Lincoln University Dairy Farm Focus Day Programme

19 February 2009

Survival or Success?

Maximising on-farm opportunities in a volatile economic climate:

- Production / financial update
- Autumn Strategy
- Lessons gleaned from around the world
- Planning for 2009/10

10.15 am	Registration		Tea and Coffee – Calf sheds
10.30 am	LUDF Update		George Reveley - LIC
10.45 am	Split into Groups (based on handout colour) Group 1 initially moves to N3/N4, Group 2 stays in yard		
Group 1 – Dark Green – N3 / N4 then Yard		Group 2 – Light Green – Yard then N3 / N4	
10.50 am	Mating Results / Sprinkler Placement / Native Tree Planting	10.50 am	Autumn Strategies / Clover Root Weevil
11.20 am	Change Over	11.20 am	Change Over
11.30 am	Autumn Strategies / Clover Root Weevil	11.30 am	Mating Results / Sprinkler Placement / Native Tree Planting
12 00 pm	Remain in Yard	12.00 pm	Return to Calf Shed Area
12.10 pm	Lessons gleaned from around the world		Adrian Van Bysterveldt
12.35 pm	Budget comments / Planning for 2009/10		George Reveley - LIC
12.45 pm	Summary		Virginia Serra
1.00 pm	LUNCH – Small Calf Shed		Sponsored by Ravensdown
1.30 pm	Afternoon Option: - Farm Walk		

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Lincoln University Dairy Farm
Seasonal Update February 2009

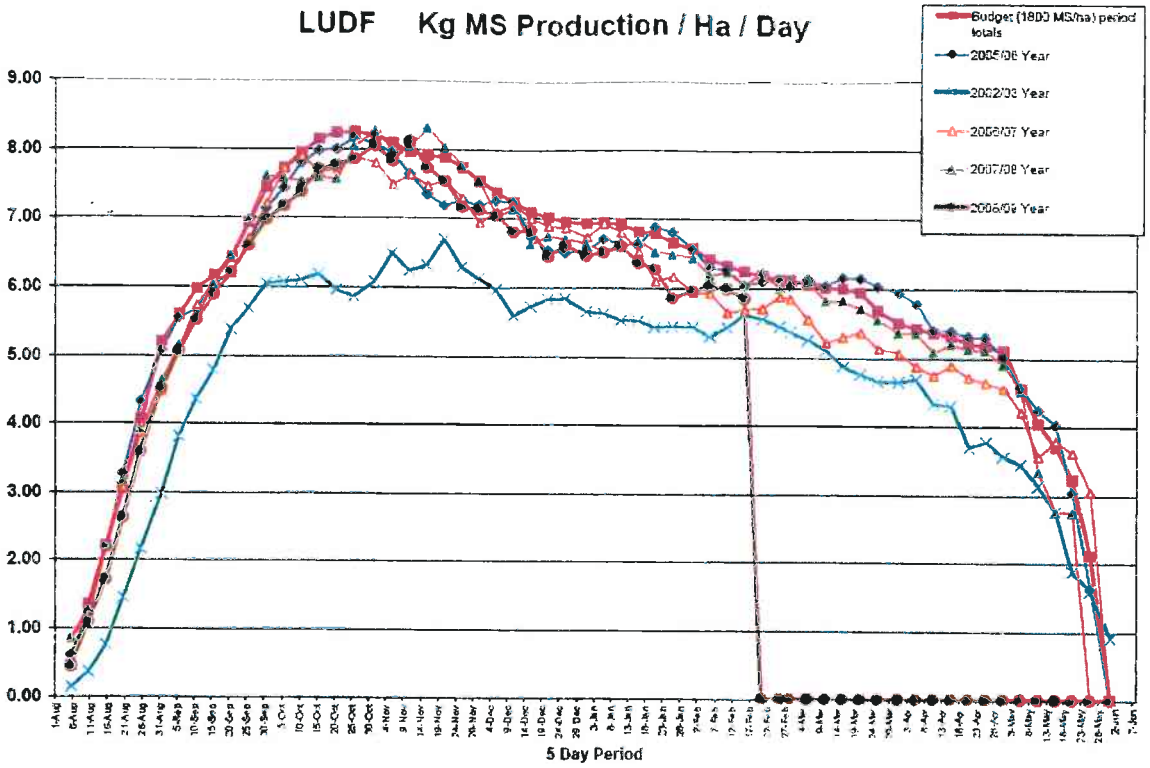
SUMMARY

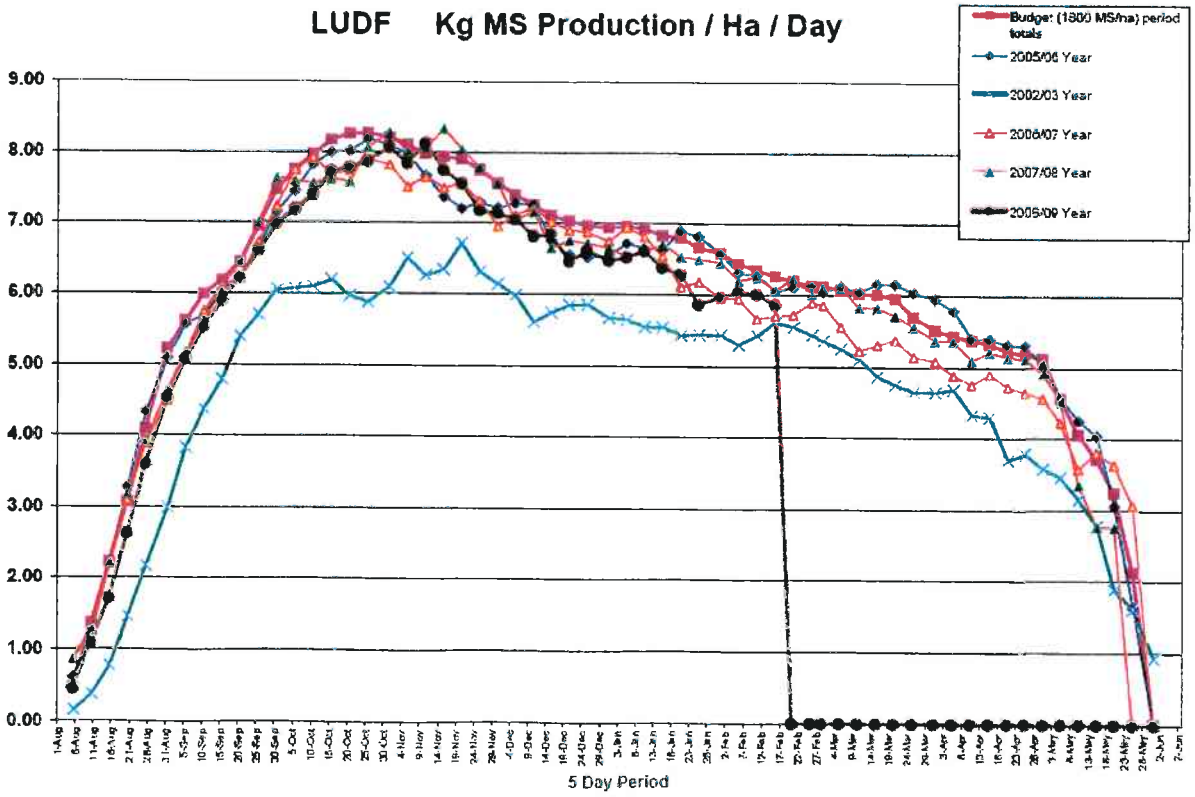
This season so far

- Soils very wet to start calving and remained very wet until mid September
- First grazing round finished early
- Serious pasture damage was avoided on all but 2ha but there was much soiled pasture and many pastures with stale bases by mid September. There was enough feed but it was not our normal high quality. High quality grass silage was fed to ensure adequate volume of feed was provided.
- Per cow milk production peaked at 1.94kg ms/cow and 8.12kg ms/ha
- Per ha peak was a few days late but close to previous seasons
- The date for liveweight gain to begin after calving was 7 days later than last season.
- Decline from milk production peak has been 3% per month larger than our target
- 1700kgms/ha is the very likely end of season
- Fonterra announced expectation of $7.00/kgms used in our July budget for the seasonal budget has dropped to $5.10 with the possibility of further reduction
- Silage fed to date 113kgDM/cow
- 2 paddocks (S4 & S5) 16.6ha regrassed this summer
- 683 cows peak milked from 704 wintered (3%) 8 deaths year to date
- Teat seal use prior to calving made a significant reduction in mastitis at calving in the first calvers.
- AB mating for 10 weeks with very similar in calf rate results to last season.

INFRASTRUCTURE

- Native tree planting in 1.07ha completed and growing well
- New silage storage area completed and in use. It has much safer entrance/exit ways and is closer to where silage is fed.


LUDF Kg MS Production / Ha / Day
Budget (1800 MS/ha) period totals
2005/06 Year
2002/03 Year
2006/07 Year
2007/08 Year
2008/09 Year
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
5 Day Period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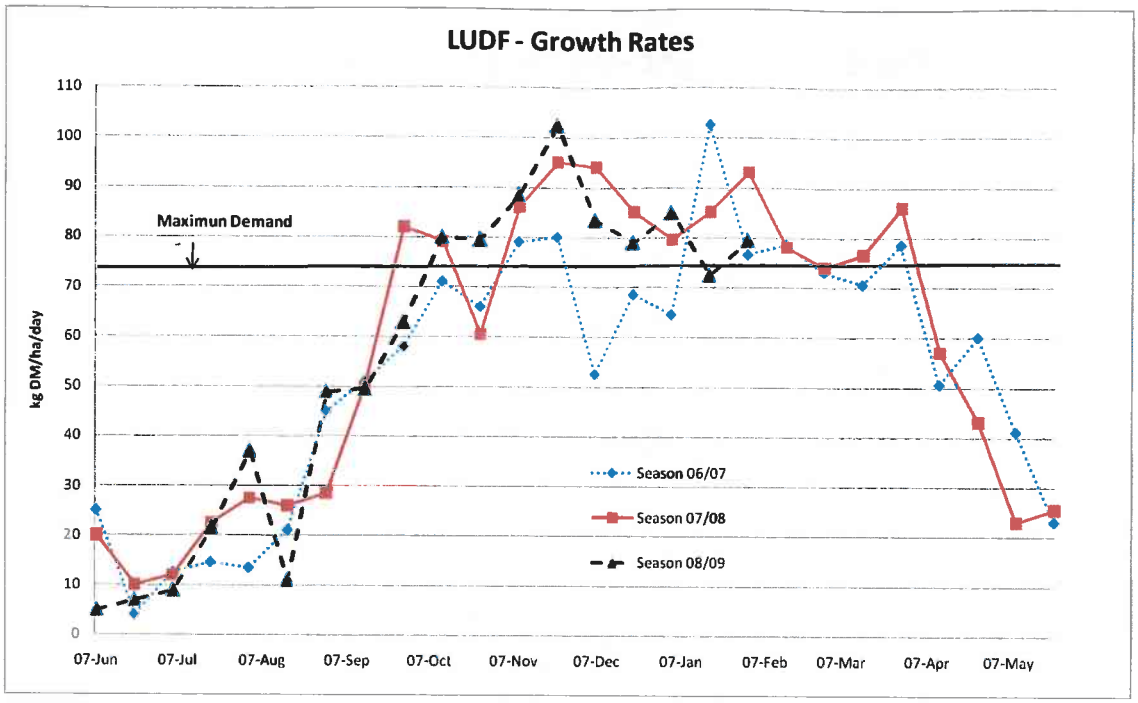
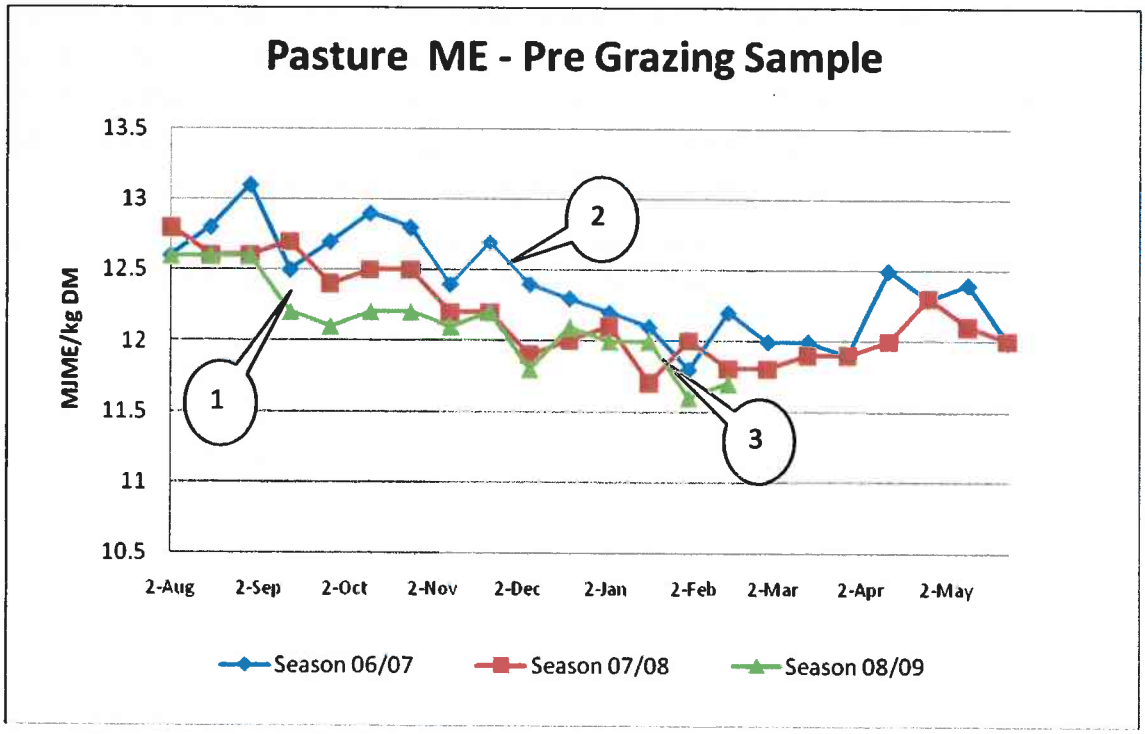
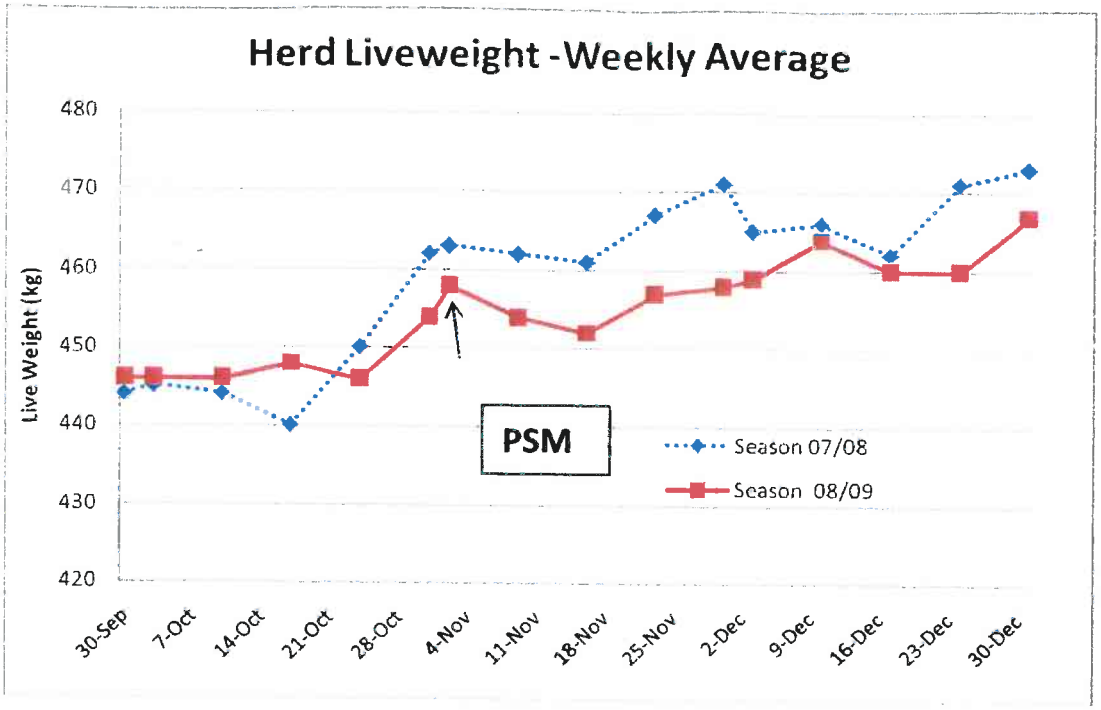




1. Feed quality suffered as a result of leaving higher than normal residuals during the extreme wet conditions of the early spring
2. Feed supply/demand in the 06/07 season was very tight and pasture were regularly grazed lower than 6.5 "clicks" Pasture quality was higher and milk production was also
3. Note the correlation of quaility and milk production on the milk production graph



Data for the all cows in milk from the walk over weighing after each milking.

Cow's weight at calving was very similar compared to last season. The date at which the herd changed from weight loss to weight gain was 7 days later this 08/09 season. From mid October cows have been about 10 kg lighter than last season representing 0.3 of a condition score unit. Another important point on this graph is that the cows have been loosing weigh from about the Planned Start of mating (PSM) and for 3 weeks following.

We reported more difficulty with seed head for a significantly longer period than normal this is reflected in the pasture quality, liveweight and milk production graphs.

Supplement feeding strategies at LUDF

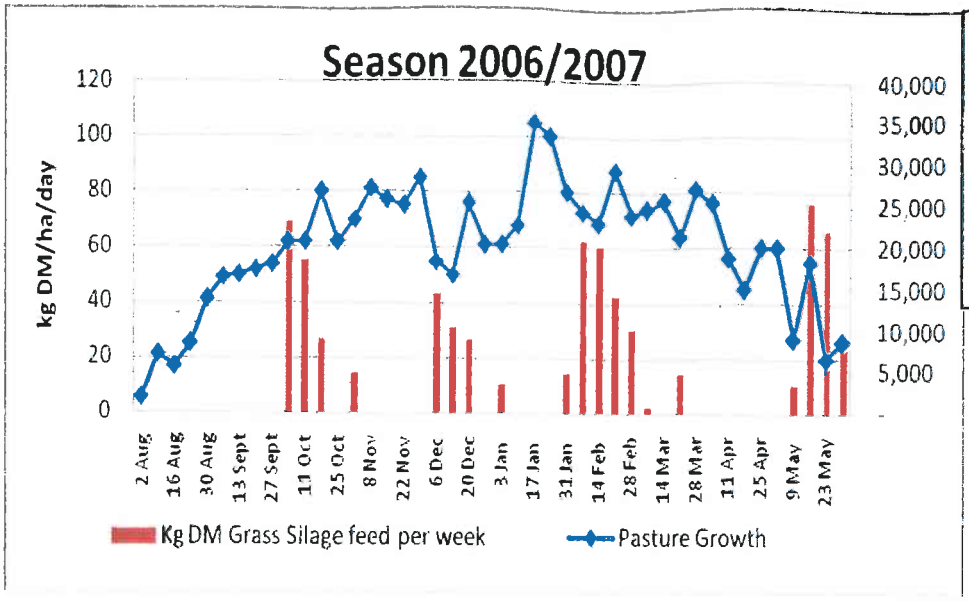
Spring - Farm Policy is to have 100t DM of high quality grass silage available at the start of calving. The plan for spring is made such that very little of this will be needed.

Theory - silage will always be lower quality than pasture and feeding out uses very valuable time .

Mid lactation – at the current stocking rate this is the period mid Nov to mid Feb. During this period of surplus all the regrassing is expected to be done and silage made from the platform every time there is a surplus. The surplus will be taken with pasture at no higher than 3400kgDM/ha. High quality silage as baleage is available to be fed as required during this period.

Autumn Feeding and Late Lactation – Nitrogen use and silage feeding in this period is quite predictable and usually cost effective. We estimate a margin of 80cents/kgms @ $5.10 that is 7.7cents/kgDM.

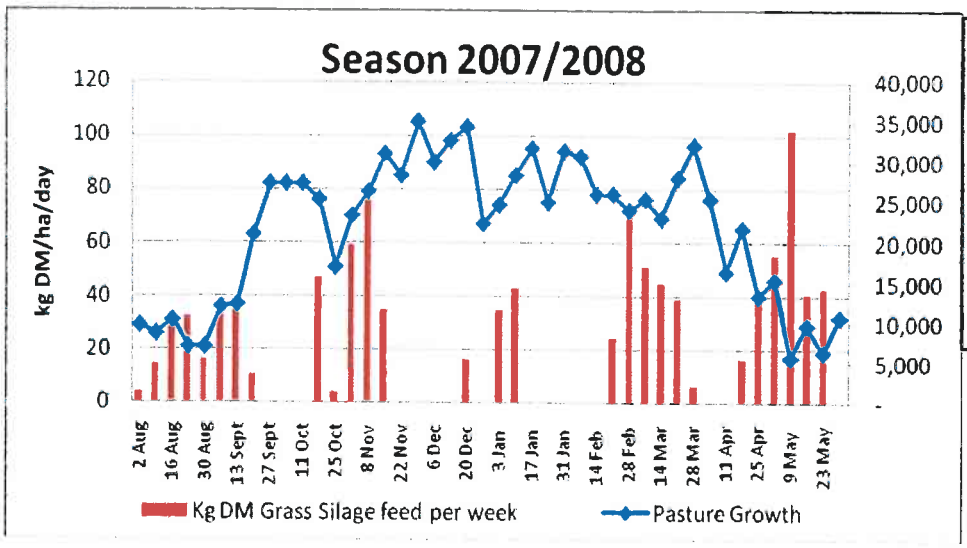
200 kgDM/cow is made or purchased for this purpose and has been this season. The main purpose of this supplementation is to extend lactation. This is achieved by extending the round length and increasing pasture cover during March. In recent seasons it has been possible to have no silage feeding during late March and early April.



Silage Fed = 226,420 kg DM

332kgDM/cow

Silage made= 52,420 kg DM



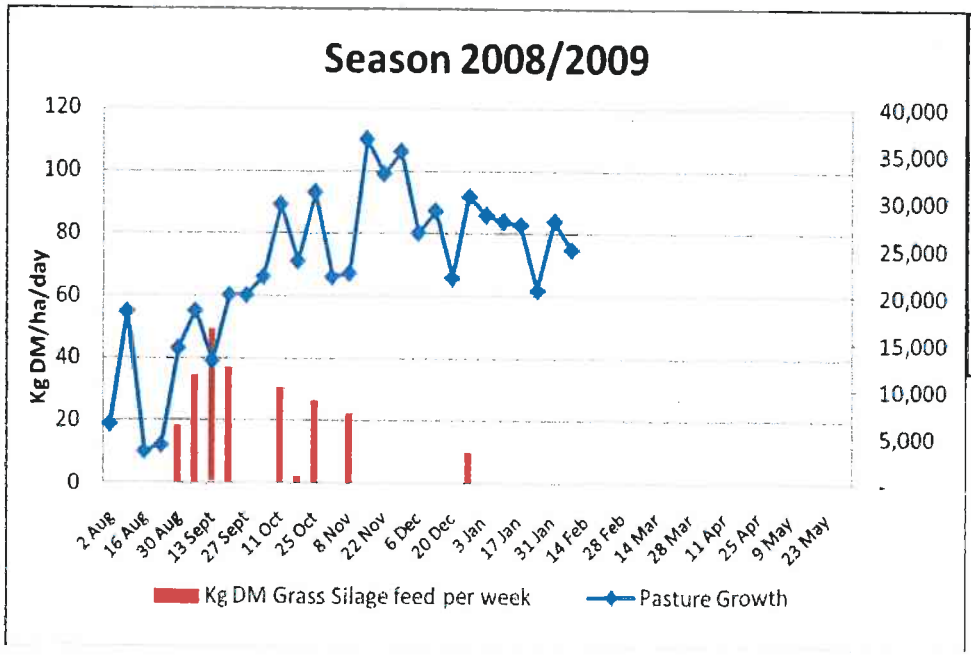
Silage Fed =

341,360 kg DM

502kgDM/cow

Silage made=

64,923 kg DM



Silage Fed ytd =

76,840 kg DM

113kgDM /cow

Silage made=

44,735 Kg DM

Mating this season

Because we mated the herd for only 10 weeks we are in the position to have a full pregnancy diagnosis and analysis today.

Our decision this season was

To use AB for 9 or 10 weeks and not put bulls out with the herd.

This was done with in heat cows being identified and drafted with the aid of a camera/computer system that reads kmar heat mount detectors and cows drafted automatically. The system worked very well and was left entirely to itself in the last 5 weeks of the mating period. It does draft some false positive cows and is set to draft kmars with not much colour in them. The system requires the cow records to be up to date and discipline around putting kmars back on cows.

We expected that (see notes from October focus day)

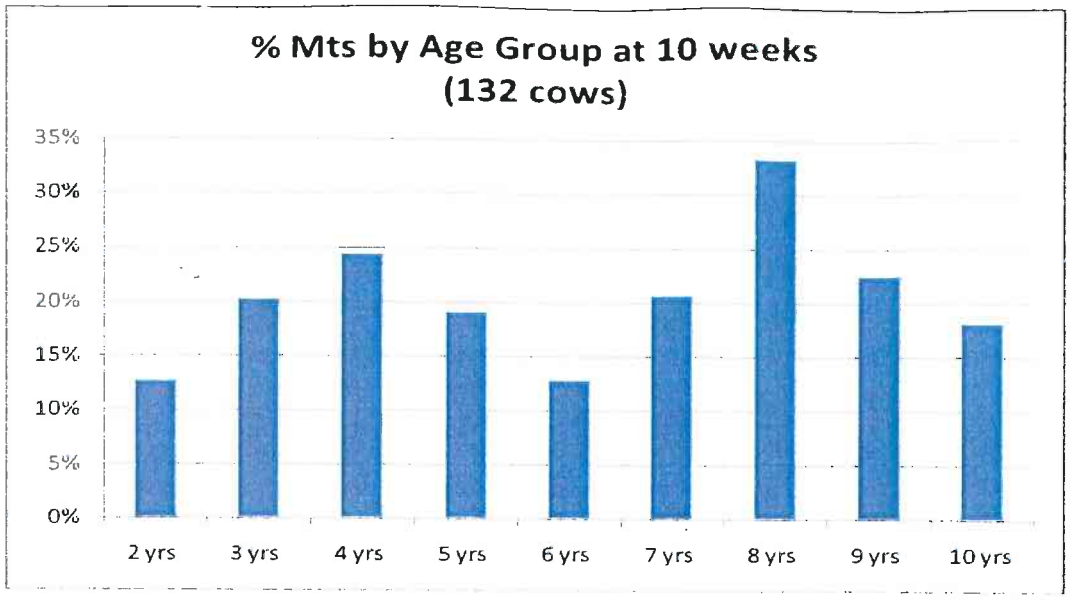
- The number of cows not in calf at 12 weeks (our report number) will rise
- We will have a herd that will calve in 9 weeks next season
- There will be a significant reduction in sore feet in the herd through January
- Time saved will be well used
- Profit/cost benefit to be very similar

Well what happened

20th October	85 cows were judged as having not been in heat and had been calved 35 days treated with a CIDR
29th October	42 additional cows judged with no heat and had been calved 35 days also CIDR's
30th October	Mating began
+ 21 days	16 more cows as above (total now 162)
+35 days	85 CIDR cows Pregnancy tested 9 were re-treated
+42 days	Week one mated cows that had not cycled since were PT and 5 were found to be not in calf (phantom pregnancy) treated with a CIDR
+49 days	As above for week 2 matings
+ 56 days	As above for week 3 matings
	Total of 160 cows 23% were CIDR treated 45% of the first 85 cows confirmed in calf in the first 6 weeks 62% of the 42 treated at the start of mating confirmed pregnant.
35 days after 6 weeks of AB	463 cows judged pregnant 69%
35 days after 10 weeks of AB	542 cows judged pregnant 85%

Next years herd

Pregnant Rising 2 year olds	187
MA cows from the above 542 that will calve in 9.5 weeks Some production culling will be achieved	518
	705



Which cows are Not in Calf?
The 4 - 5% extra 4 year old cows that are not in calf are a result of to many days between calving and mating catching these cows without enough days to get in calf. Shortening this interval is the key to improving performance.

Sore feet
No obvious difference between seasons (Weekly data sheets attached).

Profitability
Detailed analysis not able to be completed yet the key is the value lost on the 25 - 30 late in-calf cows not available for sale should the herd have been bull mated for 5 additional weeks.

Management of the programme and work load
It was good not having bulls to manage - cow flow at milking in particular.
K mar application was done during the time normally spent waiting for the AB technician.

Progress and what next?
Lack of improvement in pregnancy rates is a significant disappointment.
There are no easy short term answers to change the performance of the herd.

Actions may include
- More attention to detail for cow condition at drying off to ensure cow condition at calving for **every** cow is at or above 5 condition score.
- Long term breeding and selection of a herd with higher BV's for fertility is being considered.
- We have an ongoing debate about the use of once a day milking for the first 3 weeks of lactation. Advocates of this and some research indicate significantly less weight loss post calving and earlier return to heat with very similar peak milk.

See also attached
Fertility Focus report
And the repro chequer table

Fertility Focus 2008: Seasonal

Lincoln University
C/O The Manager (University Dairy Fa
PO Box 94
Lincoln University Lincoln 7647

Report date:	17/02/09
PTPT:	BQCY
Herd Code:	6/114
No of cows included:	693
These cows calved between:	22/06/08 and 28/12/08
Mating start & stop date: (estimated from AI or rectal pregnancy test data)	30/10/08 - 12/01/09
Planned start of calving:	08/08/09

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DairyNZ

LIC

1 Overall herd reproductive performance

6-week in-calf rate
Percentage of cows pregnant in the first 6 weeks of mating

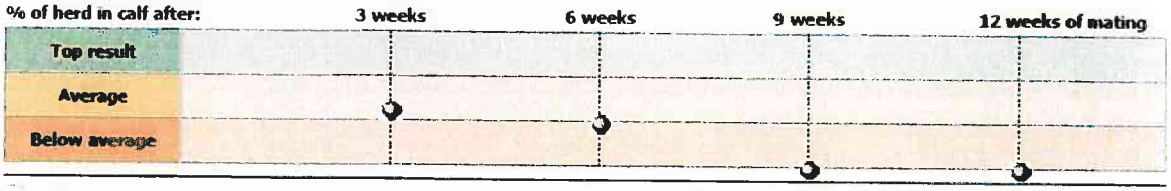
Your herd	67% (67-68%)
Aim above	78%

☆

Empty rate
Percentage of cows not pregnant after 11 weeks of mating

Your herd	21% (21-22%)
Aim for	6%

☆



2 Drivers of the 6-week in-calf rate

3-week submission rate
% of cows that were inseminated in the first 3 weeks of mating

Your herd	92%
Aim above	90%

☆☆☆☆☆

Non-return rate
% of inseminations that were not followed by a return to heat

Your herd	
Aim above	

Conception rate
% of inseminations that resulted in a confirmed pregnancy

Your herd	40%
Aim above	60%

☆

3 Key indicators to areas for improvement

Calving pattern of first calvers
Well managed heifers get in calf quickly and calve early.

Calved by	Week 3	Week 6
Your herd	86%	97%
Aim above	75%	92%
	☆☆☆☆☆	☆☆☆☆☆

Calving pattern of whole herd
Did late calvers reduce in-calf rates?

Calved by	Week 3	Week 6	Week 9
Your herd	66%	86%	96%
Aim above	60%	87%	98%
	☆☆☆☆☆	☆☆☆☆☆	☆☆☆☆☆

Pre-mating heats
A high % of well managed cows will cycle before the start of mating.

Your herd	78%
Aim above	85%

☆☆☆☆☆

3-week submission rate of first calvers
Well managed heifers cycle early

Your herd	93%
Aim above	90%

☆☆☆☆☆

Heat detection
A high % of early-calved mature cows should be inseminated in the first 3 weeks of mating.

Your herd	95%
Aim above	95%

☆☆☆☆☆

Non-cycling cows
Treated non-cyclers get in calf earlier.

Treated	By PSM	Wks 1-3	Wks 4-6
Your herd	19%	0%	0%

Rating	What does it tell me?	What should I do?
☆☆☆☆☆	Top result	Ideal - keep up the good work!
☆☆☆	Average	Getting there - focus on getting the details right.
☆	Below average	Plenty of room to improve - seek professional advice.
	No result	Not enough information provided - seek help with records.

Performance after week 6
If you ran bulls after week 6 of mating, empty rate helps assess bull performance.

	Empty rate
Your herd	21%
Expected	8%

Seek advice

Behind Your Detailed Fertility Focus Report

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Report period: Cows calved between 22/06/08 and 28/12/08.
This was the most recent period with sufficient herd records that enabled an analysis to be completed.

Calving system: Seasonal
Your herd has been classified as seasonally calving because most calvings occurred in a single batch lasting less than 21 weeks.

Level of analysis: Detailed.
Your good record keeping means a detailed analysis was possible for your herd.

Report date:	17/02/09
PTPT:	BQCY
Herd Code:	6/114
Calvings up to this date requested for analysis:	17/02/09
No of cows included:	693
These cows calved between:	22/06/08 and 28/12/08
Mating start & stop date: (Estimated from AI or actual pregnancy test data)	30/10/08 - 12/01/09

Part A) Herd records cross check

Check that the herd records in the table are complete and correct.

2008/09	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
No. of calvings		94	395	162	46	1							698
No. of AI matings					149	774	356	93					1372
No. of aged preg tests								492	183				675
No. of non-aged preg tests								1					1
No. of cows culled or died	48		8			6		1					63

Part B) Notes on the calculations

Use the following notes to see how your results were calculated.

1 Overall herd reproductive performance

6-week in-calf rate
Your report has been based on the mating and pregnancy test results you supplied. The ACTUAL 6 week in-calf rate is shown for your herd.

Empty rate
The empty rate reported was based on the results of pregnancy testing. The range provides the lowest and highest likely estimate.

2 Drivers of the 6-week in-calf rate

3-week submission rate
691 cows had calving dates in the required range and 92% of these were submitted during the first 21 days of mating.

Non-return rate (1-24 days)
Non-return rate is not calculated when pregnancy test results provide an accurate estimate of conception rate.

Conception rate
1295 eligible inseminations were used in calculating your herd's conception rate.

3 Key indicators to areas for improvement

Calving pattern of first calvers
165 cows with eligible calving dates were recorded as calving at less than 34 months of age. The calving pattern of first calvers was calculated from their records.

Calving pattern of whole herd
698 cows had calving dates that were eligible for this report.

3-week submission rate of first calvers
165 first calvers had calving dates in the required range and 93% of these were submitted during the first 21 days of mating.

Heat detection
275 cows at least 4 years old at calving had calved at least 8 weeks before planned start of mating and 95% of these were submitted during the first 21 days of mating.

Pre-mating heats
691 cows had calving dates in the required range and 537 of these had a pre-mating heat recorded.

Non-cycling cows
691 cows had calving dates in the required range and 130 of these were identified as being treated for non-cycling.

Performance after week 6
Your herd's empty rate and 6-week in-calf rate were used to determine the success of your herd's mating program after the first six weeks. If bulls were used after week 6 of mating, this gives an assessment of how well they got cows in calf.

Induced cows
No cows were identified as having induced calvings. If you did induce cows, please ensure that they are all identified.

Dairy herd repro chequer

You will need:

- Your current Yellow Calving Notebook

1. Your Calving Pattern

Herd Size (as at 1 July) 2007 **680** 2008 **680** yours _____

	LUDF 2007	LUDF 2008	Yours	How to find this figure
Your Planned Start of Calving (PSC)	27 July	28 July		*From Expected Calving Order. If you are mating your heifers before your cows, use the PS date of the cows as your PS date.*
Date of mid point of calving	12 Aug	17 Aug		*This is the date by which half the herd has calved, i.e. for a 300 cow herd the date on which the 150th cow calved. Include heifers calving. Source Yellow Calving notebook (calving date order)*

	Target	LUDF 2007	LUDF 2008	yours	How to find this figure
Days PS calving to midpoint	14 days	16	21		*From yellow calving notebook*
4 week calving rate. % calved by 4 weeks after PSC	70%	66%	63%		*Cows calved by 4 weeks / Total cows x 1 = % calved*
8 week calving rate. % cows calved by 8 weeks after PSC	95%	89%	76%		*Cows calved by 8 weeks / Total cows x 1 = % calved*
Inductions: Number of cows induced	< 5%	0%	0%		*Cows induced / Total cows x 100 / 1 = % induced*

2) Cows likely to be Reproductive Risks. (Target total <15%)

NB: It is possible that some cows will be counted in two or more boxes.

All Induced Cows	<5 %	0%	0%		*Cows induced / Total cows x 100 / 1 = % induced*
Cows calved less than 30 days before mating starts (incl late inductions)	<2%	7%	6%		*Late calving Cows / Total cows x 100 / 1 = % Late*
Assisted calvings, vaginal discharge, twins, retained membranes	< 5%	4%	5%		*Cows calving problems / Total cows x 100 / 1 = % problems from calving*
Cows who had metabolic problems (milk fever etc)	<3%	2%	5%		*Cow with problems / Total cows x 100 / 1 = % metabolic problems*

3) Mating Evaluation 2008

Use this page to analyse and review this year's mating performance.
You will need
Mating records eg Dairy Mating Chart, AB book, Minda Pro, Dairy Win Reports

Mating Start Date: 2007 25 Oct 2008 30 Oct your _____ **Herd Size: (as at PSM)** 2007 680 2008 680 your _____

	Target	LUDF 2007	LUDF 2008	Your herd	How to find this figure
% of cows cycling before planned start of mating	>70%	87 %	78 %		From any pre mating heat records. Cows that have shown oestrus before planned start of mating
Number of Non Cycling cows treated as % of herd	< 20%	8% e 5% l	23% e		All Non cycling cows that were treated to promote oestrus. It is recommended that you note the ages of these cows and determine if there is an age group problem.
3 week submission rate %	>90 %	88%	94%		Number of cows mated 21 days after start date as a % of total cows. Source From: Mating Chart, Insemination certificates, LIC Mating Reports
6 week submission rate %	> 98 %	99%	100 %		Number of cows mated 42 days after start date as a % of total cows. Source From: Mating Chart, Insemination certificates, LIC Mating Reports
Days of AB mating period	42days	63	70		The shorter the AB period the greater the requirement to increase the number of bulls for natural mating. Also less opportunity for rearing of suitable replacement calves.
Days of natural mating	42days	42	0		Lengthening the mating period will result in slightly lower MT rates Successfully integrating these late calving animals into a profitable farming system will always be a challenge.
Number of bulls used for natural mating	1:30 MT cows	1:10	na		Allow a minimum of one bull for every thirty non pregnant cows and more if synchrony of oestrus has occurred
% of herd preg after 3 weeks confirmed by PD	> 53 %	na	43%		Cows preg by 3 weeks / Total cows x 1 = % pregnant by PD
% of herd preg after 6 weeks confirmed by PD	> 80 %	71%	69%		Cows preg by 6 weeks / Total cows x 1 = % pregnant by PD
% Cows confirmed as not in calf after 9 weeks of mating	<10%	24%	23%		Cows confirmed as MT by pregnancy diagnosis. Cows calving after this will have less than 3 weeks before PSM
% Cows confirmed as not in calf after 10 weeks of mating	<7%	21%	20%		Cows confirmed as MT by pregnancy diagnosis. Cows calving after this will have less than 1 week before PSM unless mated to Short Gestation Bulls

GPS placement of corner sprinklers

We have trialled an ATV mounted GPS unit for the placement of the 80 sprinklers in the 24ha of corners not able to be watered by the centre pivot irrigators for the last two months.

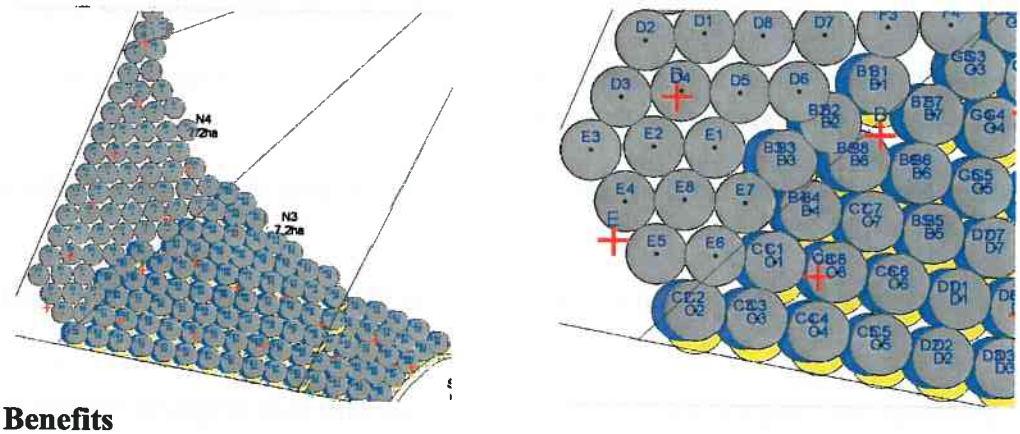
Our estimates are that we have 2 - 3,000kgDM/ha per year less grown in these areas. Better placement is unlikely to have these match the pivot irrigated areas but there is feed there to be grown if we can apply the water rather smarter.

We have explored a range of systems that would enable the team to better place the sprinklers but none have come near to this GPS equipment for accuracy, reliability and simplicity of use.

One downside of the process was that the setup required quite a number of detailed hours of work by Peter Hancox setting the irrigator positions in the mapping programme used by the unit (see picture below). An interesting outcome of this work was that it highlighted the inadequacies of the design and installation of the hydrants. Another 14 hydrants have been added to the areas to enable full watering ability of the areas.

Ease of use
At any sprinkler position the GPS screen indicates where it is and the next position is simple to find as the unit indicates when the unit is over it.

Detail of the sprinkler positions corner of paddocks N3 and N4



Benefits
- Anyone in the team can reliably place the sprinklers in the correct position at much the same rate as any other team member.
- Accurate placement will avoid under and over watering.
- No time benefit is apparent to date.
- The unit is also providing an easy to follow "track" for the Tow Behind pasture meter being used on the support land.

Cost benefit

Cost of the unit		$6,000
Cost of Capital		$ 450
Depreciation	Assume 5 yr life	$1,200
		$1,650 per year

Additional pasture is needed to cover the annual $1,650 cost is $68.75/ha.
If platform pasture is conservatively valued at 25cents an increase of only 275kgDM/ha must be grown to break even. We are confident that will occur. Some additional measurements of pasture growth are being made to help us verify this.

2008 Native Plantings at Lincoln University Dairy Farm

During 2008, 6000 native plants were established on the LUDF over a range of sites and in different formats. 16 different sites were planted which included:

- Single line shelterbelts involving low plants under pivot and taller beyond.
- 3 block/node plantings containing between 770-1018 plants in each.
- Boundary shelter plantings.
- Water race plantings.
- Visitor car park plantings.
- Milking shed plantings.

A total of 39 different species of various grades were sourced from 5 different nurseries.

All sites were pre-plant sprayed, ripped, cultivated and rolled prior to planting.

Both machine and hand planting was employed to establish the plants in September and October 2008.

Slow release fertilizer was installed at time of planting to promote establishment and early growth.

Combi-guard sleeves, wool mats and stakes were installed to provide wild life protection and ease of maintenance when spray release work is undertaken.

Full weed control has been undertaken with the objective of keeping the sites weed free for the first two seasons.

A range of irrigation systems have been employed which include dripper, gun and micro sprinklers.

Some of the plantings are irrigated by the pivot or the long line pod irrigators beyond the pivot as part of the normal pasture irrigation.

Mortality during the first season is less than 1%

Lincoln University has carried out base line surveys of the insects and birds on the farm prior to the native plantings going in. Annual surveys will be undertaken to assess the changes as the plantings mature.

Proportional Costs	**Total Costs**	**Materials**	**Labour**
Shelter belts	$21.34 per plant	62%	38%
Block/nodes	$12.22 per plant	55%	45%

Species List

Species Name	Common Name		Species Name	Common Name
Anemathele Lessoniana	Windgrass		Cares secta	Pukio / sedge
Carmiichaelia australis	NZ broom, makaka		Cassinia vauvillers	Tauhinu
Chionochloa rubra	Red Tussock		Coprosma crassifolia	Thick-leaved mikimiki
Coprosma propinqua	Mikimiki		Coprosma propinqua Hbrid	Hybrid Coprosma
Coprosma rigida	Mikimiki		Coprosma robusta	Karamu
Coprosma rubra	Mikimiki		Coprosma virescens	Mikimiki
Coprosma wallii	Mikimiki		Cordyline austr5alis	Ti kouka / Cabbage tree
Cortaderia richardii	Toetoe		Dodonaea viscosa	Akeake
Griselinia littoralis	Broadleaf		Hebe salicifolia	Koromiko
Hoheria angustifolia	Narrowleaved houhere		Isolepis nodosa	Oiooi / Jointed rush
Kunzea ericoides	Kanuka		Libertia ixiodes	Mikoikoi
Muehlenbeckia astonii	Rare shrub pohuehue		Muehlenbeckia complexa	Shrub pohuehue
Myrsine divaricata	Weeping mapou		Olearia fragrantissima	Fragrant olearia
Olearia paniculata	Golden akeake		Phormium tenax	Harakeke / Flax
Phormium cookianum	Mountain Flax		Pittosporum eugenioides	Tarata / Lemonwood
Pittosporum tenuifoliium	Kohuhu / Matipo		Plagianthus Regius	Manatu / Ribbonwood
Plagianthus divaricatus	Saitmarsh Ribbonwood		Podocarpus totara	Totara
Pseudopanax arboreus	Fivefinger		Pseudopanax crassifolius	Lancewood / horoeka
Pseudopanax ferox	Fierce Lancewood		Sophora microphylla	Kowhai
Teucridium parvifolium	NZ shrub verbena			

Might we winter additional cows on the platform?

- Every farm must evaluate its own situation.
- Productivity and profitability of each farm has a very direct influence on the value for off farm supplements to each farm. The interaction between stocking rate and feed supply pattern must be carefully modelled.

For example:
If a farm had a 500 cow herd and chose to keep 250 at home. The herd will need to reduce by 42 cows assuming the feed is all grown on farm. This change would also shorten the number of days able to be milked and most likely increase the volume of silage made on farm etc.

The LUDF

The soils on the farm become very soft when wet. Damage to pasture when wintering on is an ever present possibility and has to be very carefully managed or the whole year's production can become seriously affected. The current system of having just cows needing significant liveweight gain and therefore leaving 1500kg DM residuals and the opportunity of interchanging support land areas during the wettest periods would become much more difficult if more than 120 cows were wintered on the platform. The farm system is pasture based and must have the correct cover when the herd begins calving. Significant changes to overall stocking rate and calving date would be required to adjust to wintering more cows on the platform.

The value of pasture on a platform depends on the Dairy Operating Profit (DOP) for the farm. Lower stocking rates and lower DOP generate lower value for feed grown on the platform. We are reluctant to indicate a threshold value for LUDF as our threshold for profit is higher than for many other platforms and we do not want to indicate prices for feed that are too high for other farms. The 5% of the value of milksolids general rule for the value of system support supplements is helpful in this regard but unlikely to be able to be possible for all feed this year.

The factor that is important is what shape the platform and the herd are in when milk price recovers and other costs settle. In the mean time we believe the LUDF needs to have enough cows to harvest all the platform pasture during the period November to mid-March each year.

Replace pasture silage with PKE

This season the price of Palm Kernel Expeller has dropped from around $4 to around $2 and accompanied by much better supply infrastructure. Current price has risen to $240/t plus freight.

PKE is the material left over when Palm nuts have had the palm oil extracted from them. This material is imported into NZ from South East Asia. It is variable in the oil volume left in it but generally assumed to be equivalent to 11MJME/kgDM.

Autumn response likely to be 1kg milksolids per 13.4 kg PKE consumed.

PKE is not adequate as a spring supplement and hopefully it will not be cheaper than alternative wintering feeds @ 30 – 33c/kg Pasture Equivalent Dry Matter.

In the short term LUDF already had its supply of high quality pasture silage purchased before the price of PKE dropped significantly.

Response to the grass silage (11.5 – 12.2 MJME/kgDM) likely to be 1 kg milksolids/10.3kg silage DM consumed.

Assuming no feeding costs

Cost of PKE/kg milksolids 29.9c/kg consumed x 13.4 kg = $4.00/kg ms

Cost of high quality grass silage/kg milksolids 41.8c/kg x 10.3kgDM = $4.30/kg ms

To feed PKE on the LUDF both a storage bin and feed-out trailers would need to be purchased to facilitate feeding. About $18,000 on equipment would be needed to be moderately adequate.

The farm expects to use about 100t DM this autumn as supplement. At best 60t of this could be PKE. If the current relative price to silage is a very short term situation at least half the cost of the capital should be costed against the 60t of feed. In this extreme situation the cost of the feed would be 15cents more per kg. Assuming the feed became part of an annual system the capital cost spread out over 5 years and 400t was fed the additional cost would reduce to around 6cents/kg PKE

This is just slightly less economic than the current grass silage system.

Some negatives

Areas where trailers are placed become pugged and trampled and in many cases grow very little pasture over a significant area.

A lot more cow walking is necessary in a day on soils that typically are soft in late Autumn.

Cows take some time to get used to PKE and adapt to it.

Daily intake of PKE can build up to 5kgDM/cow per day when cows are very hungry but grass silage can go immediately to that level. Silage and PKE feeding would need to occur simultaneously in our system taking significantly more time to achieve the daily feeding out work.

Silage already owned would need to be stored (cashflow and spoiling issues) or sold - also problematic.

USEFUL LINKS

A regularly updated website including information on CRW biology & control, links to trial reports & farmer case studies: www.cloverrootweevil.org.nz

Or search "Clover Root Weevil" in the sites below:
www.agresearch.co.nz | www.biosecurity.govt.nz

FOR FURTHER INFORMATION

Lorraine Bilby, NZ Clover Root Weevil Action Group:
stew-bilby@farmside.co.nz

Tina Eden, AgResearch Ruakura:
tina.eden@agresearch.co.nz

Craig Phillips, AgResearch Lincoln:
craig.phillips@agresearch.co.nz

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Sustainable Farming Fund
www.maf.govt.nz/sff

MEAT & WOOL NEW ZEALAND

NZ Landcare Trust
landcare action on the ground

agresearch

Developed by Tina Eden & Sally Howlett, AgResearch
Printed: September 2008

PASTURE PEST IDENTIFICATION

BEWARE! CRW Larvae are easily confused with other pests. Below are examples of what you may find during autumn and spring in soil. S=Spring; A=Autumn.

Black beetle 30mm long
North Island only (S)

CRW 2-6mm long
(S & A)

NZ grass grub 20mm long
Honey brown head (S)

White fringed weevil
15mm long (A)

Tasmanian grass grub
15mm long (A)

Adult Weevils

CRW
4-6mm

White fringed
10-12mm

Irenimus
4-7mm

Clover Root Weevil

A major problem for NZ

How to minimise its costs for farmers

Waterproof on-farm tool

WHY IS CLOVER IMPORTANT?

Nodules on roots fix atmospheric nitrogen – 50-300 kg/ha/annum in grazed pasture.

- Acts as a natural source of fertiliser in pastures
- Reduces the need for supplementary N applications
- Improves sustainability

Increases overall feed quality, leading to higher productivity.

A THREAT TO CLOVER: CLOVER ROOT WEEVIL

Clover root weevil (CRW) is present throughout the North Island and is spreading down the South Island. CRW feeds exclusively on clover, preferring white over red. The larval stage is the first pest in New Zealand to target clover nodules, reducing its ability to fix N. CRW can completely destroy clover in severe cases.

IS CRW STILL A PROBLEM?

Yes! It would cost the pastoral sector millions of dollars per year if nothing is done to control this pest.

On individual farms an unchecked infestation could decrease farm gross margins by 10-15%.

WHAT DOES CRW LOOK LIKE?

Adult CRW are what you are most likely to see as they are above ground. Larvae are below ground, have a bright white body with a brown head capsule.

Adult CRW

CRW larva

WHEN SHOULD I LOOK FOR CRW?

CRW are present throughout the year, but adult weevil numbers peak in summer. Larval numbers peak in spring and autumn. Adverse conditions, e.g. drought, can reduce CRW populations but they can quickly recover when the clover comes back.

If clover is already stressed, e.g. by inadequate fertiliser, overgrazing or other pests, CRW can be the straw that breaks the camel's back.

WHAT DAMAGE DOES CRW CAUSE?

- Adults attack clover seedlings and leaves and may totally defoliate the plant.
- **Larvae are the most damaging,** attacking nodules & roots.

Leaves
U-shaped notches most visible sign

Nodules
Most serious impact on N fixation

Roots
Production & persistence reduced

HOW CAN I MAINTAIN MY CLOVER?

A combined approach is required to maintain healthy and productive clover in the presence of CRW, including the following factors:

N Application

- Applying small amounts of N after grazing in spring and autumn can help clover withstand CRW larval attack – exact quantities of N will vary with your own nutrient management plan.

  Note: grasses may outcompete clover if too much N is applied.

Grazing Regime

- Trials have shown that intensive grazing in spring enables clover to compete with grass and thrive. Conversely, sufficient pasture cover in summer protects clover stolons from burning in direct sunlight.

Pasture Renovation

- Using a non-host plant, e.g. brassica or maize, removes pests such as CRW and nematodes so clover can be re-established into a 'clean' site. Cost analysis has shown economic benefits.
- Sowing upright tetraploid perennial ryegrasses as companion plants helps clover to persist better than diploid grasses which can shade and crowd the clover.
- Choose clover lines that suit your farming system and are more tolerant of drought and pests. This will help it to persist in pastures under stressful conditions.

Biological Control

- A parasitic wasp is being distributed throughout NZ and can help to control CRW numbers.
- Its regional impact is affected by environmental conditions, so it is not a 'silver bullet'. This tiny wasp feeds on nectar and doesn't sting humans!

Profitability at LUDF this season

- We have been able to contain some costs but overall costs have risen 9.9% compared to last year
- The farm will generate 3.5% - 4% less milk.
- Predicted milk price is currently 33% lower than last season's
- Stock Income will be reduced by about 27%

Last season the Dairy Operating Profit was $8,205/ha
Our best expectation is to generate
Dairy Operating Profit of $2,341/ha or $1.37/kg MS
See budget update

Opportunities to increase/maintain profit this season
Some options explored

1. Dry off low producing cows early and purchase grazing off farm - relies on grazing price being below "value" of on-pasture. Thus feeding a limited volume of silage to the most responsive cows.
2. Replace already purchased silage with PKE (see separate analysis for this idea).
3. A number of small items of R & M etc.

Some non-options in the short term
1. Reduce staff
2. Growing an autumn sown crop on the LUDF platform
3. All the annual fertiliser has already been applied

Some of the options we are in the process of exploring for next season
1. Stocking rate – reduce the herd size to reduce direct cow costs like wintering, animal health and mating – Milksolids per cow would have to rise to cover fixed costs for this option to be successful.
2. Reduce replacements being reared (23% would just maintain herd size at current reproduction and death rates)
3. Increase the number of days post calving anoestrus before beginning a CIDR programme (from 35 to 42 days cows 49 days first calvers)
4. How to cost effectively manage with less people
5. Any systems changes that others can show has or will make more profit. A working group has begun to explore this with high performing Canterbury farmers.

Some smaller potential savings items to consider
1. Young cows with low SCC not treated with Dry Cow antibiotics

Some Policies that will not change
1. The grazing management protocols.
2. Inducing cows to calve before full term is not an option.
3. Synchronising 1st calving heifers to begin calving 1 week before the Mixed Age cows.
4. Calving the herd in lighter condition than current targets.
5. The use of eco-n.
6. Teat seal for first calvers.

Lincoln University Dairy Farm — February 2009 update

Year ending May 31	159.0ha	Budget		2008/09		Actual 07 - 08	Difference	
Milk production	Milksolids	$5.10/kgms	1,710/ha	*271,890*	281,670	1,772/ha	-9,780 kgms	
Cows	Peak number &prodn	680cows	4.28/ha	*400/cow*				
Staff	4.00 FTE's	170cows/FTE		*67,973ms/FTE*				
Income				*c/kgMS*	*c/kgMS*		$ change	
Milk Income	92%	1,386,639		*5.10*	*7.71*	2,173,027	-786,388	-36%
Surplus dairy stock	3%	40,850		*0.15*	*0.23*	65,200	-24,350	-37%
Other stock sales	5%	72,925		*0.27*		90,142	-17,217	-19%
Other Income	0%	-		-	*0.00*	0	0	
	0%			-			0	
	100%	**1,500,414**		***5.52***	***7.95***	2,328,369	-827,955	-36%
Stock Purchases		-				-	0	
Gross Farm Revenue		**1,500,414**	**9,437/ha**			**2,328,369**	**-827,955**	**-36%**

Expenses			***2008/09***	***2007/08***	**Actual**	$ change in	% change in
		$/cow	*c/kgMS*	*c/kgMS*	$	expense	expense
Administration	28,500	41.9	*0.10*	*0.10*	28,464	36	0%
Animal Health	43,671	64.2	*0.16*	*0.15*	42,422	1,249	3%
Breeding Expenses	45,500	66.9	*0.17*	*0.19*	52,305	-6,805	-13%
Electricity	17,961	26.4	*0.07*	*0.06*	17,012	949	6%
Employment	218,700	321.5	*0.80*	*0.67*	189,376	29,324	15%
Feed purchased	38,466	56.5	*0.14*	*0.22*	61,345	-22,879	-37%
Silage making & delivery	27,975	41.1	*0.10*	*0.12*	33,032	-5,057	-15%
Replacement grazing	124,452	182.9	*0.46*	*0.37*	103,824	20,628	20%
Winter grazing	118,000	173.4	*0.43*	*0.36*	102,596	15,404	15%
Fertiliser & Lime	158,568	233.1	*0.58*	*0.32*	90,050	68,518	76%
Freight & Cartage	2,500	3.7	*0.01*	*0.01*	3,022	-522	-17%
Irrigation Costs	64,994	95.5	*0.24*	*0.24*	66,489	-1,495	-2%
Rates & Insurance	14,745	21.7	*0.05*	*0.05*	13,914	831	6%
Regrassing	14,088	20.7	*0.05*	*0.03*	8,248	5,840	71%
Repairs & Maintenance	48,000	70.6	*0.18*	*0.25*	71,007	-23,007	-32%
Shed Expenses	10,750	15.8	*0.04*	*0.02*	5,228	5,522	106%
Vehicle Expenses	22,000	32.3	*0.08*	*0.07*	18,787	3,213	17%
Weed & Pest	1,908	2.8	*0.01*	*0.01*	1,977	-69	-3%
Accommodation allowance (4 houses)	20,000	29.4	*0.07*	*0.07*	20,000	0	
Cash Farm Working Expenses	**1,020,777**	**1,305**	***3.75***	***3.30***	**929,098**	**91,679**	**9.9%**
Depreciation est	107,426		***0.40***	**0.34**	94,666		
Total Operating Expenses	1,128,203		***4.15***	**3.63**	1,023,764		
Dairy Operating Profit	**372,211**	***547***	***1.37***	**4.63**	**1,304,605**	-932,395	
	2,341/ha				**8,205/ha**	- 5,864	
Cash Operating Surplus	**479,637**	**705**	***1.76***		**1,399,271**	- **919,635**	
	3,017/ha				**8,664/ha**		

Lincoln University Dairy Farm - Farm Walk notes

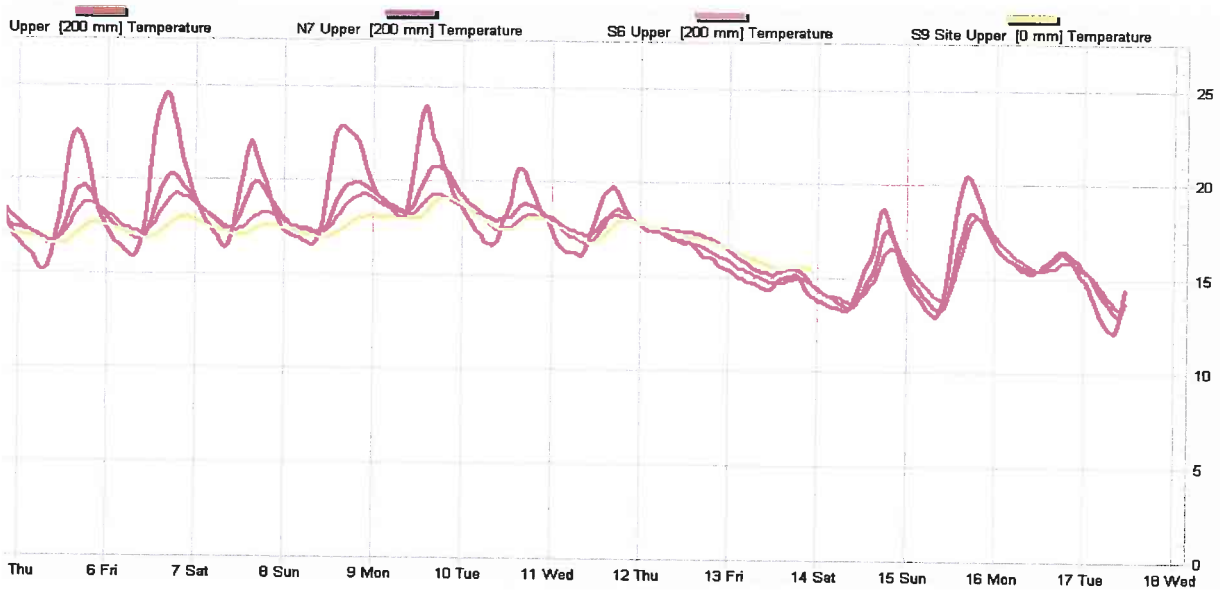
Tuesday, 17th February 2009

Critical issues for the short term

1. **Keep the rotation length to no faster than 20 days and gradually extending to 22 days.**
2. **Identify grass surpluses on the runoffs and make into silage immediately.**

Summary of Key Factors affecting Grazing Management & Animal Performance

3. Soil Temperatures at 9am have dropped as shown on the graph below and are now about 13 °C with reduced day time air maximums as well.



4. SOIL MOISTURE levels have declined from near field capacity (last Wednesday) and are still in the top half of the range between Field Capacity and Stress Level. All irrigation was turned off last Wednesday and has not been back again this week. We will keep an eye on the weather and with the expectation of rain we possibly will not irrigate this week.

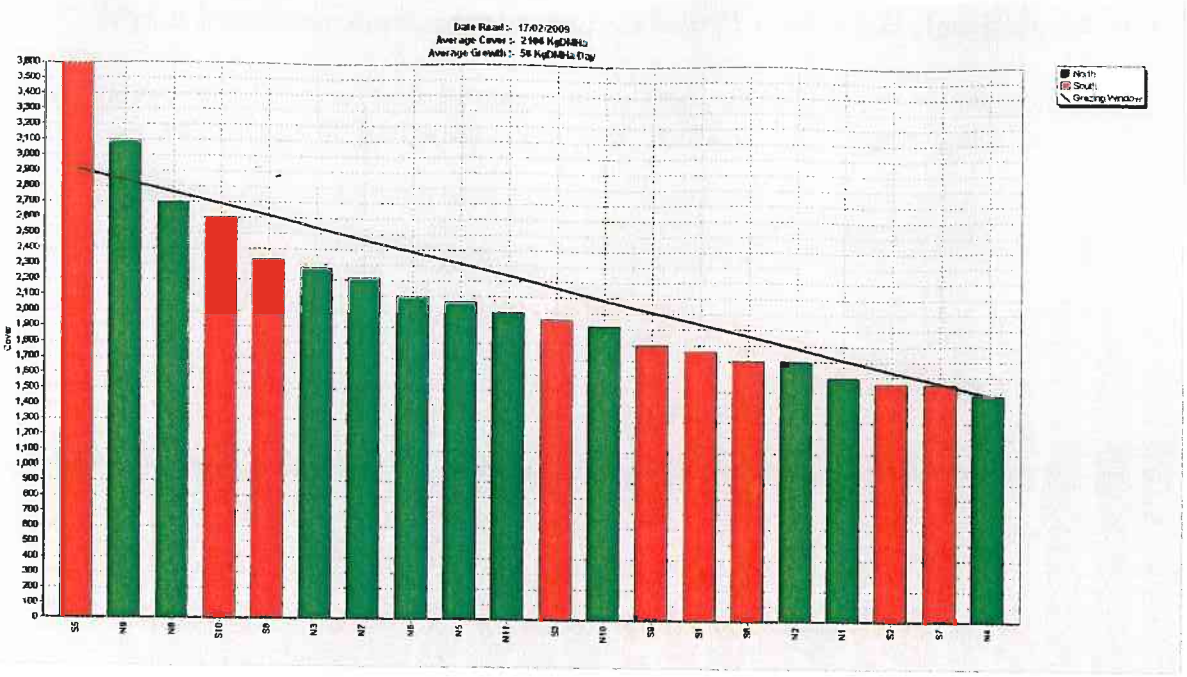
5. PASTURE GROWTH was 56 kg DM/ha (previous week 76). (Soil temperature influence). It is quite normal for soil temperatures to drop to these levels periodically in Feb/March but then they will rise again to 16 °C and as a result we still expect pasture growth rates to get back to the high 70's.

6. Average pasture cover has dropped to 2106 kg DM/ha (last week 2278 kg DM/ha).

7. Last week the overall rotation length was 20 days on the 151 ha. During the week no silage made or fed out.

8. Paddock S4 was sown 10 days ago and there is already a good strike of grass evident. The first nip off will be in about 2 weeks.

9. The Pasture Wedge today.



10. The wedge target line reflects the pre-grazing target for a 20 day rotation, feeding an average of 16 kg DM/cow at a stocking rate of 4.49 cows/ha. (4.49 x 20 x 16) + 1480 = 2917 kg DM/ha

11. The wedge this week is showing a deficit coming up. Last week the growth rate decreased significantly due to lower soil and air temperature. Conditions predicted for much of the coming week are warmer than last week but still will be average to cool with the possibility of a small amount of rain. We are basing our management decisions on an expectation of pasture growth rates getting back to about 70 a day.

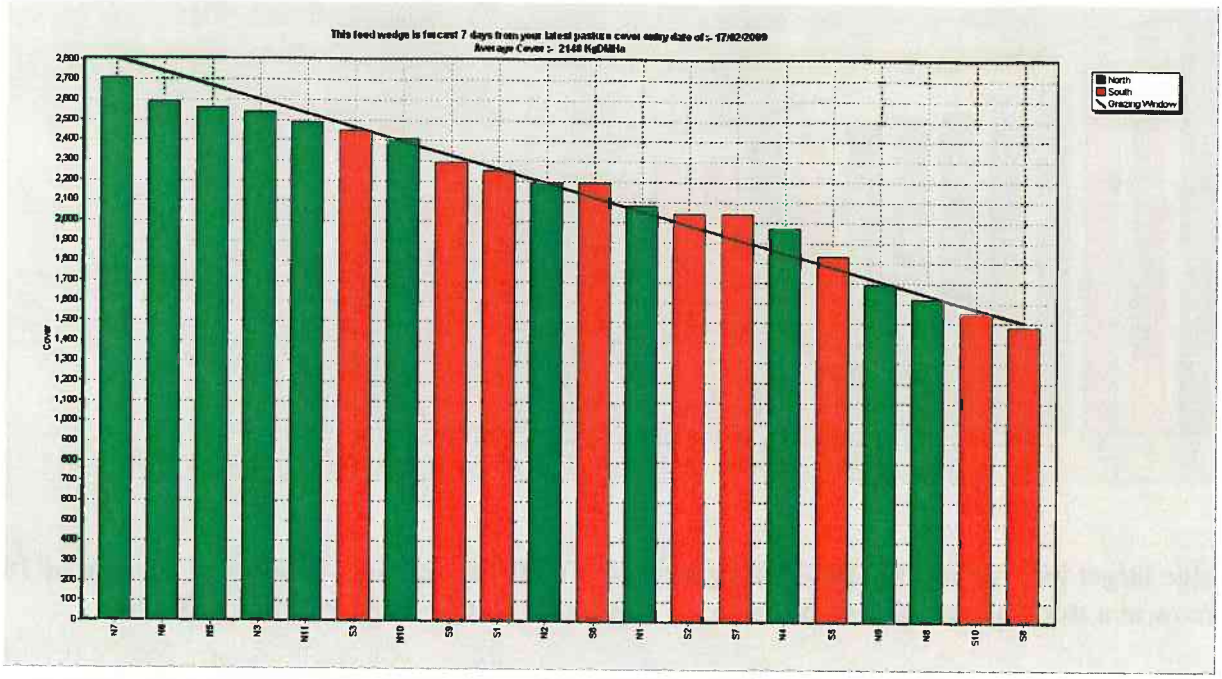
12. There are several options available to us for dealing with the deficit that we see in the wedge. a) we could tough it out – stay on the same rotation and accept that the cows will leave lower residuals and also eat less – less production. b) we could hold the round length and put in a small amount of silage (or other feed) and keep cow dry matter intakes the same as they have been or c) we could slow down the rotation length and put in a higher level of silage to make this possible and keep cow allocations to the current 16 kg DM/day. We also have the option of reducing cow numbers.

13. At the moment we have cows in the herd which are not in-calf and have other problems – lame, high somatic cell count, badly shaped udders, 3 titters, and low production. It makes sense to cull these animals rather than continue to support them with expensive additional feed. There are about 30 of these animals in the herd and so our first step is to cull these and reduce the herd to about 650 cows. These cows will be removed from the farm immediately (to waste areas on a runoff) until they can go to slaughter. This will still make our current stocking rate 4.3 cows/ha.

14. Our current rotation is about 19 to 20 days. This is fast for this time of the year and there will be no loss in pasture quality if we extent to a 22 day rotation. If we make the move to this then we can extend it to 25 days more easily in early March when S4 will also come back into the grazing round.

15. The pre-grazing cover required for 650 cows, eating the current allocation of 16 kg DM, on a 22 days rotation is 2993 kg DM/ha. To do this we will have to feed between 2 – 3 kg DM of silage /cow/day which is only about 1.6t DM / day (less than a silage wagon load). We have silage of better than 11.5 ME and with the silage only being about 15% of the diet we expect milk production to hold.

16. The predicted wedge shows the feed wedge next week assuming 650 cows, 22 days round and cows feed 14 kg Grass plus an average of 2.3 kg silage /day with a growth of 70 kg DM/day.



The wedge target line reflects the pre-grazing target for a 22 day rotation, feeding an average of 14 kg DM/cow of grass at a stocking rate of 4.3cows/ha (4.3 x 22 x 14) + 1480 = 2804 kg DM/ha

17. There is still a small deficit for a couple of days at the start of next week which assures us that we will not be wasting the silage. We will be watching residuals very closely to make sure that they do not exceed ("7 clicks") or 1480 kg DM/ha. The cows will be put back into paddocks to make sure this is achieved. By doing this we make sure that we do not waste silage and if we get the allocation wrong we will turn it into a slower rotation length a little sooner.

18. No Urea has been applied since the 22nd of December. The plan will be to re-start Urea this week up to 1/3 of the farm targeting the paddocks with the lowest covers. Then we will follow the cows with Urea for the next couple of weeks.

19. The new grass paddock S5 sown 9 weeks ago has come back into the round and is growing exceptionally well – 107 kg DM/ha/day last week and 149 kg DM/ha/day this week. This paddock was due to be grazed earlier this week but it was too wet. It will be grazed today.

20. The cows have held weight this week and are now at the same weight as the herd was this time last year.

21. Production /ha is 5.86 kg MS/ha/day. Per cow has dropped to 1.38 kg MS/cow/day last week 1.42 kg MS/cow/day.

22. All mating finished Thursday 8th January (10 weeks). A full herd pregnancy scan on the 19 January confirmed the 6 week in-calf rate at 69%. The final scan done on the 16 February shows that 80% of the cows are in calf after 10 weeks of mating. This is 1% better than last year. This will be discussed at the next LUDF focus day on the 19th February.

23. The R2 were pregnancy tested last Wednesday shows 95.5% in calf rate at 9 weeks of mating.

24. The Somatic cell count ranged from 210-226,000. Four fresh clinical mastitis cases have been found over the last week.

25. The number of lame cows was 10 this week. Lame cow numbers through the summer have been very similar to previous years even though we have had no bulls with the herd at all for mating.

26. This is also the time of the year when we are talking to our winter grazing suppliers to confirm what areas of grass and crop are available and to check on the progress of any crops. Negotiations on price are always a problem.

The next LUDF focus day will be on the 19th February 2009 @ 10.15am

The next WEEKLY farm walk is on Tuesday **24th February 2009 at 9.00am.**

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), Neil Jones (Herd Manager), Virginia Serra (DairyNZ), George Reveley (for SIDDC).

Weekly and Monthly Dataset from Lincoln University Dairy Farm

Date (Totals at end of period)	6-Jan-09	13-Jan-09	20-Jan-09	27-Jan-09	3-Feb-09	10-Feb-09
Total Cows Wintered (July 1st Total)	704	704	704	704	704	704
Farm grazing ha (available to milkers)	150.8	150.8	150.8	150.8	150.8	150.8
Dry Cows on farm / East blk / other	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0
Culls (Includes culls put down & empties)	0	0	0	0	1	0
Culls total to date	18	18	18	18	19	19
Deaths (Includes cows put down)	1	0	0	0	1	1
Deaths total to date	8	8	8	8	8	8
Calved Cows available (Peak Number 680...)	679	679	679	679	678	678
Treatment / Sick mob total	2	1	0	0	3	4
lame, mastitis, other, colostrum	12/1/1/0	11/1/0/0	11/0/0/0	12/0/0/0	10/3/0/0	10/4/0/0
Milking twice a day into vat	667	667	668	667	665	665
Milking once a day into vat	10	11	11	12	10	9
Total Cows Milked into vat	677	678	679	679	675	674
Days in Milk actual cow days/Peak Cows	136	143	150	157	164	171
MS/cow/day (Actual kg / Cows into vat only)	1.5	1.5	1.48	1.37	1.4	1.4
MS/cow to date (total kgs / Peak Cows 680)	227	237	248	257	267	277
MS/ha/day (total kgs / Total ha used - eg 161.5ha)	6.9	6.9	6.7	6.19	6.4	6.3
MS/ha to date (total kg / Total ha used)	968	1014	1058	1099	1141	1183
Herd Average Cond'n Score						
Whole herd LW (kgs)	475	469	465	473	467	472
Soil Temp Tues 10.00am 10cm	16.5	17.0	16.0	17.5	16.0	17.0
Growth Rate (kgDM/ha/day)	86	84	83	62	84	75
Plate meter height - ave half-cms	12.9	12.1	12.5	12.6	12.6	12.7
Ave Pasture Cover (x140 + 500)	2307	2196	2252	2269	2268	2278
Pre Grazing cover (ave for week)	2993	3125	2965	2870	3000	3057
Post Grazing cover (ave for week)	1480	1480	1480	1480	1480	1480
highest pregrazing cover	3200	3200	3300	3080	3100	3244
Area grazed / day (ave for week)	8.09	7.00	7.44	7.90	7.80	7.40
Grazing Interval	19	22	20	19	19	20
Pasture ME (pre grazing sample)				11.6		11.7
Pasture % Protein				18.8		20.1
Pasture % DM						15.6
Pasture % NDF				43.7		36.9
Supplements Type	0	0	0	0	0	0
Supplements fed kg DM/cow/day in pdk	0.0	0.0	0.0	0.0	0.0	0.0
Supplements fed to date kg per cow (680 peak)	113	113	113	113	113	113
Supplements Made Kg DM / ha cummulative	181	272	272	272	277	277
Units N applied/ha and % of farm	0	0	0	0	0	0
Kgs/ha N to Date (on the NON-effluent area 133ha)	149	149	149	149	149	149
Rainfall (mm)	4.4	2.6	36	10est	0.2	2.2
ET Weekly Soil & Science readings (mm)	39.9	43.2	32.6	42.7est	27.0	33.4
days irrigated each week	7	7	4	4	7	4
Irrigation mm applied per week	40.6	40.6	23.2	23.2	40.6	23.2
Stock Water Consumed litres / cow / day	38est	38est	38est	38est	38est	38est

Weekly and Monthly Dataset from Lincoln University Dairy Farm

Date (Totals at end of period)	2-Jan-08	8-Jan-08	15-Jan-08	22-Jan-08	29-Jan-08	5-Feb-08	12-Feb-09
Total Cows Wintered (July 1st Total)	704	704	704	704	704	704	704
Farm grazing ha (available to milkers)	155	155	155	161.5	161.5	161.5	161.5
Dry Cows on farm / East blk / other	0/0/0	0/0/0	1/0/0	1/0/0	1/0/0	1/0/0	1/0/0
Culls (Includes culls put down & empties)	0	0	0	0	5	0	0
Culls total to date	9	9	9	9	14	14	14
Deaths (Includes cows put down)	0	0	0	0	0	0	0
Deaths total to date	11	11	11	11	11	11	11
Calved Cows available (Peak Number 680...)	677	677	676	676	671	671	671
Treatment / Sick mob total	3	4	7	5	4	3	1
lame, mastitis, other, colostrum	10/3/0/0	10/4/0/0	8/6/2/0	7/5/1/0	9/4/1/0	9/2/1/0	11/1/0/0
Milking twice a day into vat	664	663	660	666	658	659	659
Milking once a day into vat	10	10	8	5	9	9	11
Total Cows Milked into vat	674	673	668	671	667	668	670
Days in Milk actual cow days/Peak Cows	134	140	147	154	161	168	175
MS/cow/day (Actual kg / Cows into vat only)	1.60	1.56	1.64	1.58	1.6	1.51	1.50
MS/cow to date (total kgs / Peak Cows 680)	232	241	253	264	274	285	295
MS/ha/day (total kgs / Total ha used - eg 161.5ha)	6.9	6.8	7.1	6.58	6.4	6.3	6.2
MS/ha to date (total kg / Total ha used)	977.4	1016	1064	1110	1155	1198.7	1242
Herd Average Cond'n Score							
Whole herd LW (kgs)	474	481	476	475	483	474	475
Soil Temp Tues 10.00am 10cm	17.5	17.5	17.5	17.5	17.5	17.5	17.5
Growth Rate (kgDM/ha/day)	74	85	95	75	94	92	78
Plate meter height - ave half-cms	11.6	12.2	12.7	11.9	12.6	13.1	12.1
Ave Pasture Cover (x140 + 500)	2134	2206	2277	2164	2264	2343	2200
Pre Grazing cover (ave for week)	2865	2736	3138	2964	2921	2931	3225
Post Grazing cover (ave for week)	1450	1450	1480	1480	1480	1480	1480
highest pregrazing cover	2930	2900	3412	3200	3000	3010	3300
Area grazed / day (ave for week)	7.90	7.90	7.40	7.50	8.10	8.60	8.15
Grazing Interval	20	20	21	22	20	19	20
Pasture ME (pre grazing sample)	12.1		11.7		12		
Pasture % Protein	21.1		21.8		22.8		
Pasture % DM	17.7		14.7		16.4		
Pasture % NDF	35.0		26.6		34.4		
Supplements Type	Grass silage	Grass silage	0	0	0	0	0
Supplements fed kg DM/cow/day in pdk	2.5	3.4	0.0	0.0	0.0	0.0	0.0
Supplements fed to date kg per cow (680 peak)	221	242	242	242	242	242	242
Supplements Made Kg DM / ha cummulative	342.1	342.1	363	401.8	401.8	401.8	401.8
Units N applied/ha and % of farm	25units,44%	25units,33%	0	0	0	25units,21%	25units,23%
Kgs/ha N to Date (on the NON-effluent area 133ha)	104	114	114	114	114	118	123
Rainfall (mm)	0	0.4	0	15.2	0	6	11.8
ET Weekly Soil & Science readings (mm)	35.3	35	48.0	35.3	31.6est	28.7	30.6
days irrigated each week	5	7	7	7	4	5	3
Irrigation mm applied per week	30	42	42	42	24	30	18
Stock Water Consumed litres / cow / day	50	69	59	60	46	49	63

Weekly Dataset from Lincoln University Dairy Farm

Date (Totals at end of period)	7-Jan-07	14-Jan-07	21-Jan-07	28-Jan-07	31-Jan-07
Total Cows Wintered (July 1st Total)	702	702	702	702	702
Farm grazing ha (available to milkers)	159	159	151.7	151.7	151.7
Dry Cows on farm / East block / other	0	0	0	0	0
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	11	11	11	11	11
Deaths (Includes cows put down)	0	0	1	0	0
Deaths total to date	20	20	21	21	21
Calved Cows available (Peak Number 680...)	666	666	665	665	665
Treatment / Sick mob total	2	2	3	1	1
lame, mastitis, other, colostrums	10/2/0/0	9/2/0/0	8/3/0/0	8/1/0/0	11/1/0/0
Milking twice a day into vat	654	655	654	655	653
Milking once a day into vat	10	9	8	9	11
Total Cows Milked into vat	664	664	662	664	664
Days in Milk actual cow days/Peak Cows	140	147	154	161	164
MS/cow/day (Actual kg / Cows into vat only)	1.68	1.62	1.50	1.48	1.4
MS/cow to date (total kgs / Peak Cows 680)	239	247	255	267	271
MS/ha/day (total kgs / Total ha used - eg 161.5ha)	7.0	6.7	6.53	6.1	6.3
MS/ha to date (total kg / Total ha used)	991.6	1038	1075	1124	1142
Monitor Group Condition Score		4.3		4.38	
Monitor Group LW (kgs)		483		497	
Soil Temp Tues 10.00am 10cm	16.5	18.3	18.0	16.6	16.6
Growth Rate (kgDM/ha/day)	68	105	100	80	80
Plate meter height - ave half-cms	12.5	13.9	14.5	13.6	13.6
Ave Pasture Cover (x140 + 500)	2255	2454	2538	2400	2400
Pre Grazing cover (ave for week)	2950	3222	3520	3800	3600
Post Grazing cover (ave for week)	1450	1480	1480	1480	1480
Highest pre-grazing cover	3000	3580	3610	3900	3720
Area grazed / day (ave for week)	7.30	5.90	6.75	7.60	5.60
Grazing Interval	22	27	22	20	27
Pasture ME (pre grazing sample)			12.1		11.8
Pasture % Protein			22.3		19.1
Pasture % DM			13.1		14.7
Pasture % NDF			40.3		41.1
Supplements Type	0	8 hours on runoff	0	0	0
Supplements fed kg DM/cow/day in paddock	0.0	0.7	0.0	0.0	0.0
Supplements fed to date kg per cow (680 peak)	137	142	142	142	142
Supplements Made Kg DM / ha cumulative	0	0	122.4	224.9	177
Units N applied/ha and % of farm	0	0	0	40units,.04%	0
Kgs/ha N to Date (excludes Italian & tetreploid)	139	139	139	141	141
Rainfall (mm)	1.4	12est	0	5	0
ET Weekly Soil & Science readings (mm)	27.0	35est	35est	25est	25est
Days irrigated each week	0	4	2	3	3
Irrigation mm applied per week	0	24	12	18	18
Stock Water Consumed litres / cow / day	30	24	33	20	31