

# LUDF May 2005 Focus day

## What we said contributed to the high MT% on LUDF at May 04 Focus day

1. Calving spread
2. Large proportion of non-cyclers
3. Poor conception rates throughout, but especially during second round of AB
4. Poor pregnancy rates by a group of 2000 born purchased heifers
5. Poor pregnancy rates of older cows
6. Poor pregnancy rates of Friesian cows
7. Possibility that feed before and during mating had worsened the problem.

## Did these change this year?

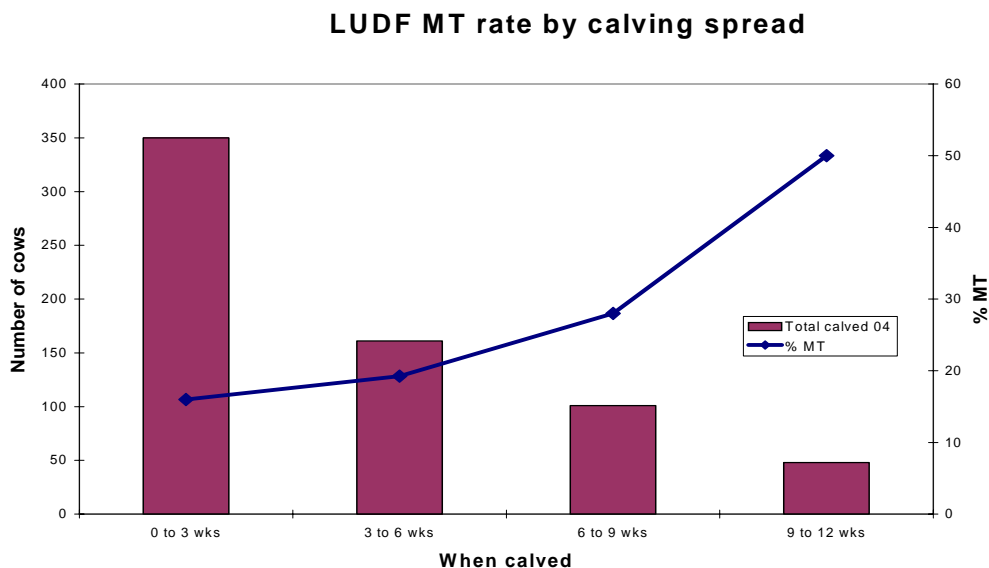
**Calving spread.** (see Repro Chequer). Slower start but ahead by 8 weeks and 30% less calved in the month before PSM.

Later calvers were less likely to be cycling coming up to the PSM (Table 5) and had greater empty rates compared to earlier calvers.

**Table 5.** Calving pattern on cycling rate 2003

Calved	Number	Cycling (%)	Calve-Conc. (d)	% Empty
0-4 weeks	387	77	100	8.3
5-8 weeks	182	52	78	14.3
9+ weeks	58	2	64	24.1

**Fig 1. 2004 Season**



**Proportion of Non-cyclers** (see Repro Chequer).

Still not to target but 33% less than last year. This year treated with Ovsynch Program.

**Poor Conception Rates**

Even worse than last year.

Week	New Inseminations	Repeat by Week	TOTAL COWS MATED	CONFIRMED PREGNANT	Accumulated	Pregnancy %	Empty %	Pregnancy Rate
1	148		148	57	57	8.80%		38.51%
2	240	14	254	97	154	23.77%		38.19%
3	153	28	181	74	228	35.19%		40.88%
4	33	71	104	42	270	41.67%		40.38%
5	9	71	80	30	300	46.30%		37.50%
6	67	62	129	38	338	52.16%		29.46%
7		70	70	27	365	56.33%		38.57%
8		63	63	36	401	61.88%		57.14%
9		95	95	38	439	67.75%		40.00%
10		64	64	29	468	72.22%		45.31%
11		48	48	20	488	75.31%		41.67%
12		60	60	27	515	79.48%	20.52%	45.00%

**Table 4. Conception rates in anoestrous-treated versus cycling cows**

**LUDF**

Group	2003 1 <sup>st</sup> AI	2004 1 <sup>st</sup> AI
<b>Non-Cyclers</b>	30	<b>23</b>
<b>Cyclers</b>	48	<b>47</b>
<b>Herd</b>	41	<b>39.2</b>

5 from 6 cows blood tested (who were in-calf at first PD but not at second) for Neurospora were found to be positive. A full testing program is being considered to determine full impact of this.

The major difference is in the Non-cyclers.

In 2003 these were treated with a Cue-Mate Re-synchrony Programme

In 2004 the non-cyclers were treated with the Ovsynch Programme which is much simpler and is a fixed time insemination. Any cows which cycle before this date are mated.

Results of Ovsynch - 23% in-calf to 1<sup>st</sup> insemination

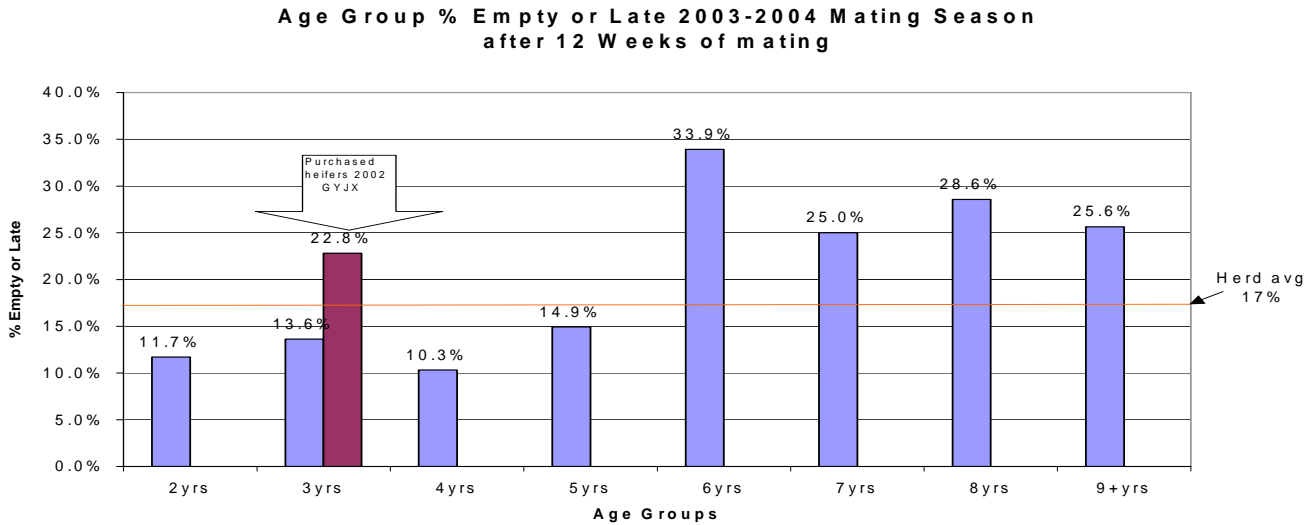
- 25 % had short returns which may not be a normal cycle
- 27% had a normal return cycle
- 25% appeared to remain anoestrus. Dr Jock Macmillan does not believe that Ovsynch is adequate for anoestrus cows.

**Purchased 2000 born heifers.** No longer a problem. (see next page)

**Poor pregnancy rates in older cows.** Improved and still confined to the same group of cows who are now a year older. (see next page)

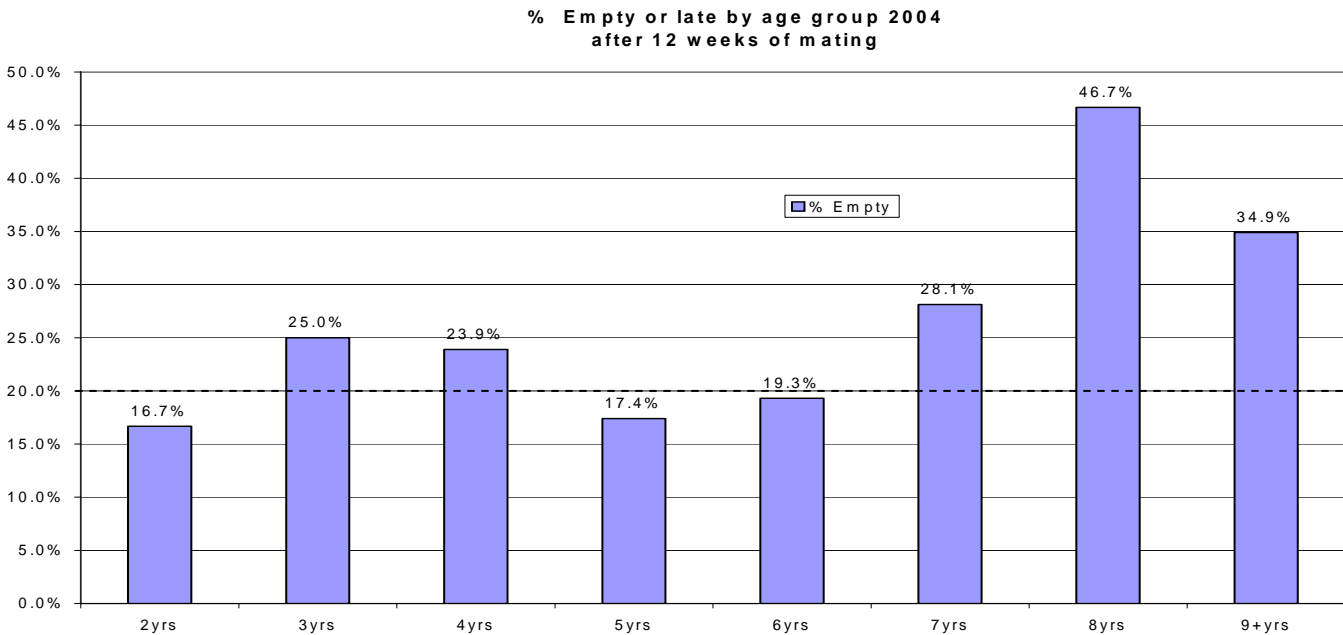
## Comparison of MT% by age for two seasons

2003 – 2004 (Treated anoestrus cows with Cue-Mate re-synchrony)



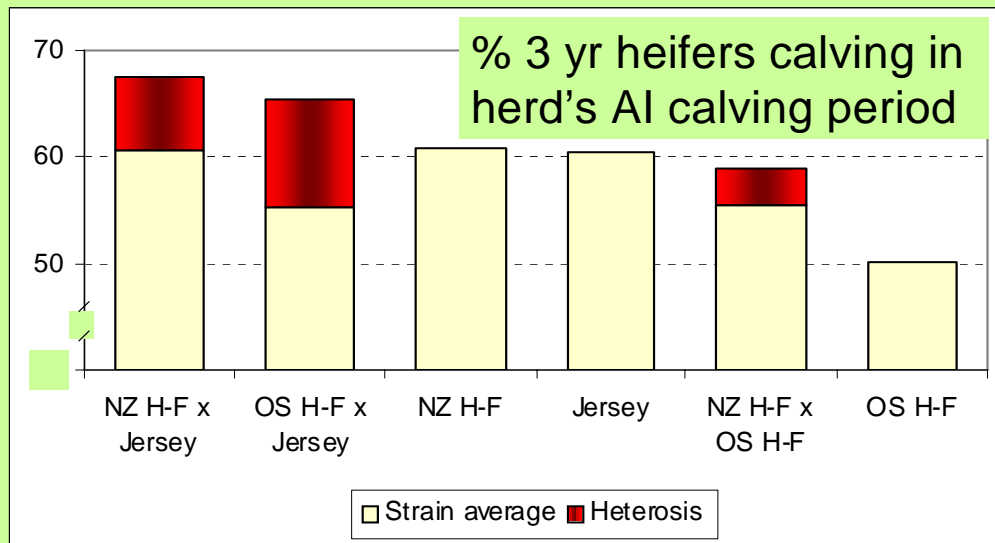
## 2004 –2005 (Used OVSynch Program on cows with no observed cycles pre-mating)

Conclusions



- 1) Older cows seem to be a group with higher MT% which will move out of the herd
- 2) No longer any impact of difficult calving in 2002 in the group who are now 4yrs old.

# Present – traits outside PW index Reproduction



Source: Harris *et al* 2000. Heterosis at F<sub>1</sub> level

**Poor pregnancy rates in Friesian portion of the herd.**

**Table 7.** Comparison of MT rate breed (2003)

Breed	No	Age	PSC to Calv (d)	% Cyc	% MT 15 wks mating
F	329	4.4	25.7	61	12
Fx	128	4.1	24.6	62	13
FJ	116	4.6	26.0	66.5	10.5
Jx	55	4.3	22.0	70.4	7

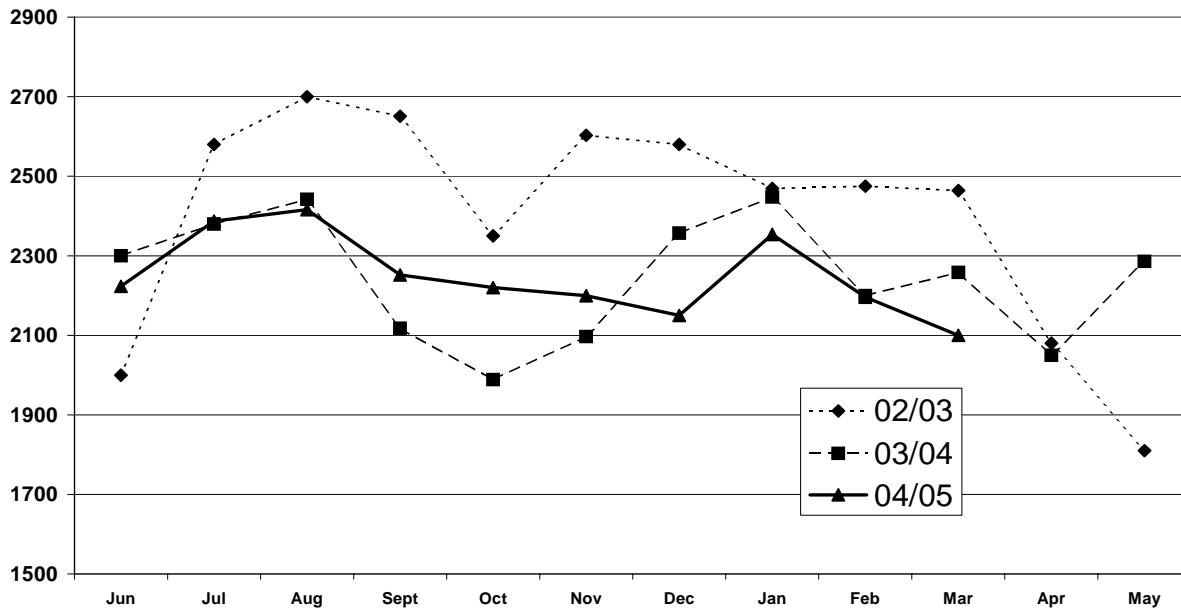
A crossbreeding effect is still there. (2004 after 12 weeks of mating)

Age	2	3	4	5	6	7	8	9+	Herd
F	20.6	31	24.3	20	19.2	33.3	44	33	25%
Fx	16.7	12	30	15.4	9	50	75	50	20.3%
FJ+	6.25	23	14.3	20.5	26.3	0	0	43	18.3%

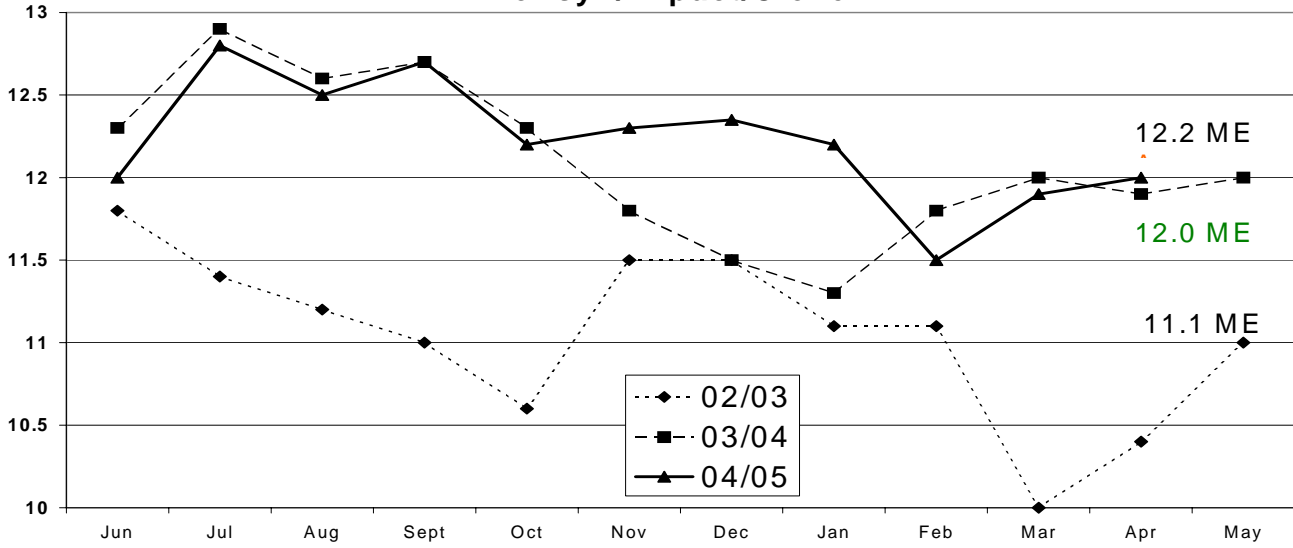
The most fertile cow under 2003/04 and 2004/05 management on LUDF was the cross-bred cow.

**Feeding pre and during mating**

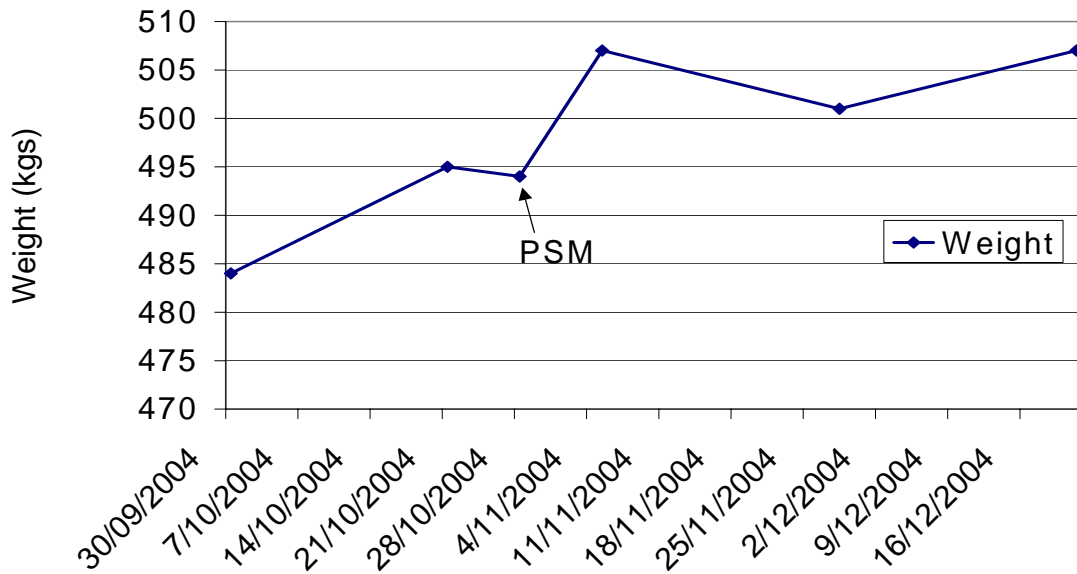
**LUDF Average Pasture Cover**



### LUDF Pasture ME Bronsyn/Impact/Clover



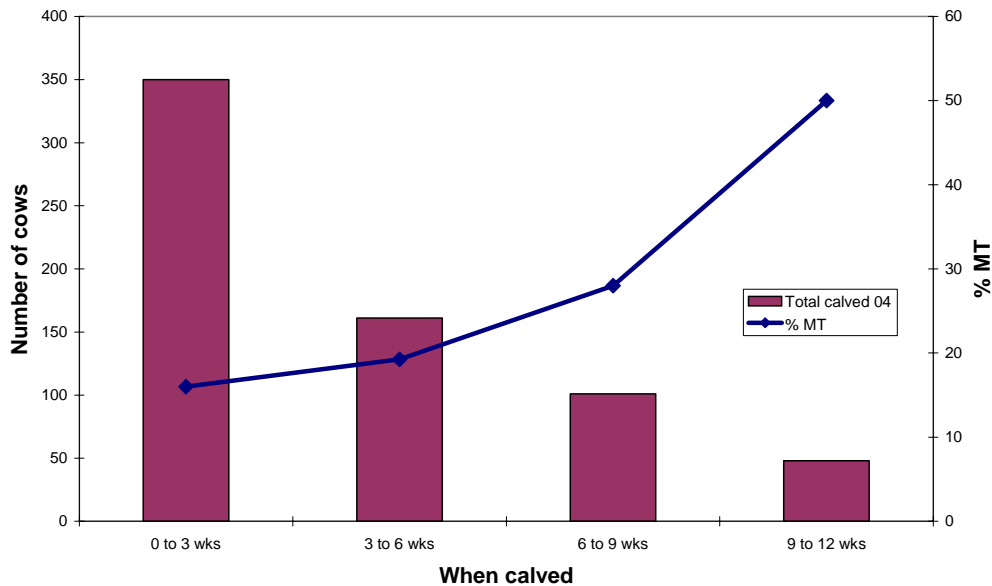
### Monitor Group



Cows continued to put on weight leading up to and throughout mating.

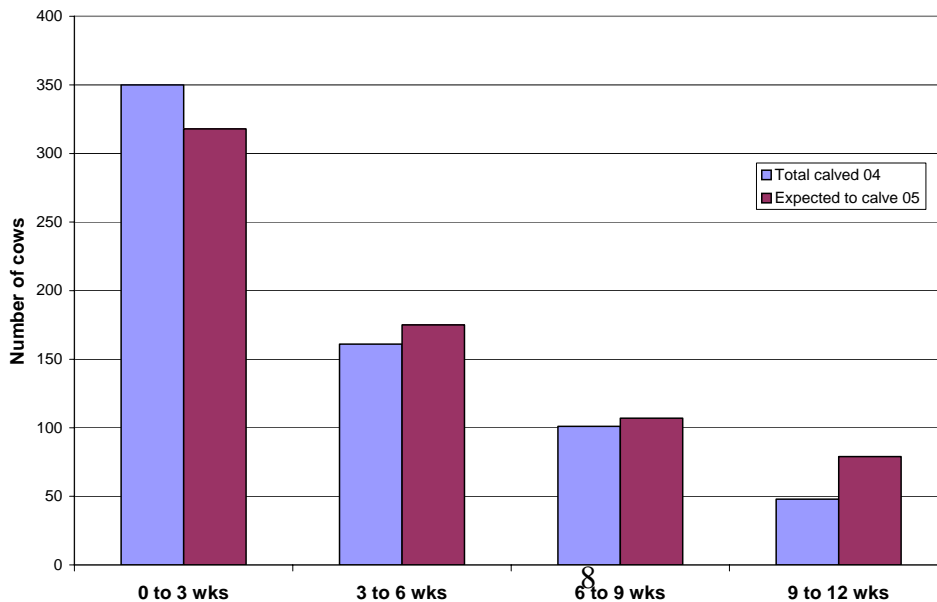
LUDF 2004 calving spread after;  
**Cue-Mate re-synchrony programme for anoestrus cows in milking herd**  
**Bulls run with replacements from same date as PSM of cows**

**LUDF MT rate by calving spread**



LUDF 2005 Expected calving spread after;  
**Ovsynch Programme for non-cycling cows**  
 Heifer replacements synchronised with two PG injections, PSM same as herd and natural mated.

**Comparison of calving rates**





Next years calving spread already looks less favourable than this years which suggests that MT rates may again be high.

## **Summary**

Feed allocation more consistent in both Quality and Quantity.

Higher production /cow & per ha.

Calving spread was tighter

Heifer calving was excellent

Much less anoestrus

Year by year we are reducing the number of our old infertile cows.

Much less lameness and mastitis

**BUT**

Ovsynch did not work for us

We have had Phantom cows again

Worse conception rates and a higher MT rate.

## **LUDF Plan for 2005**

- 1) Heifers - minor resynchrony with PG
  - PSM 7 DAYS BEFORE rest herd.
  - Use Jersey AB for initial days then Jersey bulls (lots)
- 2) Pre-mating heats to be recorded
- 3) Anoestrus programme to be based on re-synchrony with either Q-Mate or CIDR.  
Plan to mate at PSM for herd so that returns occur within first 4 weeks.
- 4) Continue to Cross breed with Jersey Premier Sires
- 5) Any purchased animals must calve in the first 3 weeks of calving.

Major objective is to get more cows in-calf in the first 6 weeks of mating.

## **Targets to achieve in 5 years**

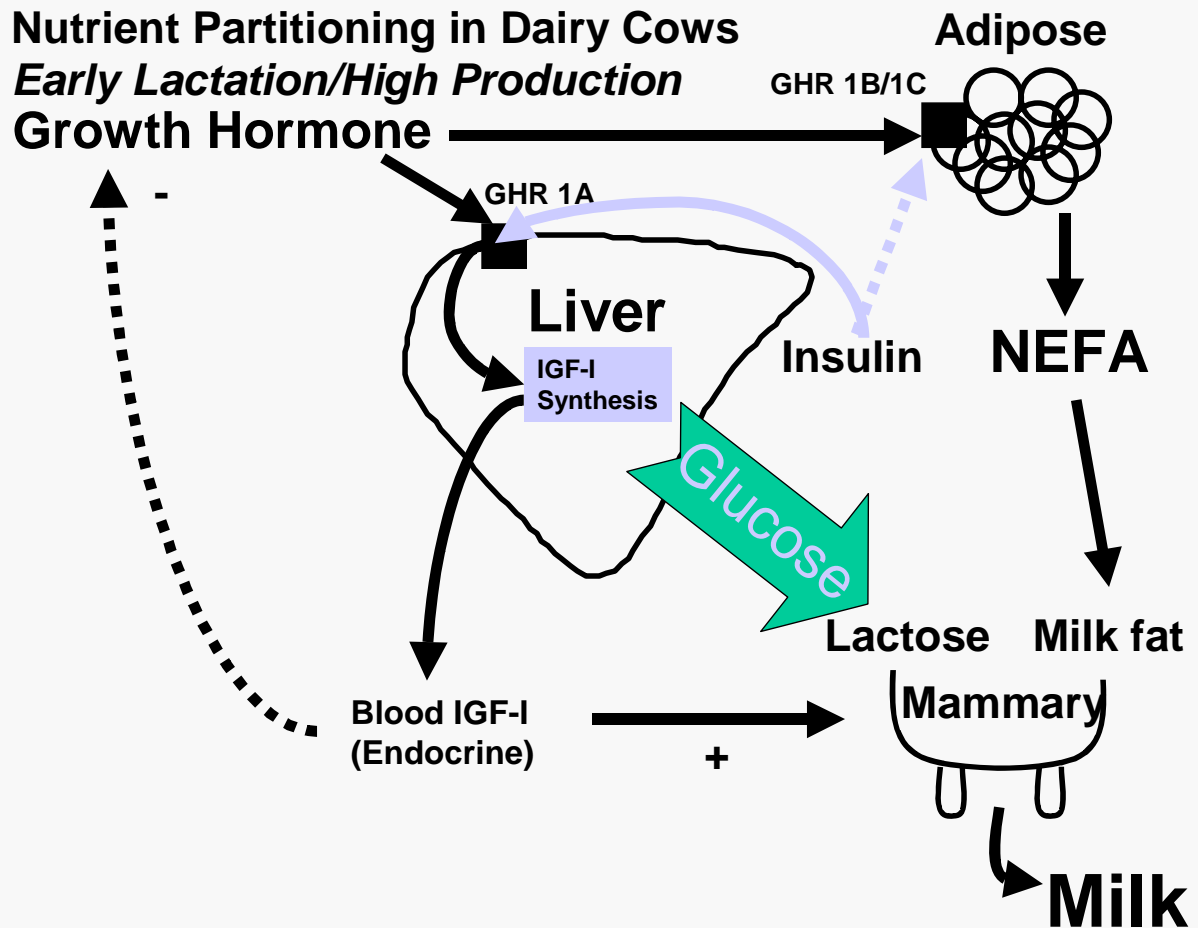
**The LUDF spring calving herd to have less than 10% MT after 10 weeks of mating?**

## “Cornell” Predictions (1984) on Changes Resulting from Selection for Milk Yield

- Insulin concentrations would **decline**
- bST concentrations would **increase**
- IGF concentrations would **decline**

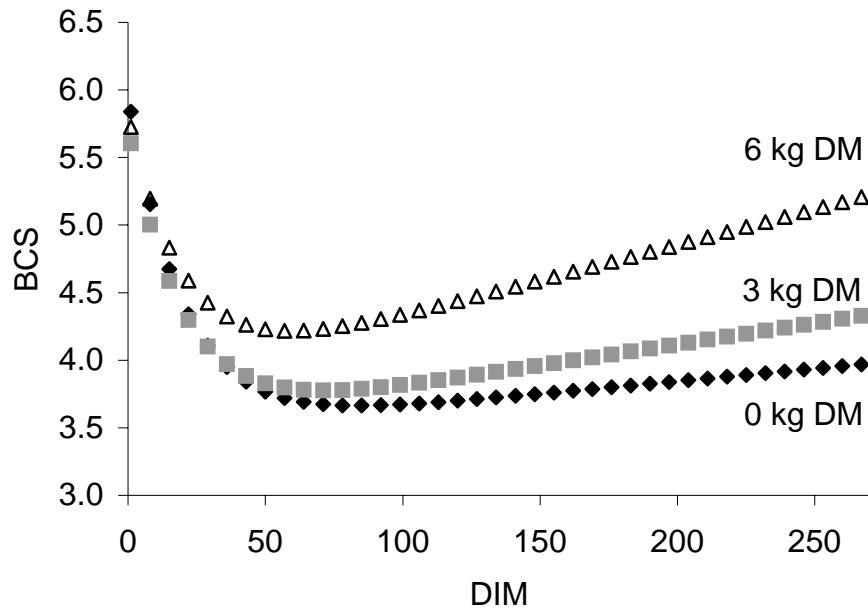
*Unexpected changes were:*

- a) liver receptors for bST were “**down-regulated**”
- b) “**insulin insensitivity**” in early lactation



The trial results below show the impact on NZ cows.

**Figure 4.** BCS change throughout lactation in Holstein-Friesian cows offered 0, 3 or 6 kg DM of concentrates/day. Dexcel Holstein Friesian Strain Comparative Feeding Trial

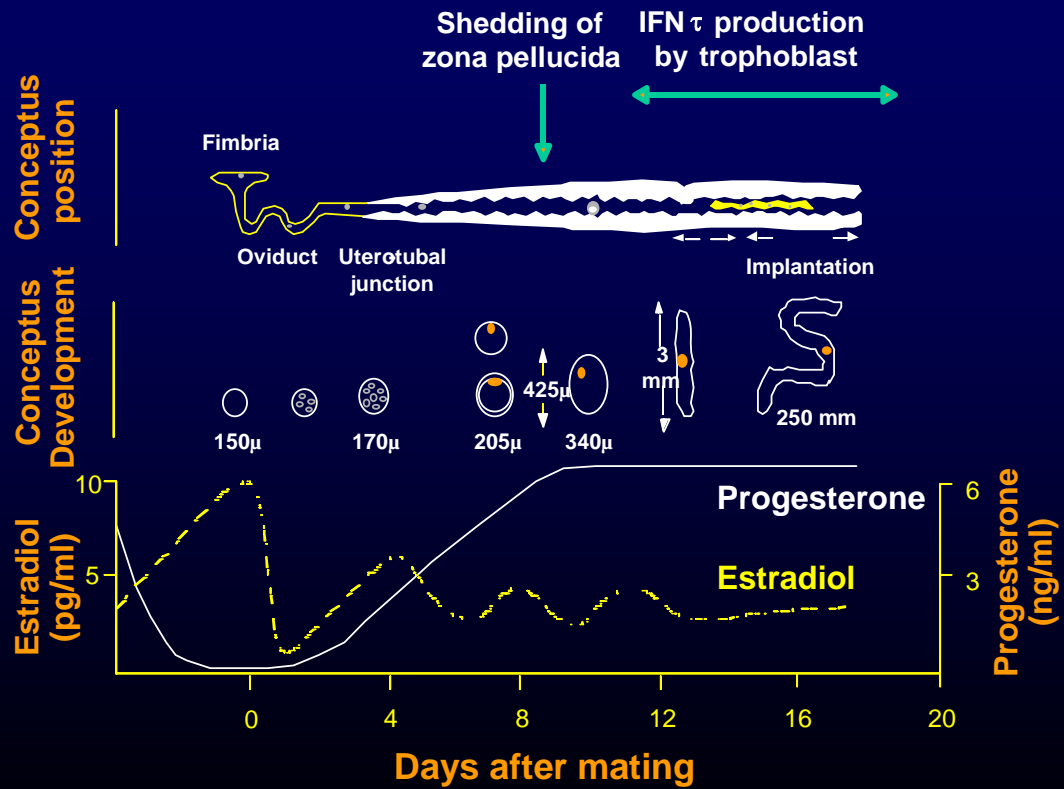


Supplementing cows with 3kg or 6kg DM of concentrates did nothing to the amount of BCS lost during the first six weeks of lactation. However, supplementing cows with energy supplements from six to eight weeks after calving in milk did increase the rate of BCS gain (Roche et al., 2005b) and may therefore improve fertility in cows that would otherwise be underfed.

## How does the “energy crisis” affect fertility ?

- Anoestrus is more prevalent
- Fertilisation rates may only be slightly depressed
- Embryo development progresses to about 17 days
- Embryo death rates from 4 to 5 weeks are about 25%  
(*The Phantom Cow Syndrome*)
- They could be as high as 50% for inseminations made within 50 days of calving

# Bovine Peri-Implantation Events



## Rate of Embryo Loss from Days 27 to 45 in “Pregnant” Holstein Cows

Study	Cows	Test Days	Interval	% Decline
1	195	28 & 42	14	18
2	139	27 & 45	18	21
3	1503	31 & 45	14	13
4	203	28 & 45	7	1
5	360	31 & 45	14	11
6	220	27 & 41	14	10
7	176	31 & 45	14	10
8	167	28 & 39	11	11
<b>Average</b>	<b>2971</b>	<b>27 to 45</b>	<b>11 to 18</b>	<b>13</b>

# repro chequer

You will need:

- Your current Yellow Calving Notebook

## 1. Your Calving Pattern

Herd Size ( as at 1 July) 2003 667 2004 675          years

	LUDF 2003	LUDF 2004	Yours	How to find this figure
Your Planned Start of Calving (PSC)	1 Aug	1 Aug		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	22 Aug	23 Aug		This is the date by which half the herd has calved, i.e. for a 300 cow herd the date on which the 150 <sup>th</sup> cow calved. Include heifers calving. Source Yellow Calving notebook (calving date order)

	Target	LUDF 2003/04	LUDF 2004/05	yours	How to find this figure
Days PS calving to midpoint	<b>14 days</b>	22	23		<u>From yellow calving notebook</u>
4 week calving rate. % calved by 4 weeks after PS	<b>70%</b>	63%	61%		$\frac{\text{Cows calved by 4 weeks}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ calved}$
8 week calving rate. % cows calved by 8 weeks after PS	<b>95%</b>	83%	88%		$\frac{\text{Cows calved by 8 weeks}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ calved}$
Inductions: Number of cows induced	<b>&lt; 5%</b>	0%	0%		$\frac{\text{Cows induced}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ induced}$

## 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	<b>&lt;5 %</b>	0%	0%		$\frac{\text{Cows induced}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ induced}$
Cows calved less than 30 days before mating starts (incl late inductions)	<b>&lt;2%</b>	17%	12%		$\frac{\text{Late calving Cows}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ Late}$
Assisted calvings, vaginal discharge, twins, retained membranes	<b>&lt; 5%</b>	6.7%	8%		$\frac{\text{Cows calving problems}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ problems from calving}$
Cows who had metabolic problems (milk fever etc)	<b>&lt;3%</b>	0.4%	0.4%		$\frac{\text{Cow with problems}}{\text{Total cows}} \times \frac{100}{1} = \% \text{ metabolic problems}$

### 3) Mating Evaluation 2004

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

**2003      2004                  your                          2003      2004      your**  
**Mating Start Date:** 23 Oct \_\_ 21 Oct \_\_\_\_\_ **Herd Size: (as at PSM)** \_\_ 646    \_\_ 652 \_\_\_\_\_

	Target	LUDF 2003	LUDF 2004	Your herd	How to find this figure
% of cows cycling before planned start of mating	>70%	66%	68%		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%	30% e 6.7% l	20% e 4.3% 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 %	84%	83%		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	18	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	1:15	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 %	39.4%	35.2%		$\frac{\text{Cows preg by 3 weeks}}{\text{Total cows}} \times 100 = \% \text{ pregnant by PD}$
% of herd preg after 6 weeks confirmed by PD	> 80 %	61%	52.2%		$\frac{\text{Cows preg by 6 weeks}}{\text{Total cows}} \times 100 = \% \text{ pregnant by PD}$
% Cows confirmed as not in calf after 10 weeks mating	<7%	24%	27.8%		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%	17%	20.5%		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

## Appendix – LUDF All year comparison

**Table 1. Reproductive performance for LUDF in last 4 years**

	<i>Target</i>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Calving Performance</b>					
Cows calved		534	693	658	675
% Induced	<5	10	11	0	0
4-week calving rate (%)	67	59	64	62	61%
8-week calving rate (%)	95	90	92	91	88%
% Calved <40 d before PSM	10	17	14	14	12%
<b>Cycling Rate</b>					
% Cycling before PSM	>70	?	?	66	68%
% Treated as non-cyclers	<20	?	?	30 + 7	20 + 4.3%
<b>Submission Rates (SR)</b>					
Cows to be mated		519	626	635	652
% 2 yr olds	25	42	29	15	26%
21 d SR (%)	90	94	85	84	83%
28 d SR (%)	92	98	92	95	87%
<b>Conception Rates</b>					
1st Service 49 d NRR (%)	61	50	49	44	<40%
<b>Pregnancy Rate (PR)</b>					
4-week PR (%)	57	56	53	51	41.7%
8-week PR (%)	86	79	81	71	62%
% Empty after 12 wks mating	5	20	16	17	20.5%

2001 – very long calving spread and reduced mating period

2002 - lax grazing residuals, difficult calvings in heifers

2003 – lower residuals, high energy intakes, Cue-Mate re-synchrony.

2004 – lower residuals, higher energy intakes, Ovsynch programme.

