S I D D C
South Island Dairying Development Centre

Focus Day
LINCOLN UNIVERSITY DAIRY FARM

"Setting it up to perform"

Information Handout

11th May 2006

For further information on LUDF or extra copies of today's handout, visit: **www.siddc.org.nz**

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

dexcel Partners in profitable dairying
Lincoln University Te Whare Wānaka o Aoraki
Crop & Food Research Mana Kai Rangahau
Ravensdown Fertiliser Co-operative Limited
SIDE

Contents

Remember to check out www.siddc.org.nz for our Weekly Farmwalk Notes

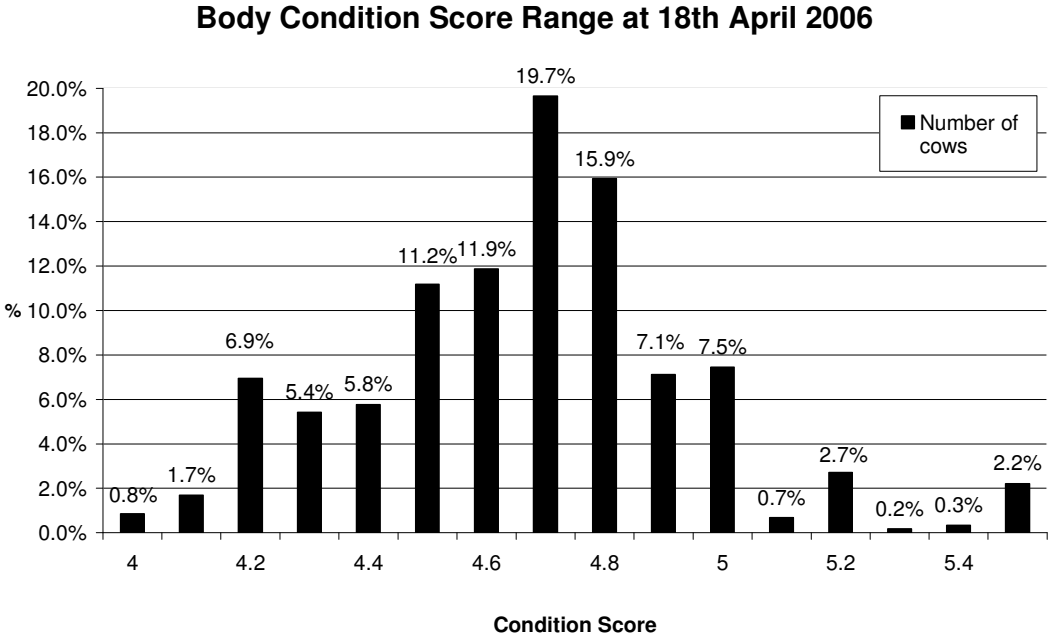
Seasonal Update - March to May 2006

March Snapshot

- March was a hard month to hold cover
- Pasture growth varied between 46 and 59kgDM/ha/day, consistently below our demand of 62.
- N was applied at 40kgN/ha
- Production held at 1.5kgMS/cow/day and 6kgMS/ha/day.
- Supplement averaged 4-5kgDM/cow/day.

April Snapshot

- April pasture growth was consistent with previous years ranging from 45 to 53kgDM/ha/day
- Production declined steadily across the month from 1.52 to 1.41 kgMS/cow/day and as cows numbers declined from 609 to 589, per ha production dropped to 5.3kgMS/ha/day by the end of April
- Supplement was maintained at 4-5 kgDM/cow/day
- Cow condition was assessed for the whole herd at 4.7 on the 18th May (see below).



May Snapshot

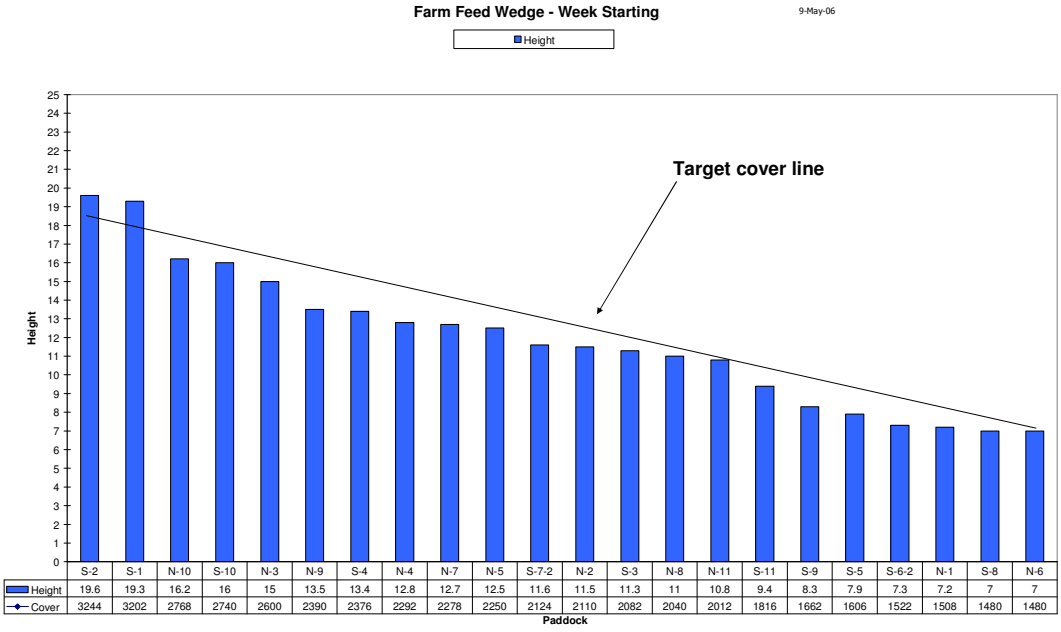
Drying off will be determined by:

- Cow condition and calving date
- Pasture growth and average farm cover
- Supplement on hand

The Body Condition Score Graph above shows that 50% of our herd is above 4.7 BCS and near the BCS required for calving. This gives us options to milk some cows on later if the feed situation dictates.

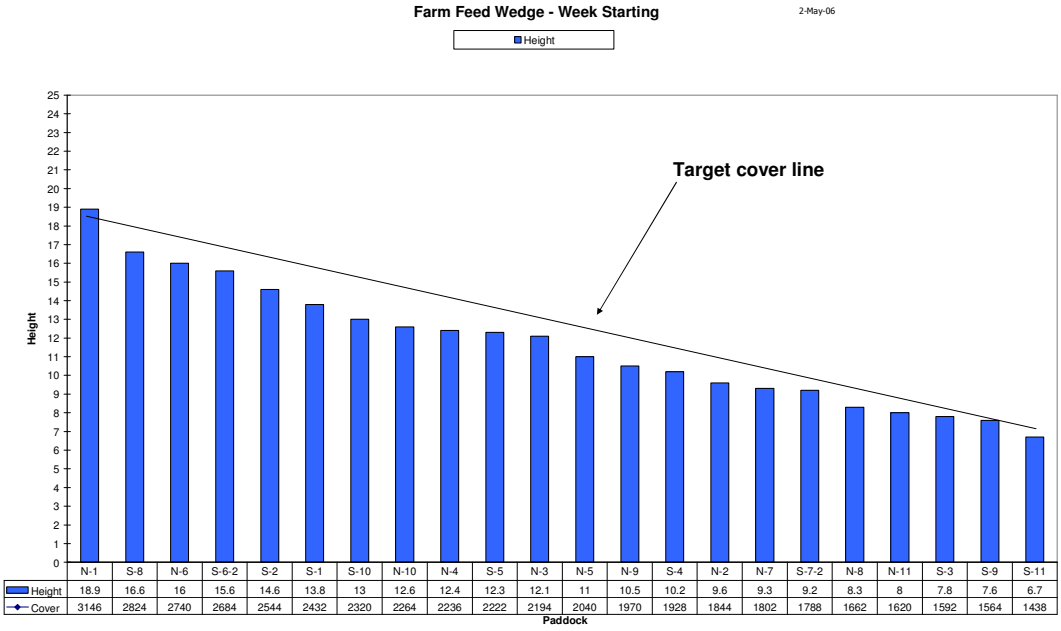
Our current situation is farm cover of 2200kgDM/ha, up 40kgDM/ha on the previous week. Growth this past week was 47, just below our target of 49kgDM/ha/day.

Feed Wedge on Tuesday 9th May



	S-2	S-1	N-10	S-10	N-3	N-9	S-4	N-4	N-7	N-5	S-7-2	N-2	S-3	N-8	N-11	S-11	S-9	S-5	S-6-2	N-1	S-8	N-6
Height	19.6	19.3	16.2	16	15	13.5	13.4	12.8	12.7	12.5	11.6	11.5	11.3	11	10.8	9.4	8.3	7.9	7.3	7.2	7	7
Cover	3244	3202	2768	2740	2600	2390	2376	2292	2278	2250	2124	2110	2082	2040	2012	1816	1662	1606	1522	1508	1480	1480

Feed Wedge on Tuesday 2nd May



	N-1	S-8	N-6	S-6-2	S-2	S-1	S-10	N-10	N-4	S-5	N-3	N-5	N-9	S-4	N-2	N-7	S-7-2	N-8	N-11	S-3	S-9	S-11
Height	18.9	16.6	16	15.6	14.6	13.8	13	12.6	12.4	12.3	12.1	11	10.5	10.2	9.6	9.3	9.2	8.3	8	7.8	7.6	6.7
Cover	3146	2824	2740	2684	2544	2432	2320	2264	2236	2222	2194	2040	1970	1928	1844	1802	1788	1662	1620	1592	1564	1438

The plan for the balance of May is to:

Milk 530 cows to the 15th May. We will then reduce numbers to 350 cows and plan to milk these till the 31st May. Cows will stay on farm while they are dried off and then will be shifted to the grazing blocks.

If growth exceeds our feed budget, we may milk for an extra day or two to utilise this feed, **HOWEVER WE WILL NOT COMPRIMISE OUR COVER TARGET BELOW.**

Yours

Our cover target for: 1st June is 2050kgDM/ha
1st Aug is 2500kgDM/ha
30th September is 2250kgDM/ha

Can we manage feed quality at 2500kgDM/ha cover at calving?

Last year in April our pasture cover and pasture quality was:

	7th Aug 05	14th Aug 05	21st Aug 05	28th Aug 05
Cover (kgDM/ha)	2578	2575	2313	2235
ME Tests		12.9		13.0
What was yours?				

This data gives us confidence that pasture quality can be sustained in August at 2500kgDM/ha average pasture cover.

Why calve at 2500kgDM/ha?

This level supports our policy of not feeding supplement in the spring. Our view is that supplement during the spring will reduce per cow energy intake, and takes up valuable time, which we would rather devote to pasture management and stock health.

Why target cover at balance date of 2250kgDM/ha, this seem high?

The below table shows the cover you will require at balance date to offer your cows a particular level of feed intake. We are targeting 16kgDM/cow at this time and a 22 day round, therefore require 2250kgDM/ha as the table below shows.

Average Farm Cover required at Balance Date									
Table 1									
1) All cows calved at balance date									
2) Cows graze down to 1500 kgs DM/ha									
3) Rotation length			22	4.5455					
Cow Intake	Stocking rate (cows/ha)								
kg DM/day	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50
13	1858	1893	1929	1965	2001	2036	2072	2108	2144
14	1885	1924	1962	2001	2039	2078	2116	2155	2193
15	1913	1954	1995	2036	2078	2119	2160	2201	2243
16	1940	1984	2028	2072	2116	2160	2204	**2248**	2292
17	1968	2014	2061	2108	2155	2201	2248	2295	2342
18	1995	2045	2094	2144	2193	2243	2292	2342	2391
19	2023	2075	2127	2179	2232	2284	2336	2388	2441
20	2050	2105	2160	2215	2270	2325	2380	2435	2490
Note: cow intake at Balance date will still be 2 kgs DM below peak									

Our wintering plan to achieve these targets is as follows:

We will graze 121 R2yr olds on the milking platform throughout the winter. They will be fed 11kgDM/cow of high quality pasture. Straw is available should we need it. This mob will allow us to maintain a steep shape to our feed wedge and ensure high quality pasture throughout the first round.

340 cows will go to our grazier for approx 9 weeks. We aim to have all cows off this block by the 15th of Aug to reduce grazing costs.

249 cows will go to the Springs Rd lease block for approx 11 weeks. All cows will leave this block by the 30th Aug to reduce grazing costs.

The East Block will be used for strategically in August and September to carry the last of the cows yet to calve.

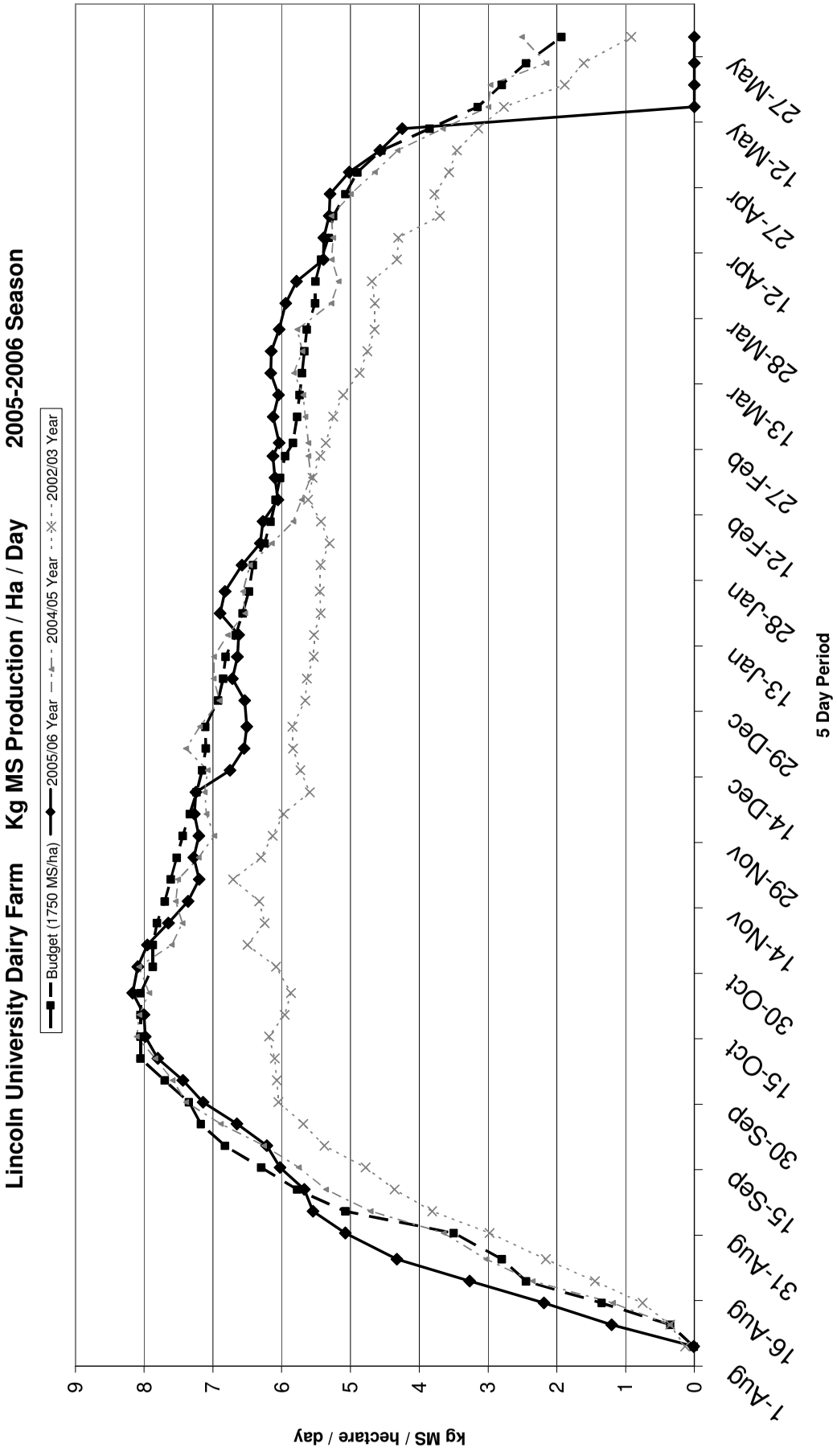
Note: We monitor ME of our winter feed and thinnest cows always go to highest ME.

Keypoints

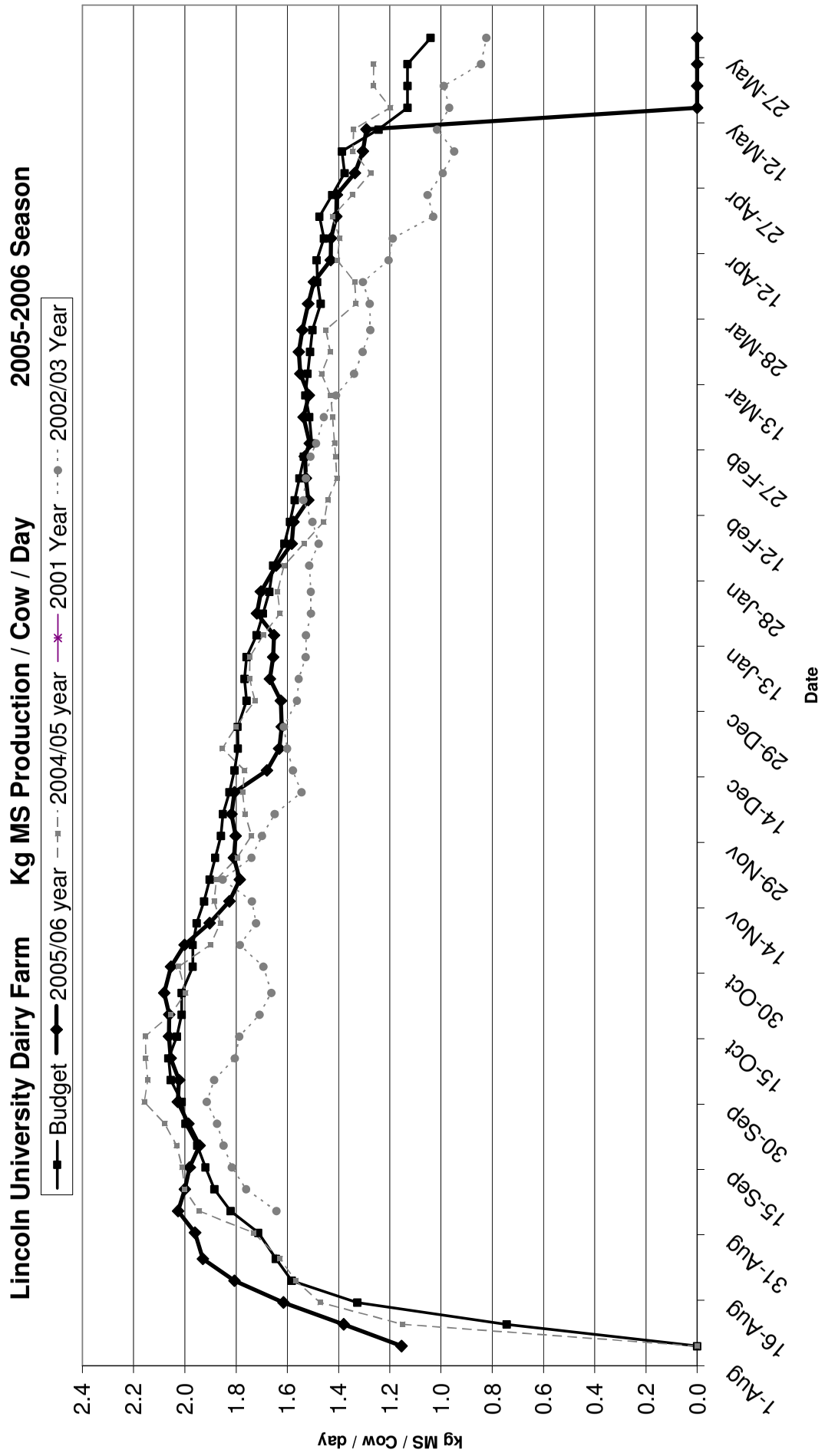
- **Have a wintering plan**
- **Know your cover targets**
- **Maintain the right shaped wedge at home**
- **Have options should growth at home exceed you budget and you need to bring cows home to maintain pasture quality**
- **Mob cows according to need, early calvers and lights through to late calvers and heavies, preferentially those that need it!**

What is your winter plan?

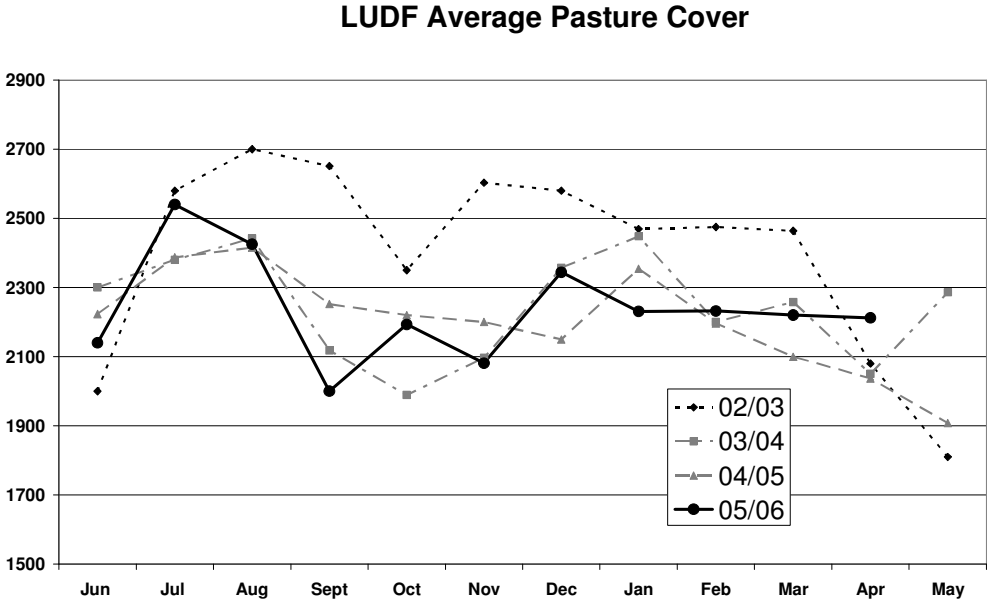
Production Graph 2005-2006 Season (kgMS/ha)



Production Graph 2005-2006 Season (kgMS/cow)

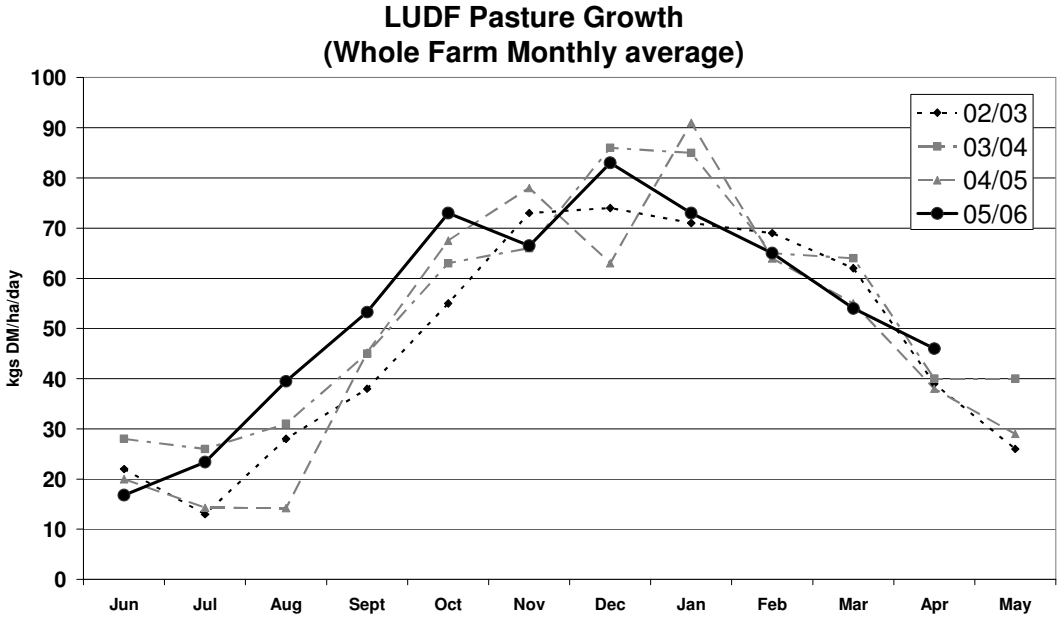


LUDF Pasture Monitoring Report for 2005-06



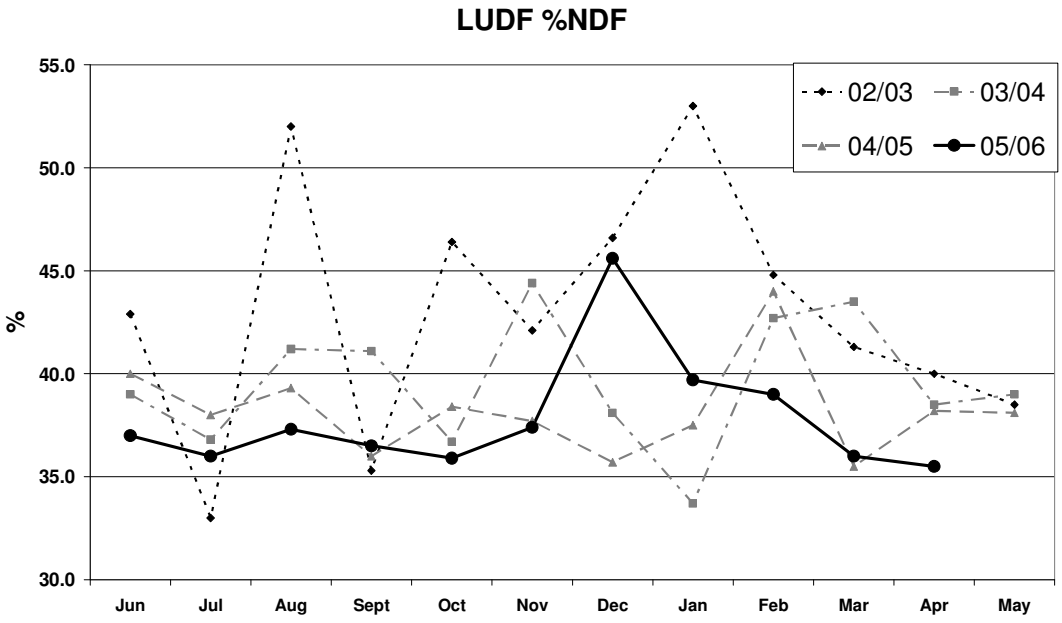
Keypoint

- **Through September to May we have endeavoured to keep cover between 2000kgDM/ha and 2300kgDM/ha.**



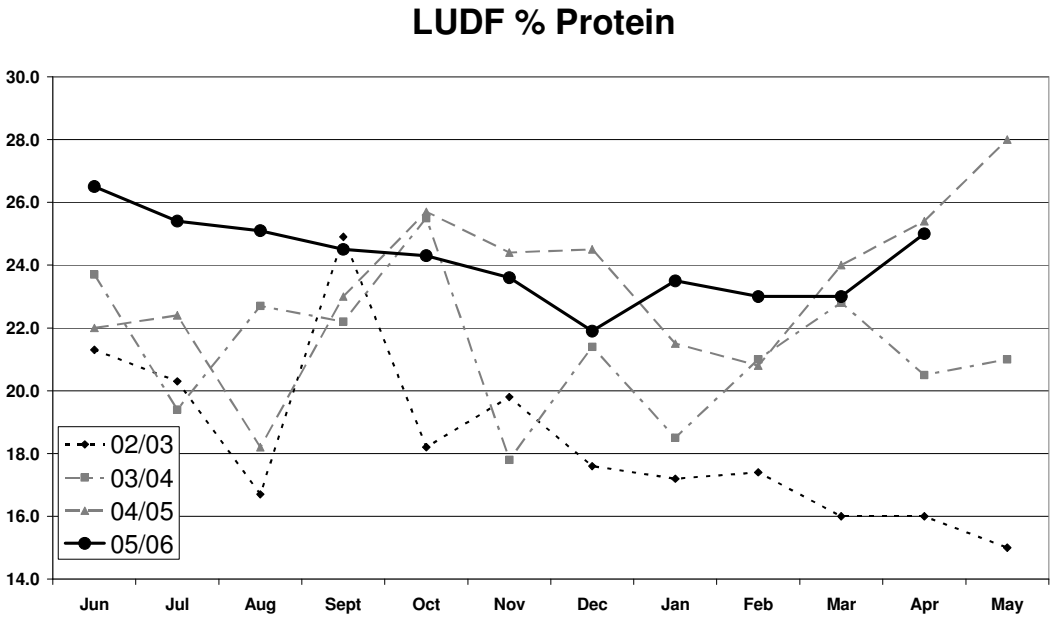
Keypoint

- **This season we grew more grass than previous in the early part of the season, after October, growth was more typical of previous seasons**.



Keypoint

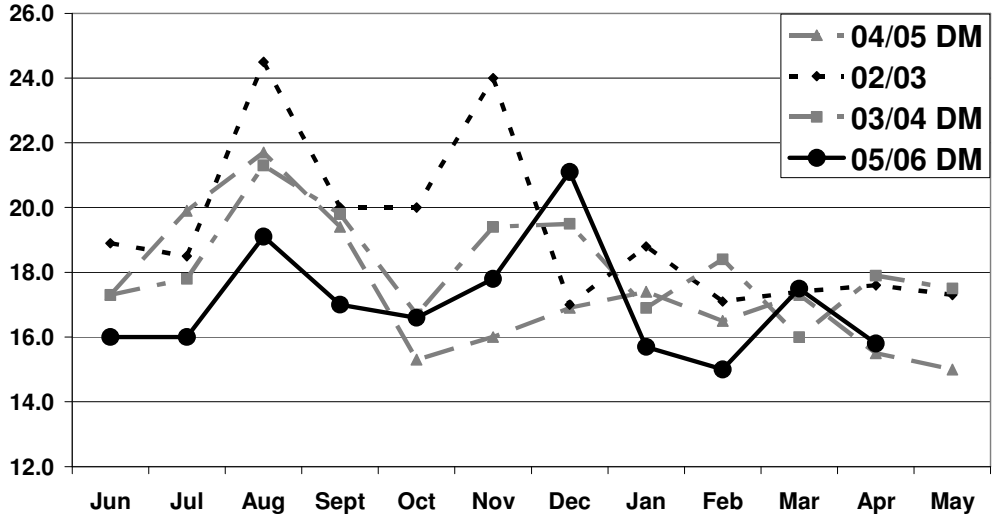
- **Our target is to maintain our Neutral Detergent Fibre levels (NDF) between 35% and 40%. This facilitates a healthy rumen and maximum intake.**



Keypoint

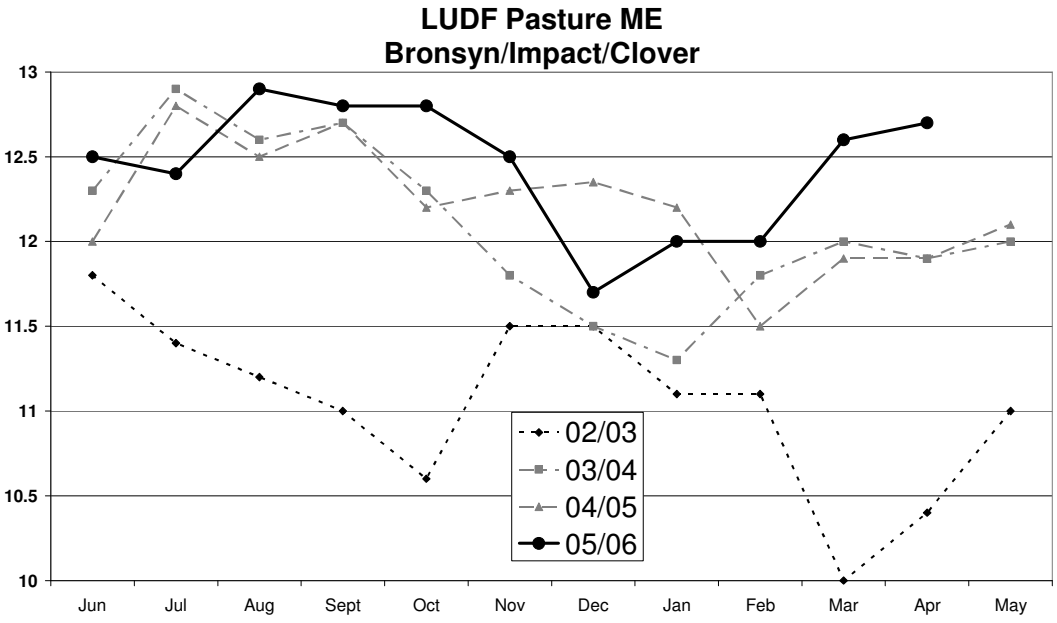
- **Our protein levels have been more consistent**

LUDF % Dry Matter



Keypoint

- **Dry matter % has remained sufficient for good dry matter intakes**



Keypoint

- **ME drop in December was due to a slightly longer round and carring longer covers instead of making silage**

Reproduction Section

There are four keys areas to this section: 1. Mating Management, 2. Nutrition, 3. Disease and 4.Genetics

1. Mating Management

RoMP dexcel planning for pregnancy

Dairy herd repro chequer

You will need:

- Your current Yellow Calving Notebook

1. Your Calving Pattern **Herd Size (as at 1 July)** **2004 675** **2005 672** **yours**

	LUDF 2004	LUDF 2005	Yours	How to find this figure
Your Planned Start of Calving (PSC)	29 Jul	29 Jul		*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	23 Aug	12 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 2004/05	LUDF 2005/06	Yours	How to find this figure
Days PS calving to midpoint	**14 days**	25	14		*From yellow calving notebook*
4 week calving rate. % calved by 4 weeks after PS	**70%**	61%	69%		*Cows calved by 4 weeks / Total cows x 100/1 = % calved*
8 week calving rate. % cows calved by 8 weeks after PS	**95%**	88%	91%		*Cows calved by 8 weeks / Total cows x 100/1 = % calved*
Inductions: Number of cows induced	**< 5%**	0%	0%		*Cows induced / Total cows x 100/1 = % induced*

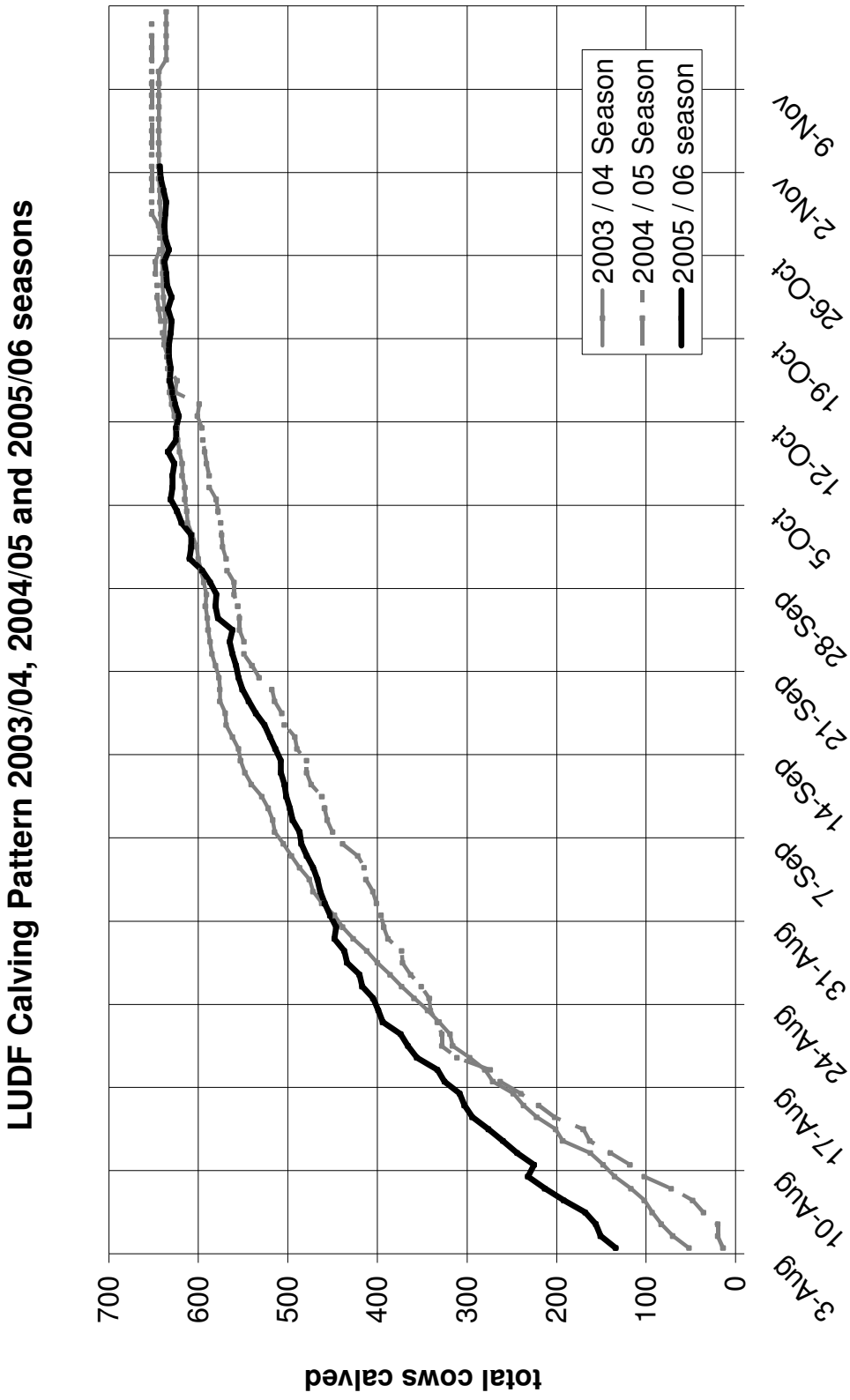
2) Cows likely to be Reproductive Risks. (Target total <15%)
NB: It is possible that some cows will be counted in two or more boxes.

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%**	12%	12.6%		*Late calvingCows / Total cows x 100/1 = % Late*
Assisted calvings, vaginal discharge, twins, retained membranes	**< 5%**	8%	4.7%		*Cows calving problems / Total cows x 100/1 = % problems from calving*
Cows who had metabolic problems (milk fever etc)	**<3%**	0.4%	4.3%		*Cow with problems / Total cows x 100/1 = % metabolic problems*

Keypoints

- **Planned start of calving to mid point was 11 days earlier this season**
- **Still too many cows calving within 30 days of planned start of mating**

LUDF Calving Pattern from 2003-2005



Keypoint

- **We calved more cows earlier this year.**

Why have we chosen the synchrony programme?

A paper by Buekes, P.C. et al at the New Zealand Society of Animal Production Conference in 2005 titled, "Strategies to minimise the effects of zero inductions on profitability in dairy systems", caught our attention.

Using the Dexcel Whole Farm Model and information from LUDF it modelled 4 different reproductive management strategies on overall profit:

1. Inductions
    - Most profitable system at LUDF
    - Most successful system at LUDF for keeping a tight calving spread

2. No-Management (Intervention) Strategy
    - Savings from no inductions did not cover lost per cow production
    - Calving spread disintegrated over time

3. Cull & Replace
    - Replace empties with in calf purchased heifers
    - This strategy reduced profit by $105/ha
    - It did not change calving spread over time

4. Synchronise Heifers
    - Synchronise all heifers to calve 1 week pre PSM
    - This strategy achieve the same result as using inductions (dependant on number of poor climate years)
    - This strategy after 5-8 years will also achieve the same calving spread as inductions

Keypoint

- **Given our nil-induction policy, the best strategy for LUDF is to synchronise our heifers.**

Results from Anoestrus Treatment at LUDF 2005-05

Empty Rates for late calving cows that received CIDR (94 cows)

	Treatment			Overall
Wks Mating	Early	Mid	Late	Result
12 wks	22.0%	19.4%	46.0%	22.8%
15 wks	14.0%	9.6%	23.0%	15.2%

Your results

Early treatment = 17th Oct
Mid treatment = 10th Nov
Late treatment = 19th Dec

Keypoint

- **Don't treat anoestrus cows late, they need time to have at least two cycles**

RoMP dexcel planning for pregnancy

Dairy herd repro chequer

3) Mating Evaluation

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

	2004	2005	Yours		2004	2005	Yours
Mating Start Date:	21 Oct	23 Oct		**Herd Size: (as at PSM)**	652	651	

	Target	LUDF 2004	LUDF 2005	Your herd	How to find this figure
% of cows cycling before planned start of mating	**>70%**	68%	77%		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%**	20% e 4.3% l	7.7% e 6.8% l		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 %**	83%	86.5%		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 %**	98%	98%		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**	84	84		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**	21	21		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**	1:15	1:15		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 %**	35.2%	44.5%		Cows preg by 3 weeks / Total cows x 100/1 = % pregnant by PD
% of herd preg after 6 weeks confirmed by PD	**> 80 %**	52.2%	70.3%		Cows preg by 6 weeks / Total cows x 100/1 = % pregnant by PD
% Cows confirmed as not in calf after 10 weeks mating	**<7%**	27.8%	20%		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 12 weeks mating	**<5%**	20.5%	16%		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

Keypoints

- **More cows cycling before the planned start of mating**
- **Less anoestrus cows requiring treatment**
- **More cows in calf earlier**
- **Less empties**

Was our Return Interval in line with targets?

Livestock Improvement

C/O Finance Department
P O Box 94
Lincoln University 8150

Return Intervals Analysis

Date: 5/05/2006

Start of Mating: 20/10/2005

PTPT Code: BQCY
Herd Code: 6/114

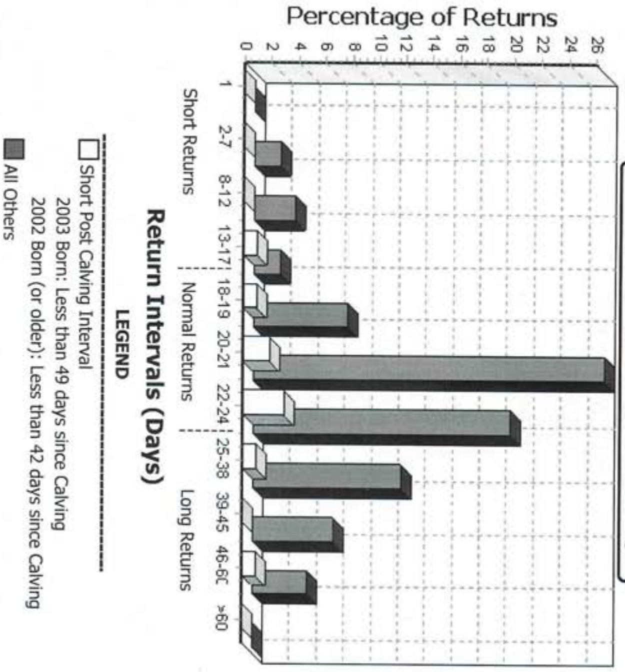
Animals Included:325 **Group:** Includes Historic Animals **Current as at:** 4/05/2006

Return Intervals by Age Group

Days	Pre-mating Heat* to 1st Mating Interval Number	%	1st Mating to 2nd Mating Interval Number	%	Target
All Cows					
1	0	0 %	2	1 %	0%
2-17	0	0 %	38	12 %	13%
18-24	0	0 %	197	61 %	69%
25-38	0	0 %	44	14 %	7%
39-45	0	0 %	22	7 %	8%
>45	0	0 %	22	7 %	3%
Total	0		325		
Born In 2003					
1	0	0 %	0	0 %	0%
2-17	0	0 %	5	7 %	13%
18-24	0	0 %	41	61 %	69%
25-38	0	0 %	7	10 %	7%
39-45	0	0 %	9	13 %	8%
>45	0	0 %	5	7 %	3%
Total	0		67		
Born In 2002					
1	0	0 %	1	1 %	0%
2-17	0	0 %	9	13 %	13%
18-24	0	0 %	43	62 %	69%
25-38	0	0 %	10	14 %	7%
39-45	0	0 %	4	6 %	8%
>45	0	0 %	2	3 %	3%
Total	0		69		

Number Of Matings: **1,114** Average Return Interval: **24**
Number of Heats and Matings: **1,114**
Ratio of 18-24 cycles to 39-45 cycles: **9.0** (Target: Greater than or equal to 9)

Return Intervals to First Matings



* Heats that occured within 24 days prior to the Start of Mating.

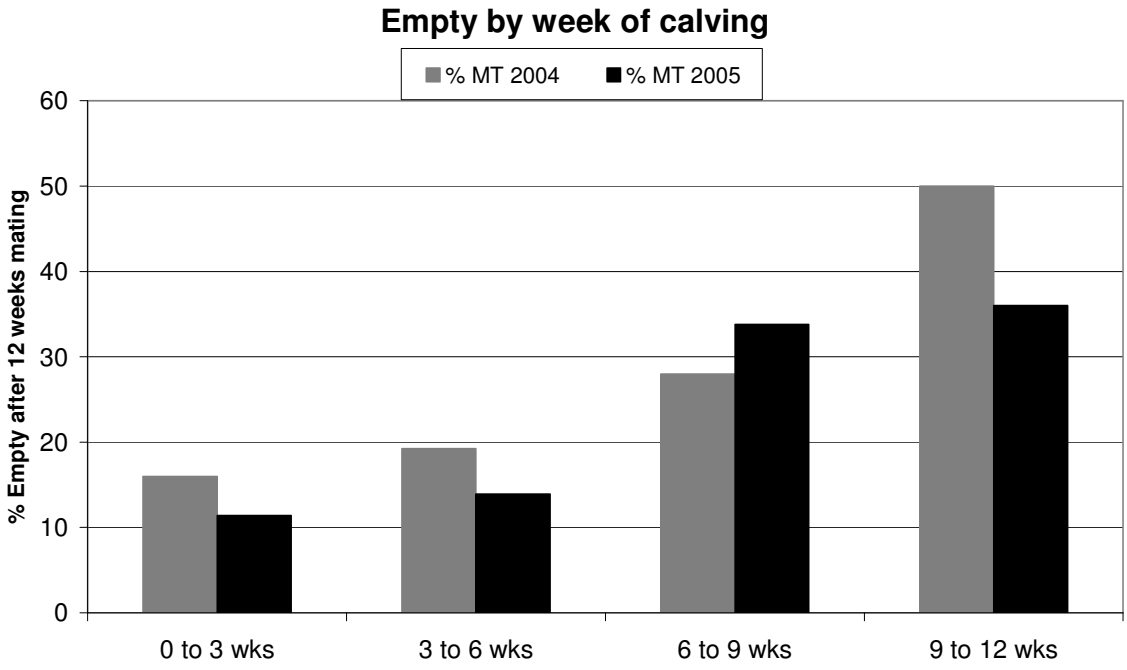
MINDApro

Page: 1 of 1

Keypoint

- **Our Ratio of 18 to 24 day cycles versus 39 to 45 days cycles equals 9. The industry target is greater than or equal to 9. Great heat detection for 10 weeks!**

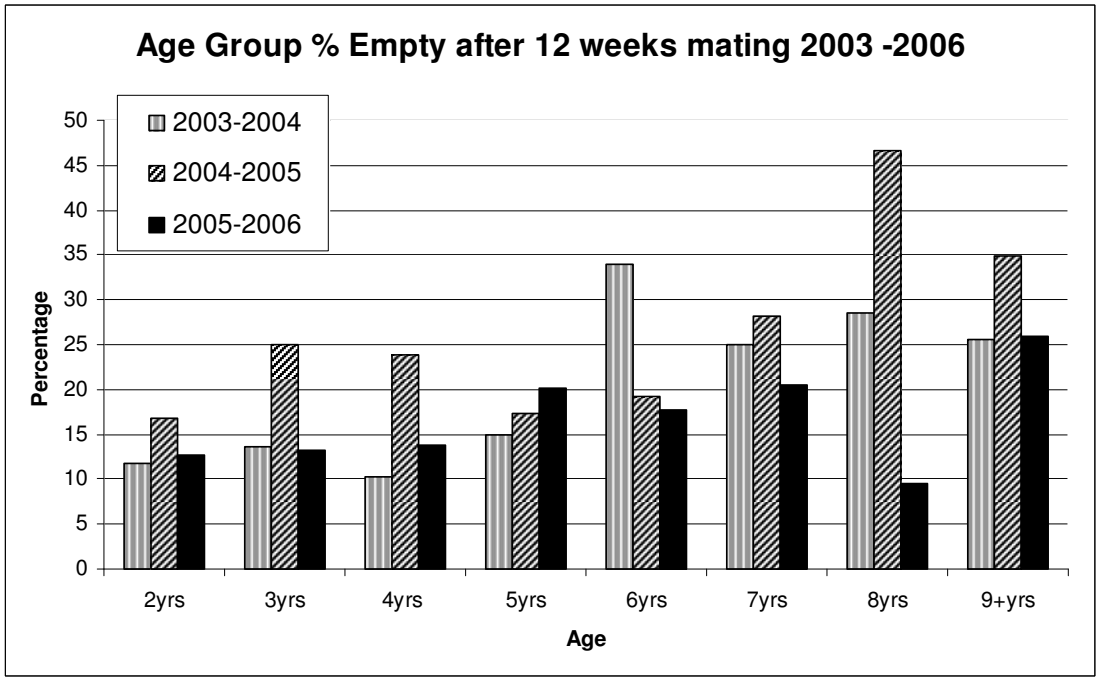
LUDF Empty Rate for each week of Calving



Keypoint

- **The later they calve, the higher the empty rate**

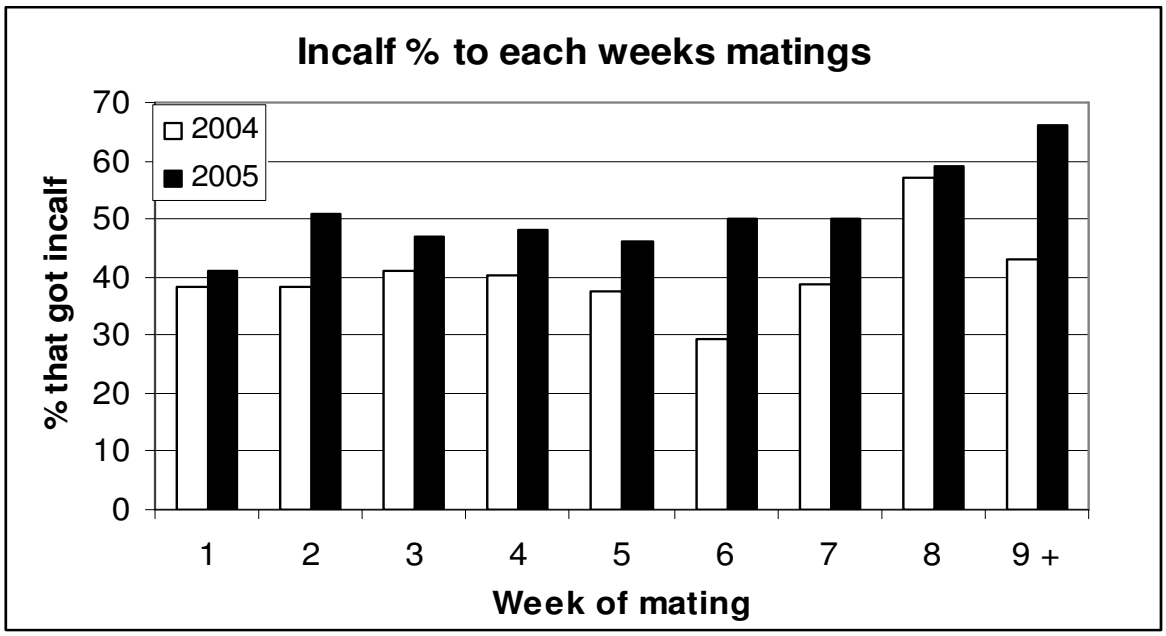
LUDF Empty % vs age group across the last 3 seasons



Keypoint

- **This demonstrates that there is little stress on our younger cows**

LUDF Incalf Rate to each week of mating

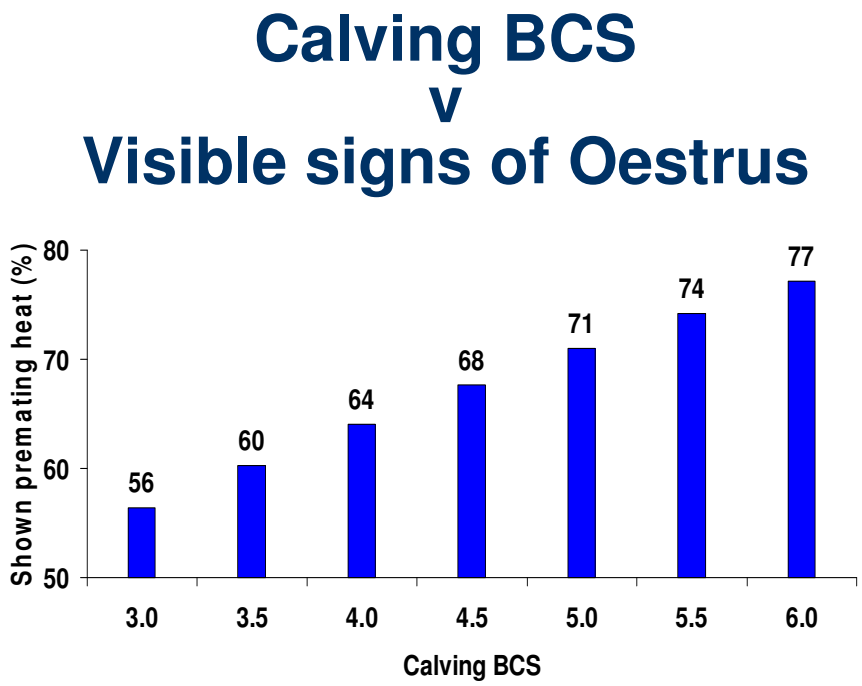


Keypoint

- **We achieved much better Incalf rates to weeks 2 to 7 of mating than we previously have.**

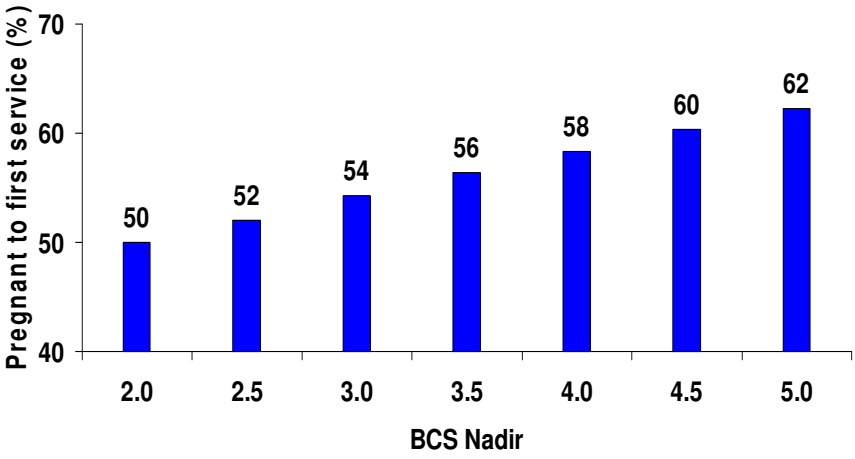
2. Nutrition

The following slides and notes were presented by Eric Kolver, Dexcel Scientist



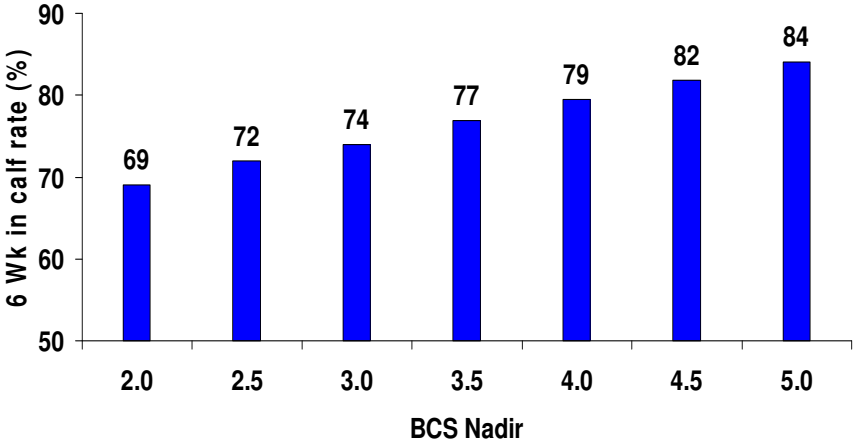
- Cows with higher BCS at calving were more likely to have shown heat before planned start of mating (PSM) e.g. 71% of cows had shown heat at BCS 5 versus 64% at BCS 4.

Nadir BCS
v
Pregnancy to first service



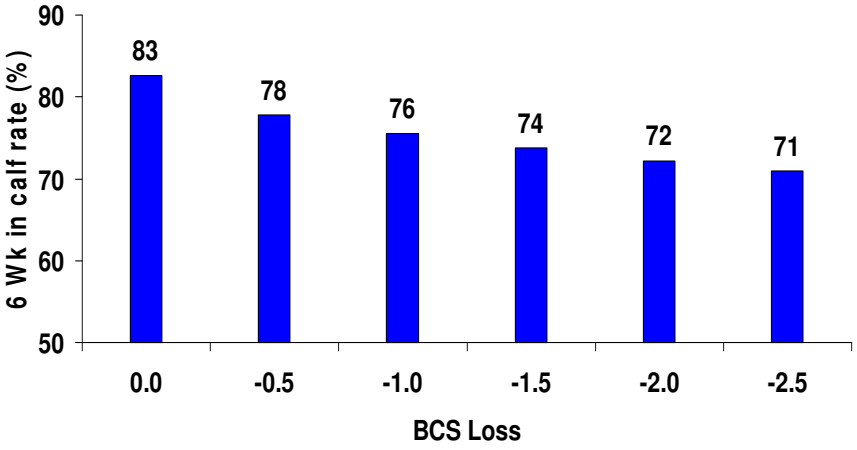
- Cows with higher nadir (point of lowest body condition) BCS in early lactation were more likely to get pregnant to first service e.g. 58% of cows with a nadir BCS of 4 became pregnant to first service versus 54% at nadir BCS 3.

Nadir BCS
v
6 wk in calf rate



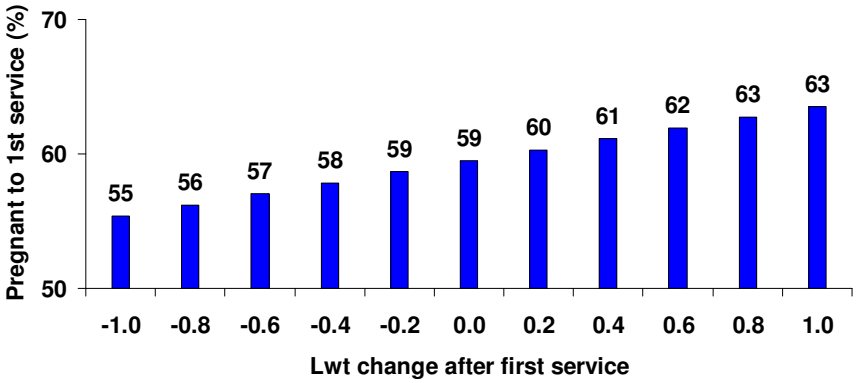
- Cows with higher nadir BCS in early lactation were more likely to have a higher 6 week in calf rate e.g. 79% of cows calved in the first 6 weeks that had a nadir BCS of 4 versus 74% at nadir BCS 3.

BCS loss
v
6 wk in calf rate



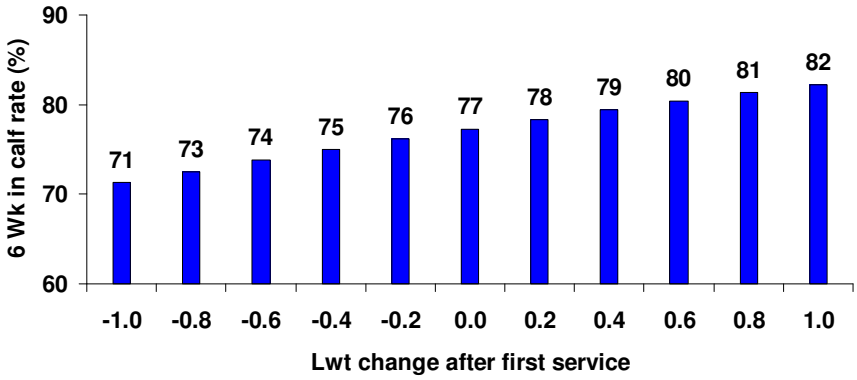
- Cows with that didn't loose much BCS between calving and mating had higher 6 week in calf rates e.g. 78% of cows that lost 0.5 BCS got in calf versus 74% of cows that lost 1.5 BCS.

Lwt change after first service
v
Pregnancy to 1st service



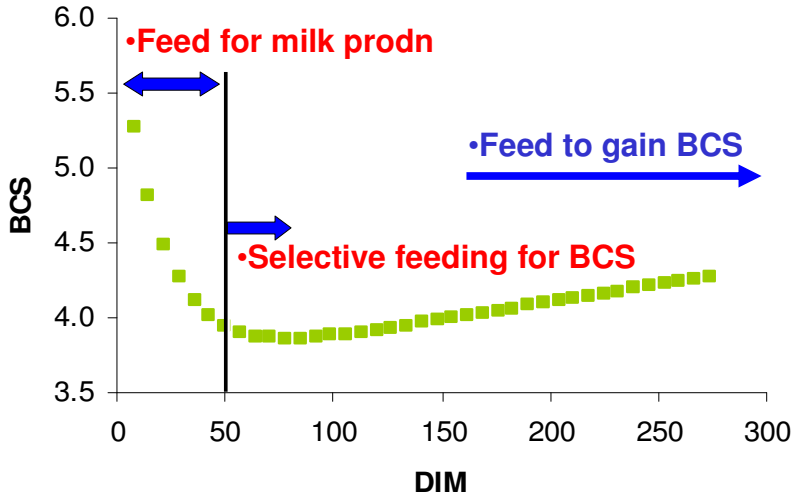
- Cows that gained more weight during the 4 weeks after mating had a higher pregnancy to first service e.g. 62% of cows that gained 0.6 kg LW/day became pregnant versus 57% of cows that lost 0.6 kg/d.

Lwt change after first service v 6 wk in calf rate



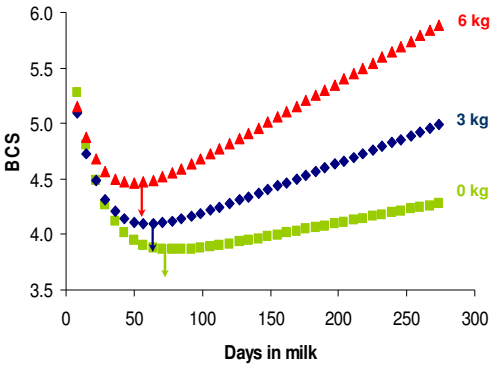
- Cows that gained more weight during the 4 weeks after mating had a higher 6 week in calf rate e.g. 80% of cows that gained 0.6 kg LW/day got in calf versus 74% of cows that lost 0.6 kg/d.

Feeding for BCS (NZ)



- Feeding decisions: Make feeding decisions in the first 4-6 weeks of lactation based on production response and feed budget. A month before PSM selective feeding of at risk cows (< BCS 4) could be made to increase BCS.
- The most useful time for feeding to improve fertility is late lactation and dry period feeding to achieve calving condition targets.

Effect of concentrates on BCS



- No effect on rate of loss
- Reduce period of BCS loss
  140 kg DM = 1 wk
- Increase nadir BCS
  175 kg DM = 0.25 BCS
- Increase BCS gain
  415 kg DM = 0.25 BCS
- Increase BW gain
  10 kg DM/d = 0.2 kg/d

➢ A lot of feed is required to make small changes to the length of time that cows are losing BCS (140 kg DM to reduce this by 1 week), increase nadir BCS (175 kg DM to increase by 0.25 BCS), increase BCS gain after nadir (415 kg DM to get a 0.25 BCS lift by PSM, and increase LW gain (takes 10 kg DM/d to get a 0.2 kg LW/d increase).

Effect of nutrition on fertility

- 175 kg DM reduces BCS loss by 0.25 BCS units
  ⌦ **1% greater in calf at PFS, 42 d and 84 d**
- 150 kg concentrate increases BCS nadir by 0.25 BCS units
  ⌦ **1% greater in calf at PFS, 42 and 84 d**
- 1 kg DM post nadir = 0.02 kg Lwt/cow/d
  ⌦ **2% greater in calf at 42 d: 1% greater in calf at 84 d**

➢ The effects of these changes in BCS end up being fairly small – reducing BCS loss or increasing nadir BCS results in 1% higher in calf rate at pregnancy to first service, and at 6 week and 12 weeks; increasing LW gain results in 2% greater in calf rate at 6 weeks and 1% greater 12 week in calf rate.

Fertility: Dexcel Extended Lactation study

%	NORMAL		EXTENDED	
	NZ	OS	NZ	OS
"At-Risk"	41	41	0	0
Cycling<PSM	76	59	97	89
SR21	93	59	86	85
FSCR	38	19	59	48
PR42	**62**	**26**	**79**	**56**
Empty@ 12 wks	**14**	**48**	**3**	**30**
"Phantoms"	0	11	0	15

- Mating cows a year later reduced the number of at risk cows (RFM etc), increased the proportion cycling at PSM and submission rate, increased the 6 week pregnancy rate and reduced the empty rate at 12 weeks. Number of phantom cows (cows mated that were believed to be pregnant but which return later during mating) was unchanged by mating a year later.

Summary

- **Condition at calving, loss of condition after calving, and rate of LW gain during mating important for fertility**
- **Feed to achieve these BCS targets**
- **Feeding won't overcome poor genetics or management**
- **Nutrition unlikely to be cause of lower conception rates at LUDF**

- Body condition is our best predictor of fertility. Higher BCS at calving and at the nadir (point of lowest BCS) result in more cows cycling, and cows that get pregnant are those that don't lose much BCS between calving and mating and have a high BCS at nadir.
- The effect of feeding on fertility is predominantly through affecting body condition. Feed to achieve targets of BCS 5 at calving and limit loss to 1 BCS unit after calving. Because cows are hardwired to lose BCS during the first 4-6 weeks, it is only after 4-6 weeks after calving that feeding will influence BCS – and it takes a lot of feed to shift BCS with reasonably small effects on fertility. Best bet is to get cows to target calving BCS.
- Feeding won't overcome poor genetics or management.
- Looking at the LUDF cows that consumed 200 MJME/day in early lactation and mating it seems unlikely that nutrition is the cause of the lower conception rates.

3. Disease

LUDF Neospora and Reproduction Study

Contact -Donald Arthur – Selwyn Rakaia Vets – 03 325 4444, SH 1, Dunsandel

The Problem - Loss of pregnancy within the first 6 months

The LUDF herd has had a persistent problem of a high empty rate. This has varied between 15 and 20.5% with further pregnancy losses late in the season or during wintering. Several factors are known to be involved however a particularly disturbing aspect is that the In-calf rate to any insemination averages between 42 and 45%. This is over 10% lower than the industry average. This was despite an on farm Heat Detection Efficiency averaging 95% (industry target 90). In addition to this the number of insemination/conception averaged 2.4 (the industry target is 1.7)

During the 2004 mating season an early pregnancy scan/palpation indicated an in-calf rate of 60% in the cows treated as part of an ovsynch program. A subsequent pregnancy check on these animals over a month later showed that only half of these cows remained in-calf. (In-calf rate now 30%).

A sample of 6 of the cows that had "lost" their pregnancies had bloods taken. An analysis showed that 11 out of the 11 cows who we tested because they had lost a pregnancy had an elevated titre (level) for antibodies to Neospora.

A study in Australia found that Neospora positive cows were 13 times more likely to lose a pregnancy and required and required a significantly greater number of inseminations / pregnancy than Neospora negative cows. (Neospora abortions in dairy cattle: diagnosis, mode of transmission, and control. Veterinary Parasitology 128 (2005) 231-241).

BVD may be a complicating factor. The LUDF herd has some history of BVD, which was considered "typical" for SI herds rather than extreme, but bulk milk antibody tests over recent years have consistently recorded a very low level of BVD antibody, indicating that persistently infected cattle are not present in the herd. (Pers comm. Roger Ellison at Gribbles Alpha Scientific Hamilton)

Method

Phase One – Pregnancy testing to define the prevalence and timing of pregnancy loss

Initial Pregnancy test 8th Dec for cows mated in week 1, then 15th Dec for cows mated in week 2 and then pregnancy test all cows since Mating Start Date (October 20) at 9,12,15 and 18 weeks to determine the 3,6,9,and 12 week in-calf rates, then three further tests at 28-day intervals. The proposed pregnancy test dates are: December 22nd, January 12th, February 2nd, February 23rd, March 23rd, April 20th, and May 18th.

Results

- 30 cows lost pregnancies i.e. 4.6% of the herd. This is very similar to the national average

- Of the 30 pregnancies lost 50% (15 cows) were cows mated in the first 3 weeks, 37% (11 cows) were cows mated between weeks 3 and 6, and 13% (4 cows) were cows mated between weeks 6 and 9.

- Also of the 30 pregnancy losses most 63% occurred within 3 weeks of the cow being confirmed as being pregnant, 23% occurred between 3 and 6 weeks of the cow being confirmed pregnant, and 7% occurred between weeks 6 to 9 and also weeks 9 to 12 after the cow was first confirmed as pregnant.

Summary

Most pregnancies were lost from cows mated in the first three weeks and most pregnancy losses occurred soon after the cow conceived. Most farmers would observe these cows as long returns.

Phase two – Blood sampling and testing for Neospora and BVD

Blood would be taken between March and May 2006. By this time the level of blood sampling required can be reassessed knowing the level of pregnancy loss detected in the herd and so whether the need for whole herd testing is justified. The blood (serum) samples collected will be tested for the presence of Neospora antibodies using the Neospora Elisa test. This would be completed in April or May 2006 and the testing completed by NZ Vet Pathology in Palmerston North.

Results

- 31 of the 31 cows tested were negative for Neospora

- 9 however were positive for BVD. This result is surprising as the LUDF herd has consistently had a bulk milk BVD of less than 10%.

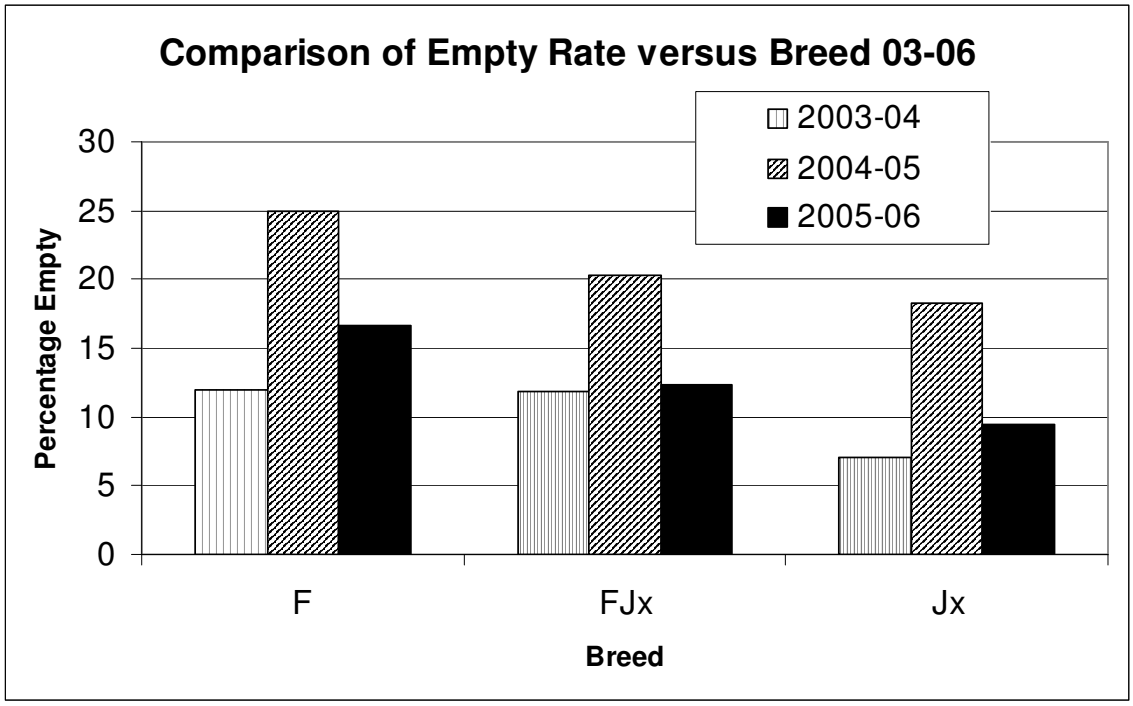
Summary

Both tests indicate that the LUDF herd does not have a major underlying disease issue affecting herd fertility.

Consultation has occurred with
Professor Richard Dewhurst – Chair of Dairying Lincoln University
Dr Norm Williamson – Massey University
Dr Jenny Weston – Massey University
Dr Michael Reichel – Gribbles Australia

4. Genetics

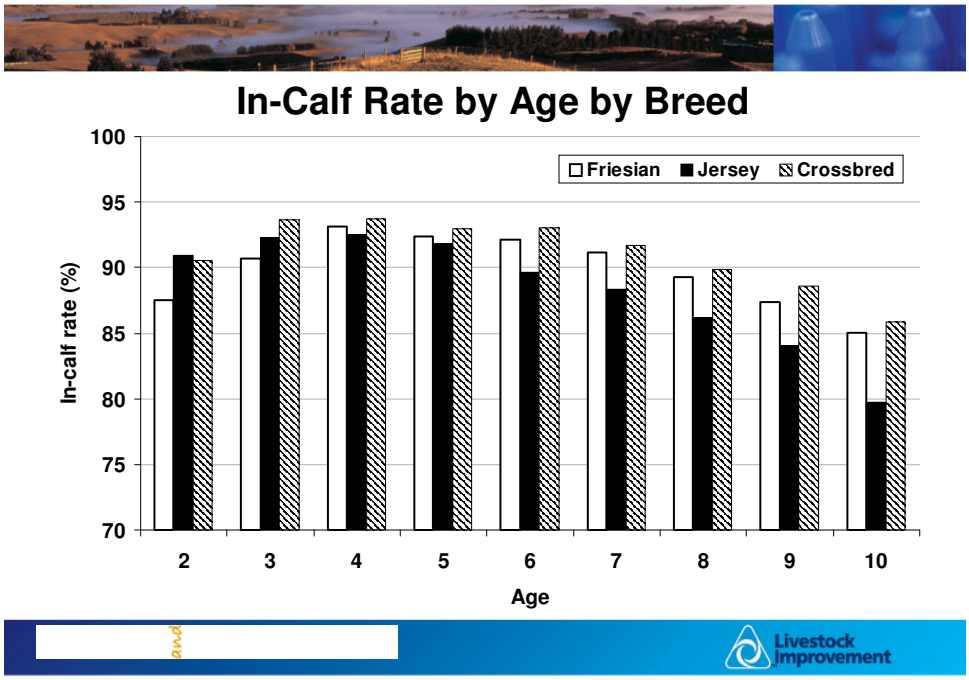
LUDF Breed versus Empty Rate over the last 3 seasons



Keypoint

- **Crossbred animals consistently have the lowest empty rates across the last**

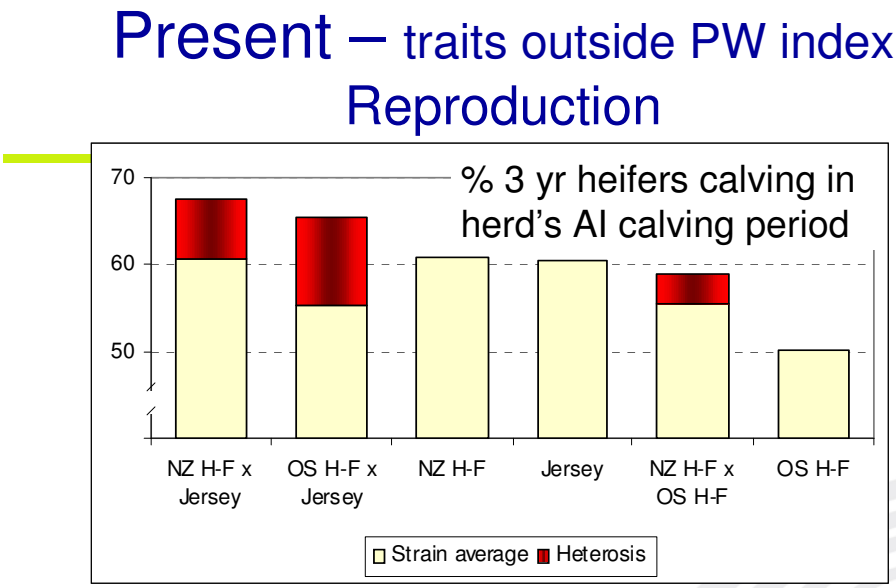
National Average Data from LIC Dataset



Keypoint

- **Crossbreds are more fertile**

Percentage of 3 year olds calving in Herd's AI calving period



Source: Harris *et al* 2000. Heterosis at F_1 level

Keypoint

- **Major positive with any kind of crossbreeding**

Dexcel Recommended Breeding Policy for NZ Farming Systems

Traditionally the industry has grouped systems into high and low input systems. The industry owned National Database ("DairyBase") that is available to all dairy farmers to calculate their performance and benchmark against their peers, has expanded this definition to form 5 groups based on the time of the year that imported feed is used.

System 1	All grass elf contained – no feed is imported (no supplement fed to the herd except supplement harvested off the effective milking area and no grazing off the effective milking area)
System 2	Feed imported, either supplement or grazing off, and fed to dry cows – approx 4 – 14% of total feed imported. (Southland and other areas where all cows have to wintered off – % will vary depending on the amount of feed required for dry cows)
System 3	Feed imported to extend lactation (typically autumn feed) and for dry cows – approx 10-20% of total feed is imported
System 4	Feed imported and used at both ends of lactation and for dry cows – approx 20 -30% of total feed is imported
System 5	Imported feed used all year, throughout lactation and for dry cows – approx 30-40%, but can be up to 55% of total feed imported. Split calving is common in this system

Recommended Breeding Policy for 5 Farm Systems

Systems 1-3

- Target herd BW – NZ herd average or higher
- High breeding values for fertility and body condition score important for easy to manage systems. Select breeding sires for high positives in these traits from sires with high production traits

Systems 4 & 5

- Target herd BW to be in the top 25% of NZ herd BW as high BW cows continue to respond at higher supplement inputs.
    a) Seasonal supply – High breeding values for production traits and fertility. Select breeding sires for high positives in these traits from sires with high production traits
    b) Split calving – High breeding values for production traits. Select for sires with positive fertility BV from those with the highest production trait

LUDF Reproduction Plan going forward

Short term

- All cows calve at Condition Score 5
- Increase heifers numbers and synchronise
- Treat anoestrus cows early

Medium Term

- Cross breed using Premier Sires

Long Term

- Explore the possibilities of improving the LUDF herd Fertility BV from +0.5 to +10 while increasing BW

Appendix

Date (Totals at end of period)	7-Apr-06	14-Apr-06	21-Apr-06	28-Apr-06	30-Apr-06
Farm grazing ha (available to milkers)	161.5	161.5	161.5	161.5	161.5
Dry Cows on farm / East blk / other	0	0	0	0	0
Culls (Includes culls put down & empties)	30	0	0	0	0
Culls total to date	55	55	55	55	55
Deaths (Includes cows put down)	0	0	0	0	0
Deaths total to date	6	6	6	6	6
Calved Cows available (Peak Number 651)	609	609	609	609	609
Treatment or Sick mob total	2	0	1	3	3
lame, mastitis, other, colostrum	4,1,1,0	3,0,0,0	5,0,1,0	9,2,0,0	11,2,0,0
Milking twice a day into vat	616	606	603	598	596
Milking once a day into vat	4	3	5	8	10
Total Cows Milked into vat	620	609	608	606	606
Days in Milk actual cow days/Peak Cows	227	234	240	247	249
MS/cow/day (Actual kg / Cows into vat only)	1.47	1.44	1.43	1.40	1.3
MS/cow to date (total kgs / Peak Cows 650)	388	398	408	416	418
MS/ha/day (total kgs / Total ha used - eg 161.5ha)	5.7	5.4	5.3	5.2	4.8
MS/ha to date (total kg / Total ha used)	1563	1600	1637	1674	1684
Monitor Group Cond'n Score		4.7		4.7	
Monitor Group LW (kgs)		523		510	
Soil Temp Tues 10.00am 10cm	14.4	14.4	14.4	13.0	11.9
Growth Rate (kgDM/ha/day)	53	37	56	45	39
Plate meter height - ave half-cms	12.4	12.0	12.3	12.2	11.8
Ave Pasture Cover (x140 + 500)	2236	2180	2224	2209	2158
Pre Grazing cover (ave for week)	3200	3200	3050	3200	3050
Post Grazing cover (ave for week)	1480	1480	1480	1480	1400
highest pregrazing cover	3300	3300	3150	3400	3100
Area grazed / day (ave for week)	5.00	4.50	4.40	4.50	4.70
Grazing Interval	32	36	37	36	34
Pasture ME (pre grazing sample)	12.8		12.8		
Pasture % Protein	24.5		24.0		
Pasture % DM	16.6		16.5		
Pasture % NDF	37.5		36.0		
Supplements Type	Grass silage	Grass silage	Grass silage	Grass silage	Grass silage
Supplements fed kg DM/cow/day in pdk	5.6	5.1	6.0	4.6	3.4
Supplements fed to date kg per cow (650 peak)	497	532	574	603	610
Supplements Made Kg DM / ha cummulative	1484	1484	1484	1484	1484
Units N applied/ha and % of farm	0	20,26%	0	0	0
Kgs/ha N to Date (Perennial Ryegrass Pdks)	184	187	187	187	187
Rainfall (mm)	3.5	1	0.0	42	10
ET Weekly Soil & Science readings (mm)	19.3	20 est	18 est	7.9	7.9
days irrigated each week	1	2	4	2	0
Irrigation mm applied per week	6	12	24	12	0
Stock Water Consumed litres / cow / day	52	61	60	45	20