the milking platform until the 1st of September.

Figure 4: Track Cover June- July

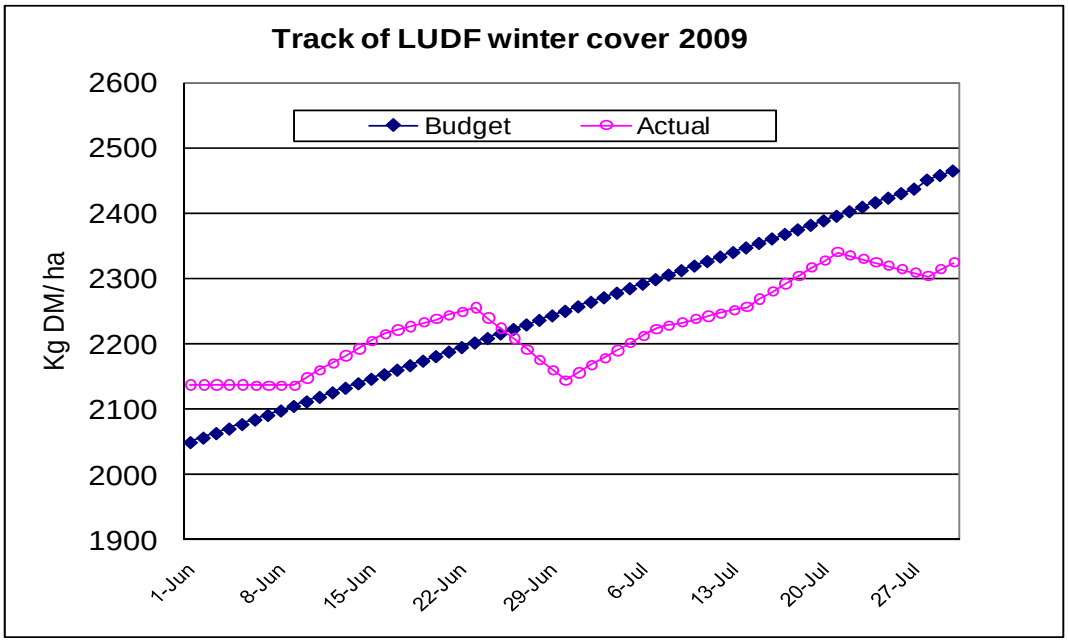
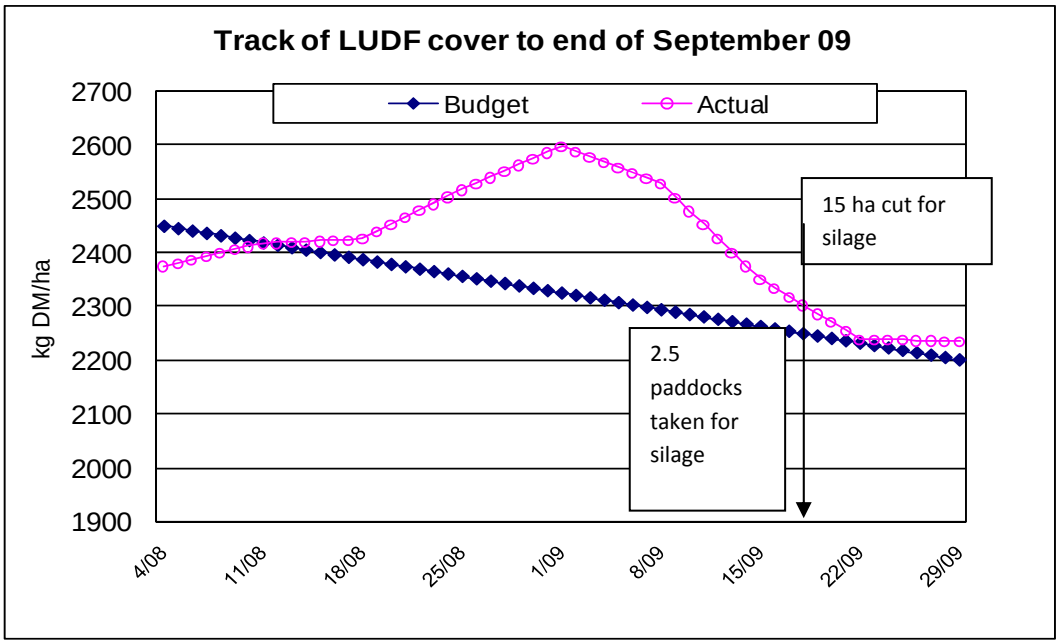


Figure 5: Track Cover Graph August September



The deficit situation was corrected in mid August.

Feed Wedges and Actions Taken

DATE: 17th July

The target line in the feed wedge represents a pre-grazing target of 3258kg DM/ha and a post grazing of 1480 kg DM/ha, which gave us the APC that we wanted for the end of this week of 2369 kg DM/ha .

Deficit at this point is **16 t DM**.

ACTIONS: Looking for extra winter grazing

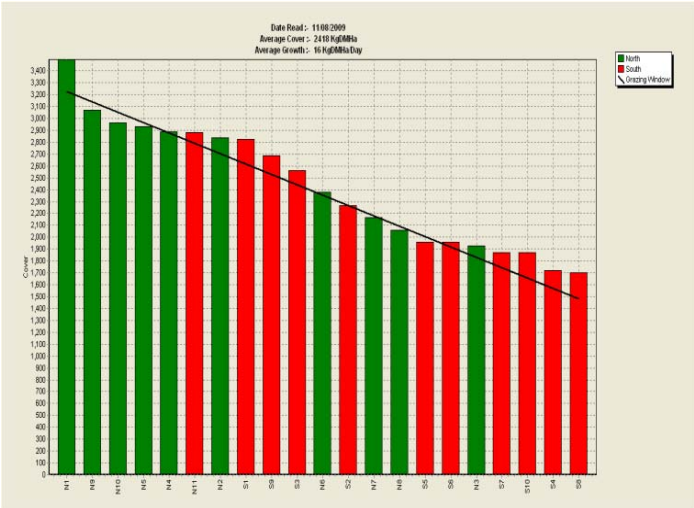
DATE: 28th July

The target line in the feed wedge represents a pre-grazing target of 3420kg DM/ha and a post grazing of 1480 kg DM/ha, which gives us the average pasture cover that we want for the end of the week of 2450kg DM/ha .

Deficit at this point is **22 t DM**.

ACTIONS: Obtaining extra winter grazing

DATE: 11th August

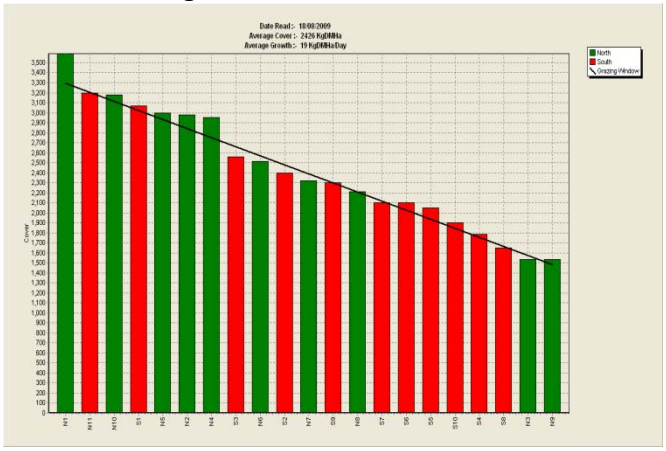


The target line in the feed wedge represents a pre-grazing target of 3226kg DM/ha and a post grazing of 1480 kg DM/ha, which gives us the average pasture cover that we want for the end of the week of 2353 kg DM/ha .

Surplus at this point **12 t DM.**

ACTIONS: None

DATE: 18th August

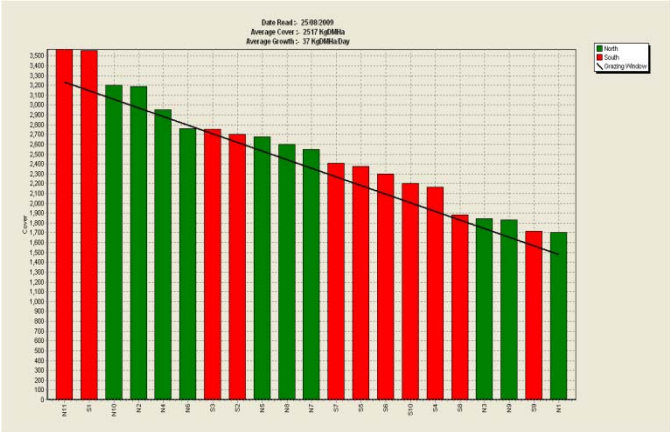


The target line in the feed wedge represents a pre-grazing target of 3296kg DM/ha and a post grazing of 1480 kg DM/ha, which gives us the average pasture cover that we want for the end of the week of 2388 kg DM/ha .

Surplus at this point **6 t DM**.

ACTIONS: None

DATE: 25th August

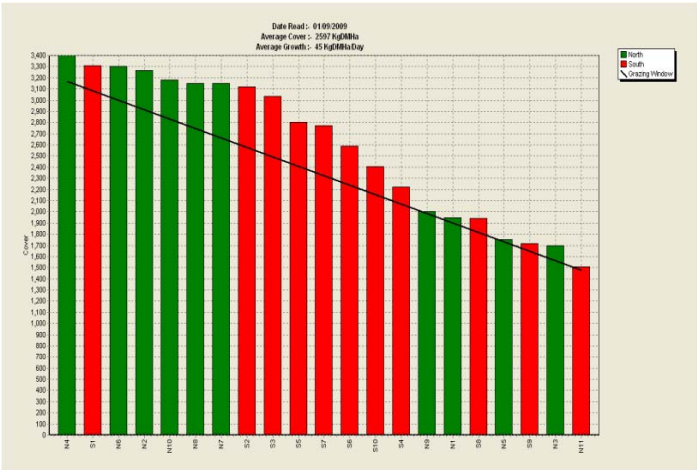


The target line in the feed wedge represents a pre-grazing target of 3232kg DM/ha and a post grazing of 1480 kg DM/ha, which gives us the average pasture cover that we want for the end of the week of 2356 kg DM/ha .

Surplus at this point **26 t DM**.

ACTIONS: None

DATE: 1st September

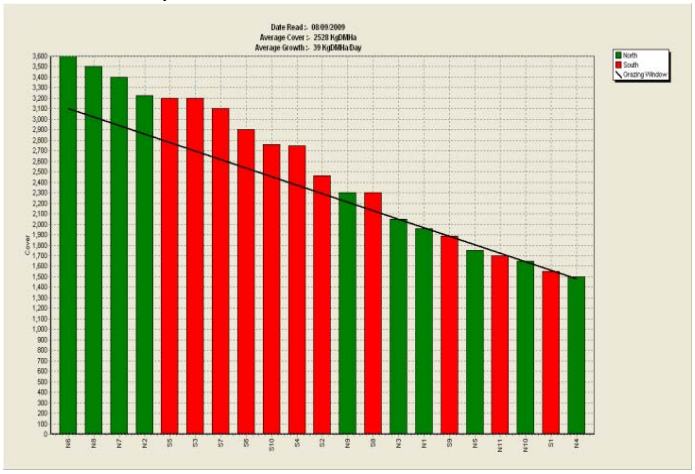


The target line in the feed wedge represents a pre-grazing target of 3170kg DM/ha and a post grazing of 1480 kg DM/ha, which gives us the average pasture cover that we want for the end of the week of 2325 kg DM/ha .

Surplus at this point **43 t DM**.

ACTIONS: All cows brought to milking platform. All cows milked twice a day.

DATE: 8th September

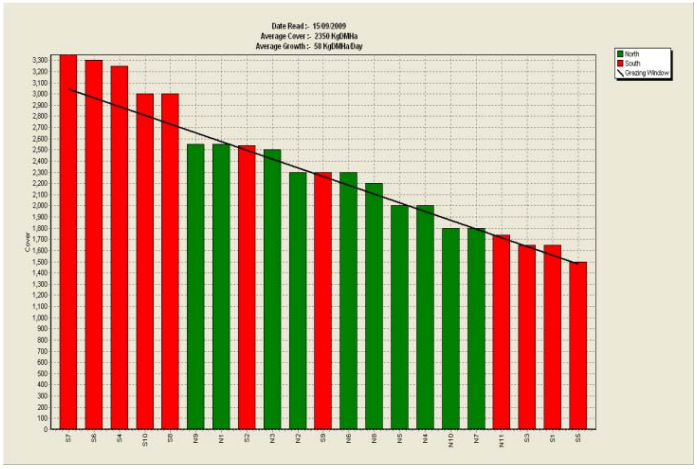


The target line in the feed wedge represents a pre-grazing target of 3150kg DM/ha and a post grazing of 1480 kg

Surplus at this point **39 t DM**.

ACTIONS: 2½ paddocks yielding 22.5 t DM.

DATE: 15th September

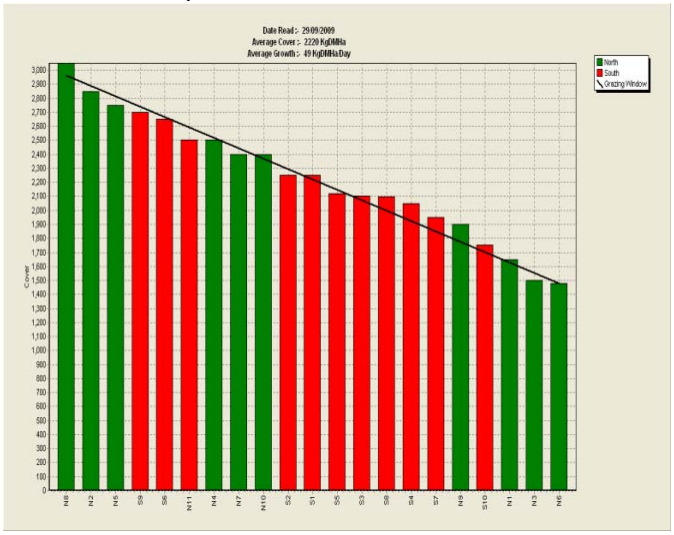


The target line in the feed wedge represents a pre-grazing target of 3000 kg DM/ha and a post grazing of 1480 kg

Surplus at this point **14 t DM**.

ACTIONS: 15 ha cut for Silage

DATE: 29th September

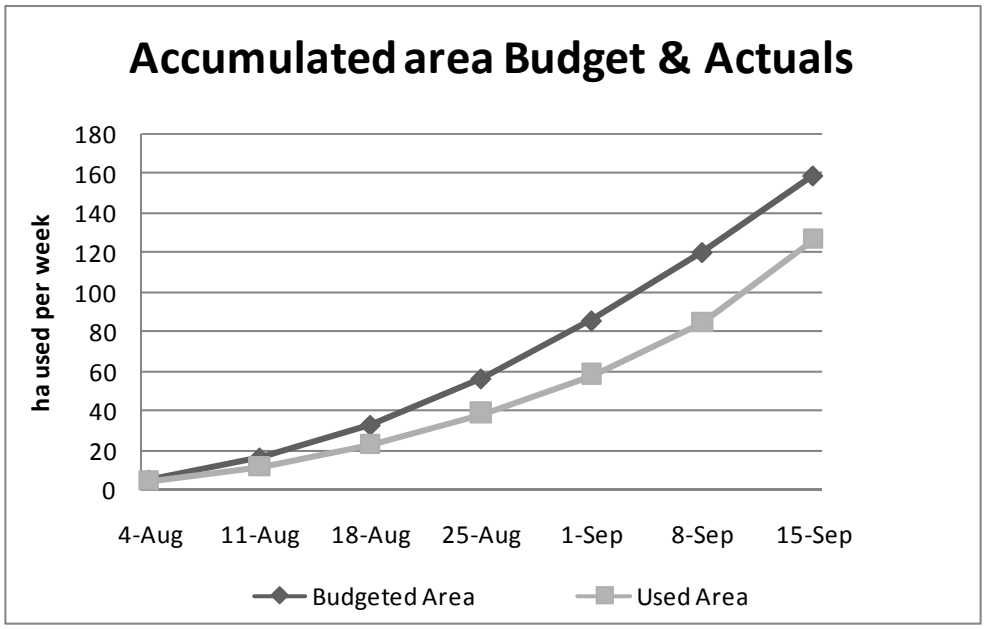


The target line reflects the pre-grazing target of 2962 kg DM/ha and a post grazing of 1480 kg DM/ha, which is the pre-grazing we need to feed the cows considering the stocking rate of 4.15 cows /ha, intake of 17 kg DM/cow/day and a rotation length of 21 days.

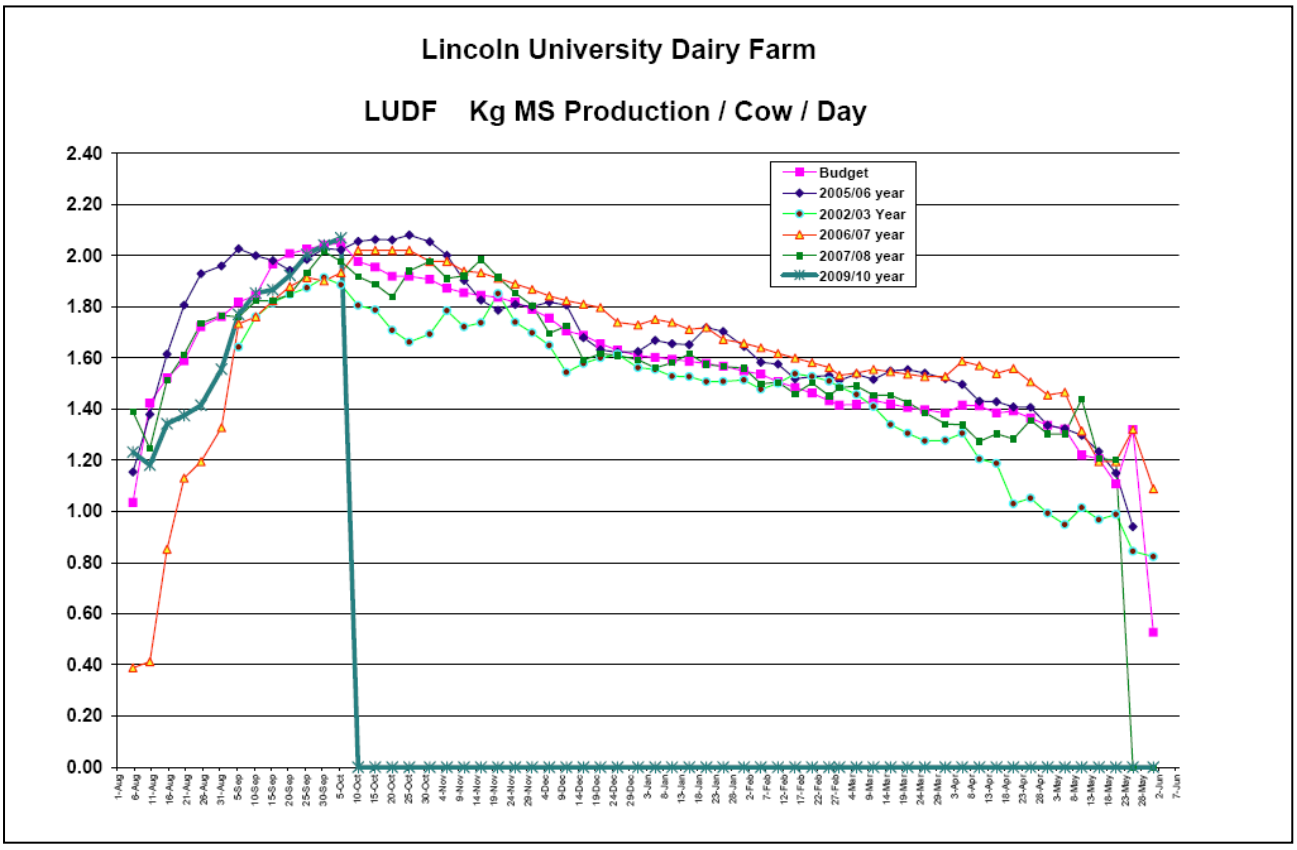
Deficit at this point **2 t DM.**

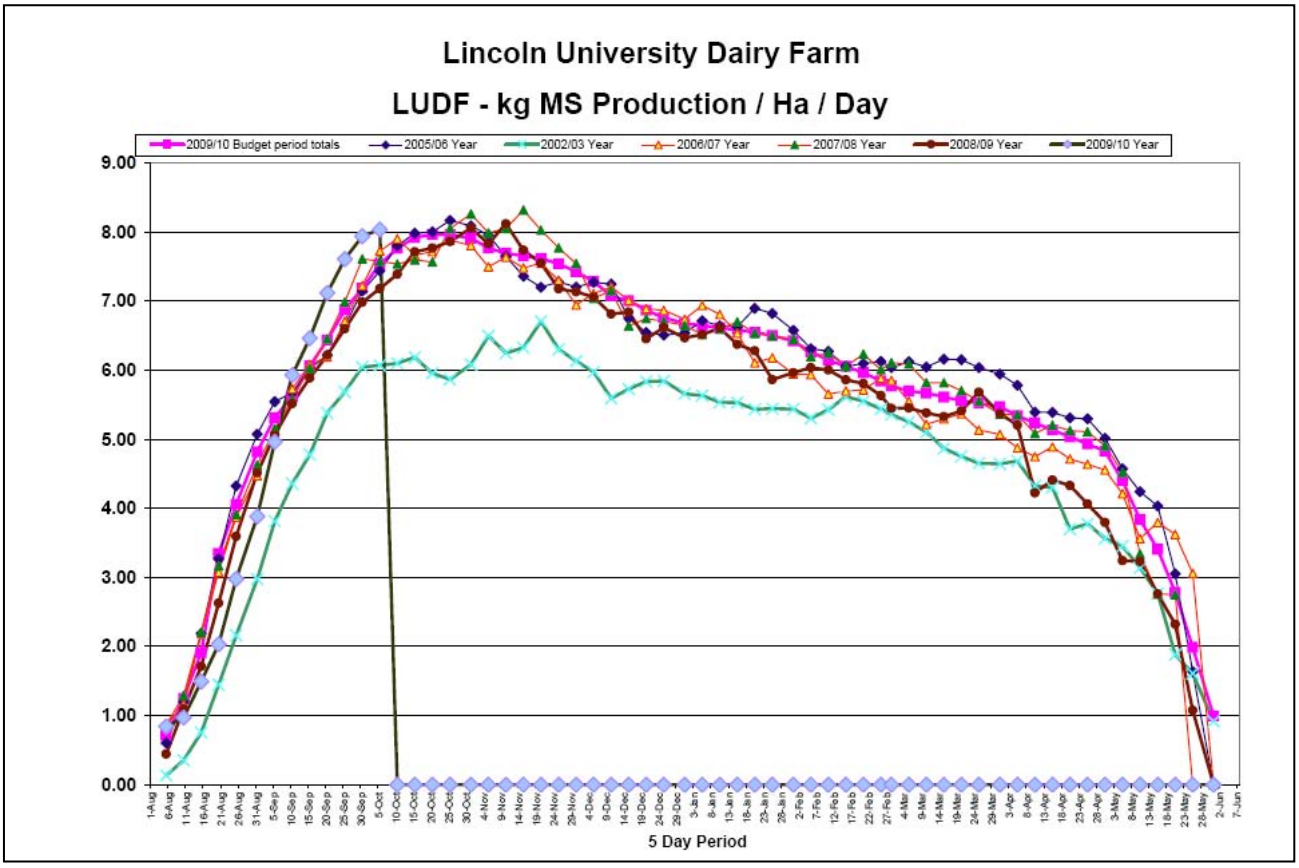
ACTIONS: Speed up the round from 27 days to 23 days.

First grazing round



Production Graphs





Lincoln University Dairy Farm - Farm Walk Notes

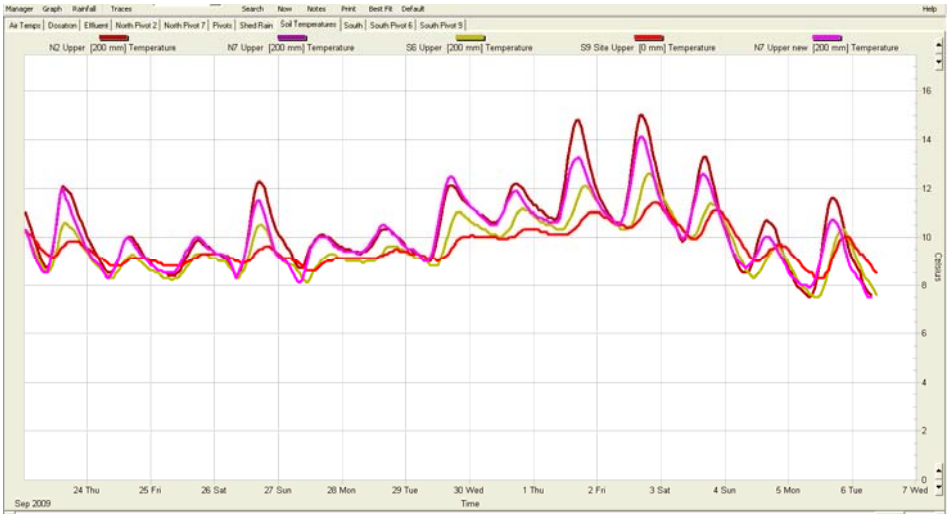
Tuesday, 6th October 2009

Critical issues for the short term

1. **Maintain pasture quality by regular monitoring and making necessary changes**
2. **Keep grazing residuals to the desired 7 clicks**
3. **Continue Mg supplementation**
4. **Closely observe milking cows for mastitis**
5. **Observe and record pre-mating heats**

Summary of Key Factors affecting Grazing Management & Animal Performance

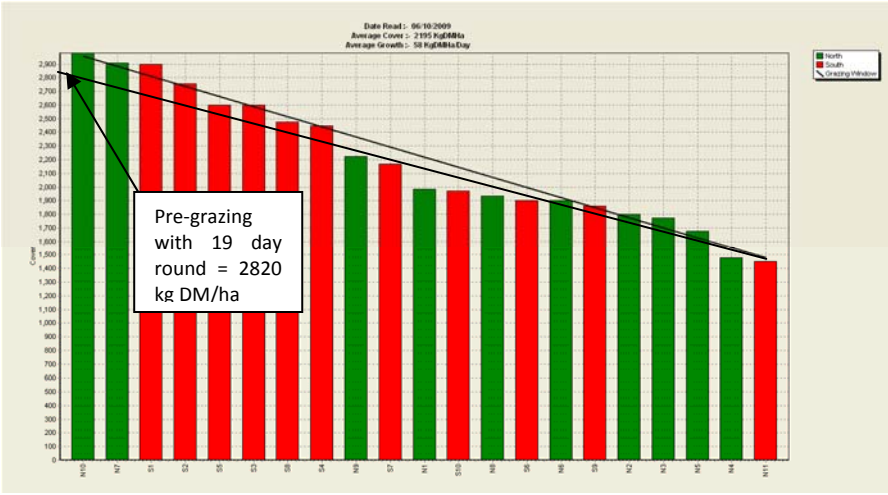
6. Soil Temperatures at 9.00 am averaged 9°C for the week. The first 4 days was about 10°C and from Saturday the average at 9.00 am averaged 8°C. We only had 2mm of rain on Wednesday. Air temperature did not rise above 10°C over the last 4 days.



7. PASTURE GROWTH this week increased slightly to 58kg DM/ha, from 49 kg DM/ha last week.

8. Average PASTURE COVER dropped to 2195 kg DM/ha, from 2,220 kg DM/ha.

9. The Feed Wedge Today



The target line in the wedge reflects the pre-grazing target of 2962 kg DM/ha and a post grazing of 1480 kg DM/ha, which is the pre-grazing we need to feed the cows considering the stocking rate of 4.15 cows/ha (660 cows/159 ha)), cows eating 17 kg DM/cow/day and a rotation length of 21 days. The demand from the herd is 70 kg DM/ha/day with current growth rate.

10. This Feed wedge has a deficit of 5-6 t DM.

11. Last week the round has sped up to 23 days and no silage was fed to the cows.

12. Predicted Feed Wedge

The predicted wedge above shows the feed wedge in 7 days time, assuming 665 cows on the farm eating 17 kg DM/cow/day, and a predicted growth rate of 55 kg DM/ha/day.

13. The focus this week is to monitor area used per day (round length) and post grazing residuals because growth rate is currently below demand. We do not want to go faster than a 19 day round. If we get down to 19 days (159ha/19 = 8.4ha/day) we will evaluate feeding silage depending on weather conditions and soil temperature.

14. We have seen that on the early flowering varieties (e.g.Bronsyn),the seed heads are coming up inside the stem about 4 cm above the ground. Seeding is happening about 7-10 days earlier this year, probably due to more sun in August and September. It is critical this round (as always) that the cows eat residuals to 7 click to kill the seedhead before it appears, this will maintain high pasture ME. At the moment these young seedheads are green and are 12+ MJME so it won't be a problem for the cows to eat it. Late varieties (e.g. Bealey, Alto) are still 3-4 weeks away from this.

15. So far this season we have cut 4 paddocks (29.3 ha) harvesting in total 41t DM.

16. The area grazed by the cows is as follows: 47.5 ha used by the milkers, 0.7 ha by colostrum cows, 0.16 ha by the sick mob and 0.2 ha by the springers. The total area used for the week was 48.5 ha. This is equivalent to a 23 day round.

17. Soil moisture levels are in the bottom 2/3rds of Water Holding Capacity. We are happy with that given we have a forecast for more rain this week and current low evapo-transpiration.

18. Cows will continue to be offered enough grass to achieve their potential intake and they will be moved on when they achieve grazing residual targets.

19. 661 cows calved to date (15 cows calved this week). The majority of the 11 cows left to calve will do so over the next week.

20. We had 1 new case of Mastitis from a freshly calved cow, and one new case from the milking herd. SSC has been between 136,000 - 156,000.

21. We have 6 new lame cows this week. There are 18 lame cows at the moment and they are being milked once a day.

22. We have 623 cows milking into the silo. Cows are producing 2.08 kg MS/cow/day (2.07 last week) and 8.07kg MS/ha/day (7.96 last week).

23. We are continuing with Magnesium supplementation. The milking herd receives 100g of Mag Chloride thru the dosatron.

24. Cows were tail painted 10 days ago and 235 cows were recorded in heat so far. We would like to see 560 (85%) of the herd cycle before the start of mating. We are now 24 days from the start of mating.

25. Cows were Metro-checked yesterday, 6 cows with metritis infections were treated with Metricure.

26. Pre mating bloods were taken from 10 cows to check mineral status.

27. The second round of urea continues with 25 kg N/ha being applied to 33ha during the week. In total we have applied urea in the second round to 68 ha.

Next farm walk will be on **Tuesday, 13th October 2009**.
Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter. Phone SIDDC – 03 325 3629

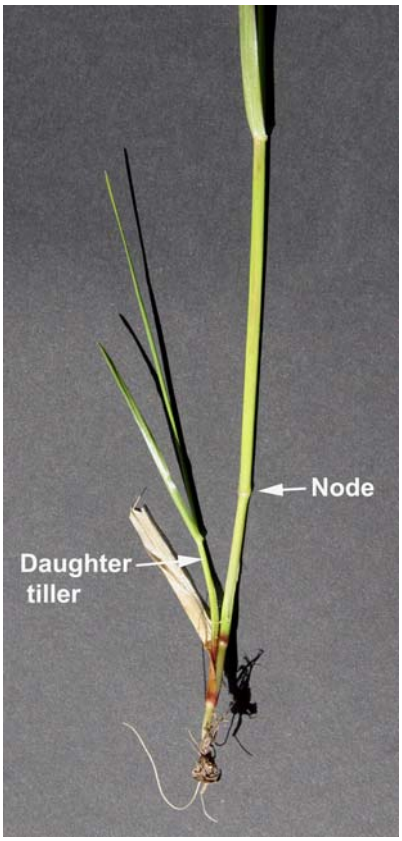
Management Group
Peter Hancox (Farm Manager), George Reveley (for SIDDC), Virginia Serra (DairyNZ).

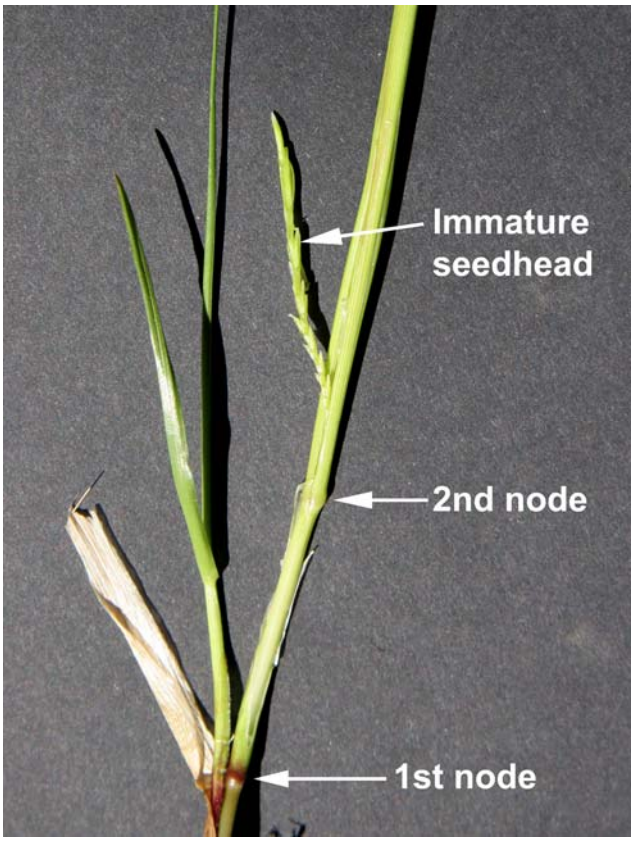
Pasture management through seeding

Summary

- It's that time of year when pasture growth rates are soon to take off, and quality is about to decline.
- Seedheads are beginning to move up inside the ryegrass stems. If you nip these seedheads off in this grazing round (before they appear), by keeping good grazing residuals, you:
    1. Kill these immature seedheads.
    2. Most ryegrass tillers will revert back to leaf growth.

In Canterbury seeding looks about 7 days earlier than usual. The picture below left is of a tiller of early heading ryegrass (Day = 0) taken in the last couple of days, with the immature seedhead dissected out of the stem on the right. Late heading varieties are still about 3 weeks away from this stage.





Earlier seeding this year is probably due to the sunny weather through August and September as seeding is triggered by day length (late heading varieties need a longer day length to trigger the process).

To find out where your pastures are at feel for the nodes (or lumps) in the stem. As seeding progresses, more nodes are formed (in the picture the tiller has two nodes) with the seedhead about 1cm above the top node. Immature seedheads are high in feed value (ME 12-12.5) and if you nip them off now it helps maintain high ME pastures over the next two months.

Milking Once-a-day at the beginning of the season

LUDF is a commercial demonstration farm focused on profit and best practice. The farm endeavours to push the boundaries using existing knowledge to generate a more profitable and sustainable production system.

The current farming system that has cows grazing only pasture with very limited supplementary grass silage feeding is very profitable.

A significant issue for management of the herd is how to

- maintain adequate cow condition during the milking season,
- shorten the time taken for the herd to gain liveweight after calving, and
- significantly improve the in-calf rate which, at best, is about average for the region.
- Manage the Spring workload without incurring high labour costs or exhausting farm staff.

The in-calf rate is a particular challenge for the LUDF system's sustainability and for minimising farm working expenses. The 5-year aim is for the farm to have a sustainable calving pattern without the use of hormones for any aspect of reproduction. So far the LUDF has demonstrated how to profitably avoid induction but has relied heavily on CIDR's to assist with maintaining a tight calving pattern.

The LUDF continues to explore ways to profitably reduce the Spring workload.

There is limited relevant research and considerable debate about how to interpret what has been discovered in Once-a-Day (OAD) milking trials. A number of New Zealand farmers have for a few seasons and across a range of farm systems been using OAD milking at the beginning of lactation.

What is likely to happen if a cow is milked OAD at the beginning of lactation?

- Milk production will be less during the period of OAD milking.
- The cows' milked OAD will have a better energy balance as in early lactation their appetite is not completely driven by milk production. The effect of this is to reduce the early lactation liveweight loss.
- Up to 3 weeks of OAD milking is likely to reduce milk production at peak by 1 – 5%.
- Incidence of mastitis will be dependent on the attention to detail in the shed. Good milking practices should result in no increase in the incidence of mastitis.
- Reduced stress on the people caring for the cows will result in better attention to detail, more time to deal with animal health issues at calving and complete the daily routines.

Considering these aspects and challenges above LUDF planned to milk all cows OAD for first 21 days of lactation progressively moving these animals into the TAD herd after they had 21 days on OAD.

How will we judge success?

- Milk production at and to peak will be the same as the Twice-a-Day [TAD] budget.
- A mid season milk curve with a monthly milk production decline no greater than 6%.
- The herd will be mated at target rates with little or no use of CIDR's and at the end of 10 weeks will have 90% in calf.

- Mastitis will be no worse than expected.
- The farm team are able to meet the demands of Spring in a timely and efficient manner.

This Spring at LUDF

The heifers and cows that calved early in the season were milked OAD with a Twice a Day (TAD) herd being started with cows that had been calved three weeks on August the 20th. The OAD practice ceased on 1st September at which time 507 of 670 cows had calved. This means that only the 230 cows calved before 11 August had a full 3 weeks of OAD [140 heifers and 90 cows]. A further 273 cows were milked OAD for a varying number of days less than 3 weeks. TAD cows were separated via Protrack each morning and given a separate paddock for the day. Following the afternoon milking the TAD cows were returned to the same paddock as OAD cows enabling one herd to be brought in for each morning milking.

Milk production

- August production was lower than the budget by 3,250kg MS, (24%).
- Total September production was 2,013kg MS above budget.
- Milk production year-to-date by the end of September was only 1,240kg MS behind budget (-0.5% YTD). During the final 3 weeks of September the daily milk production was 11% ahead of budget, compensating for 2/3rds of the early production loss. A condensed calving pattern may have contributed to this.
- Current per cow milk production [2.08kg MS/cow/day] is equalling the best ever season i.e. the 2005-06 season when 2.08kgMS/cow/day was produced on 25th October.
- Most farms in the district are ahead of daily budget because of the favourable weather and feed conditions.

Liveweight change and Body Condition Score

No weight loss to date has been recorded in cows calving between planned start of calving and the end of August. However, liveweight is not a good indicator of energy status in early lactation because losses in body condition can be masked by increases in rumen volume. Body condition score has declined during this period (but the decline appears less than in previous seasons).

Our challenge now is to use this cow body condition to achieve a sustained milk peak with a low decline from peak, and a mating that meets industry targets. The success of our early season OAD milking strategy will, therefore, be determined much later in the season.

Mastitis at calving this season

Incidence of mastitis in first calvers in Spring 2008 was significantly less than previous years. We attributed this difference to the use of teatseal and consequently teat seal was again used in first calvers in June 2009.

Historically LUDF first calvers have had up to 3 times more infection than the mixed age cows. This season, following the use of teatseal, only 2 cases of mastitis have occurred at calving from the 180 first calvers. In previous seasons up to 25-30% of first calvers have been treated for mastitis at calving. Since calving there have been no additional cases of mastitis in the first calvers, however, one of the original 2 treated at calving required repeated treatment.

The mixed age cows were wintered in two herds. The late calvers were trucked the day they were dried off and wintered on kale with no stand-off paddock. Given the challenging conditions these cows faced they were protected with teatseal and Dry Cow Antibiotic. The other Mixed Age cows were either wintered on grass or grass and kale and always with access to a reasonably dry stand-off area. These cows were only treated with a Dry Cow antibiotic at drying off.

Results					
	Number calved	Mastitis at calving		Infections after calving	
1st Calvers	185	2	1.1%	1	0.5%
Early calving mixed age cows	235	45	19.1%	5	2.1%
Late calving MA cows wintered on kale only	225	13	5.7%	3	1.3%

The incidence of clinical mastitis in the cows not treated with teatseal was surprisingly high given the dry and warm conditions during the calving period.

This level of mastitis **is too high.** We have been collecting samples from most fresh infections to investigate why the rate of mastitis appears to be rising year upon year. Blanket treatment of the herd with teatseal is not considered an ideal long term solution but we recognise that this practice in the heifers appears to be cost effective due to the reduction of infections in this group.

Probable situation without teatseal this season			
	Number calved	Likely infection rate	Number
First calving heifers	185	24%	44
Mixed age cows	460	19%	87
			131
Probable situation with teatseal in all cows	Number calved	Likely infection rate	Number
First calving heifers	185	1.1%	2
Mixed age cows	460	6%	28
			30
Probable difference this year			100 clinical cases
Cost of treatment	685 wintered	$9.40	$6,440
Breakeven value	$64.00 per infection avoided The total cost of mastitis, including direct and indirect costs, is estimated to be greater than $200/cow.		

Mating Options to Maintain BW

Jack Hooper LIC

(AI Heifers or DNA)

Using Lincoln University Dairy Farm (LUDF) Data

Introduction

A lower than anticipated payment for milksolids produced in the 2008/2009 dairy season coupled with the predicted payout for the 2009/2010 dairy season have been major drivers in re-evaluating on farm operating expenses.

In this environment, herd improvement goals and breeding objectives have been to the forefront of most farmers' minds, but generally the discussions focus is around short-term cash flow versus longer-term gain and the ability to be smarter about how we do things.

In any discussion on mating options farmers need to remember that

- BW is the currency of genetics
- Genetic gain is both permanent and cumulative

Age Group Performance Profile for LUDF heifers in the 2008/09 lactation:

Summary of Averages							
	BW	PW	Milkfat	Protein	Milksolids	DIM	Income/heifer
Top 1/3	176	217	213	162	375	267	$1844
Middle 1/3	135	131	184	146	330	270	$1638
Bottom 1/3	94	80	169	133	302	264	$1495
Averages	135	143	189	147	336	267	$1659

BW and PW have predicted and measured performance. The income difference between groups using an A+B-C formula is significant and this is only the first lactation.

Parameters Used to Consider Mating Options at LUDF

Herd - the LUDF herd has a BW of 119. Rising 2-year-old BW is 159.

Premier Sires Options - expected averages for BW in 2009 (AE Aug 2009).

Option	**Predicted BW of semen to be used**			
	HF	JER	KX	**Blend 40%HF/60%KX**
DNA Proven Premier Sires	264	246	262	263
DTR Proven Premier Sires	242	212	221	229
Margin	22	34	41	34

Assumptions – to evaluate options the following points were assumed

- LUDF has a policy to develop a high genetic merit crossbred herd
- Synchronising yearling mating options it is assumed 20% of the replacements will come from these matings and 80% from the herd.
- 850 inseminations on normal cycling cows required to generate 160 "in milk replacements" (minimum).
- The number of cows requiring anoestrus synchrony is independent of the mating option chosen.
- Kamars used on the herd and yearlings for one round.
- Available discounts included.

	Mating Option	Replacement BW ave	Cost/Comments
1	Herd mated to DNA proven Premier Sires blend 6 - 7 weeks Yearlings naturally mated	191	850 inseminations @ $19.01 =$ 16,159 670 Kamars @ $2.12 = $1,420 **Total $17,579**
2	Herd mated to DNA proven Premier Sires blend. 6 -7 weeks Yearlings mated to KX daughter proven Premier Sires	190.8	690 DNA proven insems @ $19.01 = $13,117. 160 DTR proven insems @ $14.76 = $ 2362. 830 Kamars @$2.12 = $1,760. Double PG synchrony 160 yearlings at $12.00 ea $1,920. **Total = $19,159**
3	Herd mated to DNA proven Premier Sires blend first 3 weeks followed by daughter proven Premier Sires. 3 to 4 weeks Yearlings naturally mated	184.2	Based on 510 DNA and 340 daughter proven insems $14,714. 670 Kamars @ $2.12 = $1420 **Total $16,134**
4	Herd mated to daughter proven Premier Sires blend. 4 weeks. Yearlings mated to Jersey daughter proven Premier Sires	176.3	850 inseminations @ $14.76 = $12546 830 Kamars @ $2.12 = $1760 Double PG synchrony 160 yearlings at $12.00 ea $1920. **Total $16,226**
5	Herd mated to daughter proven Premier Sires blend. Yearlings naturally mated.	174	850 inseminations @ $14.76 = $12,546 670 Kamars @ $2.12 = $1420 **Total $13,966**

Financial Summary

The following table uses option 5 as a base and is a summary of the extra revenue earned as the replacement line BW increases less the additional expenditure in achieving this BW gain.

Assumption is 160 heifers and an average of 5.5 lactations. 1BW unit is $1 per lactation or $5.50 lifetime.

Mating Option		BW gain	Additional Cost	Cost per BW Gain per replacement	Nett Revenue compared with Option 5
1	Herd PS DNA blend Ylgs NM	+17	$3613	$1.33	$11,347
2	Herd PS DNA blend. Ylgs PS KX	+16.8	$5193	$1.93	$9,591
3	Herd PS DNA/DTR blend. Ylgs NM	+10.2	$2168	$1.33	$6,808
4	Herd PS DTR blend& Ylgs Jer DTR	+2.3	$2260	$6.14	-$236
5	Herd PS DTR blend. Ylgs NM	Base	Base	Base	Base

In comparing option 1 with option 5 across the 160 heifer replacements the BW gain is 2,720 units (17.0*160) at a cost difference of $3,613 or $1.33 a BW unit. That is we spend $1.33 and gain a return is $5.50 across the 5.5 lactations, which represents a potential good return on the additional investment. Most of the value is also "left on farm"

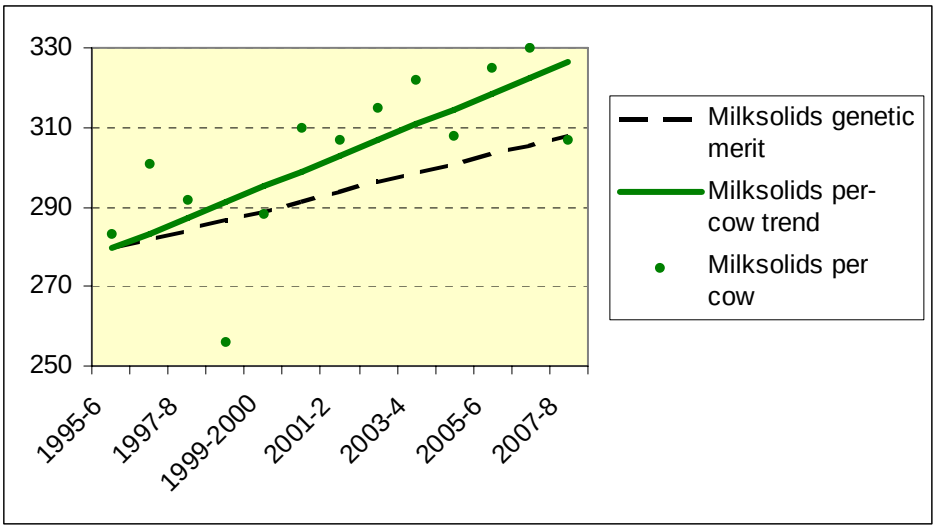
The LUDF Management Team and Business Advisory Group have chosen to use Option 1 this season.

1. The options don't take into account the differences in bull power required
2. When compared with each other the options don't take into account the cumulative genetic gain passed from generation to generation - this occurs with no additional cost.
3. There are also significant advantages from having two–year olds calving earlier than the main herd and increasing the calving to PSM interval for subsequent herd survival. This is believed to be more easily achieved under synchrony, which shifts the mean calving date forward about a week.
4. If generating all the replacements from the mixed age cows a longer period of AB mating will be required than if both yearlings and cows are mated. There is a small impact on calf rearing.

Comments on Mating Options

Genomics (DNA Technology)

- An independent body, New Zealand Animal Evaluation Limited, measures productivity improvement and genetic gain. Genetic gain accounts for 67% of the total productivity improvement achieved on farm over the last 15 years. This is illustrated in the following graph supplied by NZAEL



- Genomics is expected to increase the annual rate of compounding gain by 30-40% This technology has enabled us to shorten the generation interval by 3 years which greatly increases genetic gain, from around 10 BW units per year under progeny testing, to 15 to 17 units per year under DNA analysis. This improvement in genetic gain is estimated to improve the net profit of dairy farmers over the next 20 years by between $1.5 and $3.9 billion
- This is the biggest development in genetics (and therefore on farm productivity gain) in 60 years

DNA Proven Bulls - Risk versus Reward

DNA Proven
- Greater volatility in evaluations
- Generally higher BW

Is this worth the risk?

- Depends on BW differential (cf KiwiCross v Holstein – Friesian). DNA teams are now known; daughter proven teams could improve with the introduction of new bulls based on 2009 part lactations. Margins may close.
- Value of additional genetic diversity
- Your personal aversion to risk

It is important for the Herd Owner to have choice and, equally important, that we provide the options for that choice.

Herd Improvement in Perspective

Herd Improvement is a 'package' and about making sensible choices within a budget and having the longer-term goals firmly in sight.

1. Herd Testing. 4 tests including somatic cells. There is an extreme range of productive ability within this herd as identified through testing in previous years. Considerable potential exists to improve herd profitability through progressively replacing these low producing cows (BW & PW) with replacements of higher genetic merit.

2. MINDA Records – through MINDApro. MINDA software is the tool that allows entry of data about your animals and herd onto the LIC Database. The information can then be refined to produce a variety of management reports to facilitate farm management decisions and optimise the performance of the herd.

The LUDF Management Team and Business Advisory Group are reviewing the farm taking up Generation 3 DNA Whole Herd Parentage Verification having previously utilised Calf Trace. This would also involve moving the already tested cows across to the new testing platform, which gives greater matching ability of calf to dam/sire (98% if all criteria is met) with less record keeping required (no calf birth dates needed). This technology enables better staff utilisation over a busy period and higher levels of accurate BW animal information on which to base on-farm decisions.

Heifer Synchronisation and AB or use Bulls?

Why has LUDF used a synchrony programme in the replacement heifers?
The LUDF has a no induction policy for reproduction management. This strategy increases the difficulty in maintaining a 365 day calving interval especially in 1st and 2nd calvers that are often slower to cycle due to the greater nutritional pressure from the demands of both lactation and continued growth. This often results in the culling of non pregnant young cows and a spread calving pattern in the following Spring. Previous economic modelling of LUDF indicated that synchronised oestrous and a one week earlier planned start of calving for 1st calvers would profitably generate a tight calving pattern and reduce young cow losses.

This strategy appears to be successful with similar in-calf rates being achieved by 3 and 4 year old cows as are achieved by older cows in the herd. In addition, a tight calving spread has been maintained with a mid point of 15 to 22 days, with no requirement to purchase cows to maintain the herd numbers.
In the face of significantly lower milk price all activity has been questioned:

1. **How much genetic gain from the heifer synchro mating?**
   For the current mating there would be no additional genetic gain, as the synchronised heifers would be mated to available Jersey Daughter proven semen which is approximately 51 $BW points lower than the DNA proven semen used for mixed age cows. Calves from these heifer matings would in fact be 5 BW points lower than the calves from the MA cows.
   i.e. BW cows @ 119 + DNA Bulls @ 263 BW = estimated BW of progeny of 191
   compared to: BW R2's @ 159 + Jersey Daughter Proven @ 212 BW = estimated BW of progeny of 185.

2. **What does each AB heifer cost?**
   About $1 per $BW i.e. about $183 per heifer calf for this herd. Next years calves would have been $BW185. Replacements from the Rising 2 year olds are normally regarded as valuable calves from a genetic point of view but in this instance using typically available Daughter proven semen it is not the case. This situation may change in the future if the advantage to the DNA evaluated semen becomes less or the newer semen is priced and available for heifer synchrony insemination.
   The calves from the heifers are early born making them very good as replacements. Each year the programme has yielded between 35 and 40 replacement heifer calves.

Table 1

Actual cash savings by not carrying out Heifer synchrony and AB mating for 4 days. (160 rising 2 year olds at grazing 50 minutes from the LUDF)			
Synchrony	$12 per heifer		$1,920
Kmar	$2.12		$ 340
Extra bulls		4 @ $450	$1,800
Time and miles			$ 800
AB cost	$14.76	Assume 130 of 160	$1,918
Total			**$6,778**
Cost per heifer calf reared			**$183**

3. **Can we achieve a similar calving pattern another way?**
   Yes, very likely if the calving start date for the first calvers is 2 weeks before the Mixed Age cows. The R2's have in past years been mated prior to the herd and synchronised with 2 injections of prostaglandin. The data shows that the overall pattern is not much better than a very good natural mating beginning two weeks before the Mixed age cows. See table 2.

Table 2

				MA cows calving		
LUDF Calving Results	**Weeks**	**-2**	**-1**	**Week 1**	**Week 2**	**Week 3**
2008	% of total	13	36	8	17	9
R2's Synchronised to start calving 10 days before the herd	Accumulated		**49**	**57**	**74**	**83%**
2009	% of total	26	32	14	8	8
R2's Synchronised to start 15 days before the herd	Accumulated		**58**	**72**	**80**	**88%**
Indicative results with Natural mating 2 weeks prior to MA cows (Source InCalf)		25	25	25	6	6
	Accumulated		**50**	**75**	**81**	**87%**

This season LUDF is using Natural mating for R2's beginning 2 weeks prior to planned start of mating for the herd, and using DNA Proven semen over all mixed age cows.

Financial management

Current financial monitoring

- Annual detailed budget prepared previous Autumn and confirmed in June
- Budget entered in Concepts Cash Manager
- Invoices entered as bills are passed for payment
- Actual vs budget variance reports reviewed monthly

Key points from budgets 2008-9 vs 2009-2010

- Cows - The herd will have 20 less cows
- Staff - One less full time staff member
- Feed - Planning to purchase half as much grass silage only 200kgDM/cow (and harvest more on farm)
- Fertiliser - Will only spend $105,000 on N,P S and eco-n incld spreading - reduction mostly from price falls
- Breeding - Natural mate Heifers with no synchronisation
  Use only 30CIDR's compared to 150 last season
  AB mate for a shorter period
- Replacement grazing
  - 30 less R2's all year
- R & M - We will not run the farm down but will be tight.

Non-negotiables for the business

- The herd will be well fed in winter and calve at condition targets
- Replacements will be genetically very good and well grown. BW is important.
- Calve heifers prior to the main herd
- The grazing management protocols
- If it is a profitable idea we will seriously look at it
- Eco-n will be used
- We will examine ideas that make life better for cows and people that are profit neutral – better if they add profit and make life easier.
- Inducing cows to calve before full term is not an option
- Teat seal for first calvers

Monthly Financial Tactical Management

Area of Expenditure	Budget total for the season ($/kgMS)	YTD August Actual ($/kg MS)	This month spend actual verses budget	Reasons for variance and decisions made	Next months budget	Considerations for decisions for next month
Feed- Grazing Off farm herd Winter	$118,746 $0.43	$133,302 $0.48		• July cows all off the platform • August platform average cover 24t DM deficit. Pasture purchased off farm • Feed cost remained higher than hoped for.		• Autumn off farm feed. Budget spent already. •
Animal health and breeding				• We will spend $3,800 more on AB semen that originally planned for.		• Will we be resolute if the herd is not cycling at target rates given only 30 CIDR's in the budget
Fertiliser				• We have kept to budget annual plan but have been able to apply a full maintenance dressing of Phosphate compared to a possible half dressing when the budget was prepared. DAP13S used saving spreading cost and price advantage over superphosphate.		• Continue using nitrogen as per plan to provide adequate feed on farm – but as much as possible not to use nitrogen to produce grass for silage
Bought in Silage				•		• We expect to only need a small amount of additional silage so will buy this later in the season if required
R & M				• Spending plan has not changed – timeing has.		•

DairyNZ

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Variance Report
for
LUDF

Compare Actuals Actual(2010) With Budget - Main (2010)
DateRange: Jun To Aug

GST Exclusive

	Actuals 2010		Budget 2010		Variance		Actuals 2010 as a % of Budget 2010	
	$	Qty	$	Qty	$	Qty	$	Qty
INCOME								
Cattle Sales (Sales)								
Bobby Calves	2,809	250	2,700		109	250	104 %	0 %
R2yr Heifers	2,198	7	2,500		(302)	7	88 %	0 %
Mixed Age Cows	1,052	2	1,200		(148)	2	88 %	0 %
	6,059		6,400		(341)		95 %	
INCOME	6,059		6,400		(341)		95 %	
MILK								
Milk Sales								
Milk Solids	30,218	10325.4	39,370	13576	(9,152)	(3250.6)	77 %	76 %
	30,218		39,370		(9,152)		77 %	
MILK	30,218		39,370		(9,152)		77 %	
NET INCOME	36,278		45,770		(9,492)		79 %	
FARM EXPENSES								
Administration								
Tolls(claimable)	(612)		(1,003)		391		61 %	0 %
Stationery	(97)		(628)		531		15 %	0 %
Hospitality/Sundry	(515)		(500)		(15)		103 %	0 %
Other Admin Expense	(5)		(211)		206		2 %	0 %
Farm Consultant	(3,122)		(3,122)				100 %	0 %
Internet Charges	(194)		(243)		49		80 %	0 %
	(4,545)		(5,707)		1,162		80 %	
Animal Health								
Vet Fees	(262)		(305)		43		86 %	0 %
Drench	(406)				(406)		0 %	0 %
Trace Minerals	(1,224)		(1,102)		(122)		111 %	0 %
Other Drugs	(141)		(120)		(21)		117 %	0 %
Mastitis	(2,609)		(3,500)		891		75 %	0 %
Teatspray	(738)		(1,080)		342		68 %	0 %
Calving Expenses	(2,198)		(1,000)		(1,198)		220 %	0 %
Teat seal R2s	(1,410)		(1,448)		38		97 %	0 %
Vacinnes Young Stocl	(117)				(117)		0 %	0 %
Debud calves	(1,024)	169	(850)		(174)	169	120 %	0 %
Milk fever	(474)		(160)		(314)		297 %	0 %
Magnesium Chloride	(857)	2	(1,000)		143	2	86 %	0 %
Magnesium Oxide	(1,551)	2	(1,600)		49	2	97 %	0 %
Sray paint	(152)		(50)		(102)		304 %	0 %
Milking gloves	(51)		(30)		(21)		169 %	0 %
	(13,213)		(12,245)		(968)		108 %	
Breeding Expenses								
Admin /Identity Tags	(2,536)		(2,706)		170		94 %	0 %
Pregnancy testing	(66)				(66)		0 %	0 %
MINDA	(500)		(675)		175		74 %	0 %
Pro track	(392)		(375)		(17)		105 %	0 %
	(3,495)		(3,756)		261		93 %	
Electricity								
North Irrig Power	(219)		(300)		81		73 %	0 %
Dairy Shed	(2,081)		(2,530)		449		82 %	0 %
South irri Power	(146)		(280)		134		52 %	0 %
	(2,446)		(3,110)		664		79 %	
Feed								
Winter Grazing	(133,302)		(105,786)		(27,516)		126 %	0 %

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Variance Report
for
LUDF

Compare Actuals Actual(2010) With Budget - Main (2010)
DateRange: Jun To Aug

GST Exclusive

	Actuals 2010		Budget 2010		Variance		Actuals 2010 as a % of Budget 2010	
	$	Qty	$	Qty	$	Qty	$	Qty
Feed								
Calf feed	(850)	1000.25	(2,000)		1,150	1000.25	42 %	0 %
Grazing R1	(12,906)		(13,274)		368		97 %	0 %
Grazing R2	(6,731)	160	(6,637)		(94)	160	101 %	0 %
	(153,789)		(127,697)		(26,092)		120 %	
Fertiliser								
Superphosphate	(16,336)		(16,000)		(336)		102 %	0 %
Nitrogen (Urea)	(4,717)	7500	(6,500)		1,783	7500	73 %	0 %
Eco-n	(4,537)	45.37	(12,000)		7,463	45.37	38 %	0 %
Fertiliser Spreader	(1,533)	93.4	(1,200)		(333)	93.4	128 %	0 %
	(27,123)		(35,700)		8,577		76 %	
Repairs & Maint								
Farm Buildings	(92)		(750)		658		12 %	0 %
Water Supply			(242)		242		0 %	0 %
Irrigation			(1,587)		1,587		0 %	0 %
Fences & Yards			(497)		497		0 %	0 %
Shelter Trees			(1,000)		1,000		0 %	0 %
Drainage	(330)				(330)		0 %	0 %
Tracks			(10,000)		10,000		0 %	0 %
Tools	(243)		(497)		254		49 %	0 %
Plant & Equipment	(592)		(750)		158		79 %	0 %
Dairy Shed Plant	(1,116)		(1,997)		881		56 %	0 %
Effluent			(1,125)		1,125		0 %	0 %
Minor Cap. purchases	(2,218)		(1,247)		(971)		178 %	0 %
Pivot ruts			(4,000)		4,000		0 %	0 %
	(4,591)		(23,692)		19,101		19 %	
Shed Expenses								
Detergents	(970)		(1,200)		230		81 %	0 %
Cleaners	(121)		(100)		(21)		121 %	0 %
Filters	(213)		(200)		(13)		107 %	0 %
Brooms and Brushes			(350)		350		0 %	0 %
Milking gloves			(75)		75		0 %	0 %
	(1,305)		(1,925)		620		68 %	
Vehicle Expenses								
Petrol	(735)	497.4	(951)		216	497.4	77 %	0 %
Diesel	(1,651)	1844.19	(800)		(851)	1844.19	206 %	0 %
Oil & grease	(81)		(80)		(1)		101 %	0 %
Ute	(1,577)		(1,000)		(577)		158 %	0 %
Tractor	(685)				(685)		0 %	0 %
Motorbike	(12)		(400)		388		3 %	0 %
WOF & rego			(100)		100		0 %	0 %
	(4,741)		(3,331)		(1,410)		142 %	
Wages & Employment								
Casual	(1,170)	58.5			(1,170)	58.5	0 %	0 %
Accommodation Allce	(4,997)		(4,997)				100 %	0 %
Protective clothing	(523)		(523)				100 %	0 %
Staff Development	(560)		(2,900)		2,340		19 %	0 %
Assistant 2	(34,757)		(44,874)		10,117		77 %	0 %
Stores/Tea Supplies			(700)		700		0 %	0 %
	(42,007)		(53,994)		11,987		78 %	
Weed & Pest								
Herbicides			(351)		351		0 %	0 %
			(351)		351		0 %	

cashmanager RURAL

Variance Report
for
LUDF

Compare Actuals Actual(2010) With Budget - Main (2010)
DateRange: Jun To Aug

GST Exclusive

	Actuals 2010		Budget 2010		Variance		Actuals 2010 as a % of Budget 2010	
	$	Qty	$	Qty	$	Qty	$	Qty
FREIGHT								
Freight Cows	(2,369)		(4,600)		2,231		52 %	0 %
Freight General			(100)		100		0 %	0 %
	(2,369)		(4,700)		2,331		50 %	
FARM EXPENSES	(259,624)		(276,208)		16,584		94 %	
TRADING SURPLUS	(223,346)		(230,438)		7,092		97 %	
FIN YEAR SURPLUS	(223,346)		(230,438)		7,092		97 %	
GST								
GST								
GST Payments			(57)		57		0 %	0 %
GST Component			436		(436)		0 %	0 %
			379		(379)		0 %	
GST			379		(379)		0 %	
INCOME (EXPENSE)	($ 223,346)		($ 230,059)		$ 6,713		97 %	

Lincoln University Dairy Farm

Budget for 2009 - 2010

Early October 2009

Year ending May 31		159.1ha	Budget		2009/10		Actual 08 - 09	Difference
Milk production	Milksolids		$5.10/kgms	1,745/ha	*277,630*	261,711	1,645/ha	15,919 kgms
Cows	Peak number &prodn		660cows	4.15/ha	*421/cow*			
Staff	3.70 FTE's		178cows/FTE		75,035ms/FTE			

Income					$/kgMS	$/kgMS		$ change	
Milksoilds		94%	1,415,910		*5.10*	*5.20*	1,360,897	55,013	4%
Surplus dairy stock		2%	29,100		*0.10*	*0.21*	55,519	-26,419	-48%
Other stock sales		4%	58,518		*0.21*	*0.26*	68,139		
		0%			-	*0.00*		0	
		0%			-			0	
		100%	**1,503,528**		***5.42***	***5.41***	1,484,555	18,973	1%
Stock Purchases			22,400				15,400	7,000	
Gross Farm Revenue			**1,481,128**	**9,309/ha**			**1,469,155**	**11,973**	**1%**

Expenses				2009/10	2008/9	Actual	$ change in	% change in
			$/cow	$/kgMS	$/kgMS	$	expense	expense
Administration		27,250	41.3	**0.10**	**0.08**	22,066	5,184	23%
Animal Health		41,922	63.5	**0.15**	**0.18**	47,041	-5,119	-11%
Breeding Expenses		32,027	48.5	**0.12**	**0.18**	46,120	-14,093	-31%
Electricity-farm		14,500	22.0	**0.05**	**0.05**	12,051	2,449	20%
Employment		203,712	308.7	**0.73**	**0.84**	220,392	-16,680	-8%
Grass silage purchased	200 kgDM/cow	26,219	39.7	**0.09**	**0.20**	52,985	-26,766	-51%
Silage making & delivery		40,943	62.0	**0.15**	**0.19**	49,690	-8,747	-18%
Replacement grazing & meal		109,044	165.2	**0.39**	**0.47**	123,703	-14,659	-12%
Winter grazing - Herd		138,000	209.1	**0.50**	**0.46**	120,815	17,185	14%
Nitrogen and EcoN		67,580	102.4	**0.24**	**0.35**	91,993	-24,413	-27%
Fertiliser & Lime		37,341	56.6	**0.13**	**0.23**	60,085	-22,744	-38%
Freight & Cartage		800	1.2	**0.00**	**0.01**	3,222	-2,422	-75%
Irrigation - All Costs		57,751	87.5	**0.21**	**0.18**	47,183	10,568	22%
Rates & Insurance		15,864	24.0	**0.06**	**0.06**	14,883	981	7%
Cropping		-	0.0	-	**0.00**		0	
Regrassing		5,810	8.8	**0.02**	**0.06**	14,887	-9,077	-61%
Repairs & Maintenance		47,500	72.0	**0.17**	**0.16**	42,861	4,639	11%
Shed Expenses excld power		8,200	12.4	**0.03**	**0.04**	10,148	-1,948	-19%
Vehicle Expenses		18,300	27.7	**0.07**	**0.08**	20,093	-1,793	-9%
Weed & Pest		1,400	2.1	**0.01**	**0.00**	1,177	223	19%
Accommodation allowance	3 houses	20,000	30.3	**0.07**	**0.08**	20,000	0	
Cash Farm Working Expenses		**914,163**	-	**3.29**	**3.90**	**1,021,395**	- **107,232**	**-10.5%**
Depreciation est		110,000		***0.40***	**0.41**	107,000		
Total Operating Expenses		1,024,163		***3.69***	**4.31**	1,128,395		
Dairy Operating Profit		**456,965**	***692***	**1.65**	**1.30**	**340,760**	116,205	
DOP		**2,872/ha**				**2,142/ha**	730	
Cash Operating Surplus		**566,965**		**2.04**	**1.71**	**447,760**	**119,205**	
		3,564/ha				**2,773/ha**		

Next FOCUS DAY
Venue to be advised
Thursday, 25th February 2010
10.15 am – 1.00 pm

A Southland Demonstration Farm [SDF]
FOCUS DAY
is to be held on Thursday, 18th February 2010

See the SIDDC Website [over page]
under 'Events' for further information.

All information handed out at
previous Focus Days is available on
the SIDDC Website [see over page]
under 'Events'.