SOUTHLAND DEMONSTRATION FARM

Focus Day
105 Wallacetown – Riverton Highway

Information Handout

10th February 2011

For further information visit: www.siddc.org.nz [Sthld Demo Farm]

Ravensdown

LIC

DairyNZ

Contents

Farm Update – compared to last three years:

AUGUST

- 75 cows more calved this season
- Roughly 25% more rain in August
- 5.5 times more supplement fed out
- Double the urea used but lower growth rate

SEPTEMBER

- Production similar but the range was 2.2kgMS/cow down to 1.5kgMS/cow
- 70 more cows in milk
- Growth rate half of average
- 275kgDM less APC even though similar at start
- 55mm more rain
- 3.4 time more supplement
- 12 units of N more but only half the growth

OCTOBER

- 0.2kgMS/cow less
- 35 cows more in milk
- 35% lower growth rate
- Still 300kgDM/ha less APC
- Drier by 43mm
- 4.7times more supplements fed
- 46tDM less than average supplements made

NOVEMBER

- Pretty good month
- Caught up on supplements made

DECEMBER

- 0.2kgMS/cow less
- Reflects in lower per ha
- Again under half the growth rate
- Again 300kgDM lower than average
- On first appearance rainfall looks normal – however had 66mm of the 75 in the last few days of month
- Dry and warm soil temps
- 4.6 times the normal supplements fed
- Normally don't feed out in November or December
- Behind on supplements made ~ 53.7tDM less
- Used ~30units more than average used

JANUARY

- Still behind on production
- Growth 88% of normal
- Cover sitting 170kgDM/ha lower
- Similar rainfall and soil temperature
- Almost 5 times more supplement fed out
- Fed supplements in Nov, Dec and Jan (never done before)
- 55% or normal supplements made ~100tDM in total
- Used 50% more Nitrogen even though grew 2280kg less between Aug-Jan than normal

1. **Season to date production is down 2.5%**
2. **Growth 2280kgDM/ha less between August and January (9.7tDM/ha vs. 7.4tDM/ha)**
3. **Higher than normal N use**
4. **Less supplements made**
5. **More cows milked**
6. **Nearly 600kgDM/ha purchased in vs. Nothing last season or 900kgDM/ha the season before.**

cashmanager RURAL

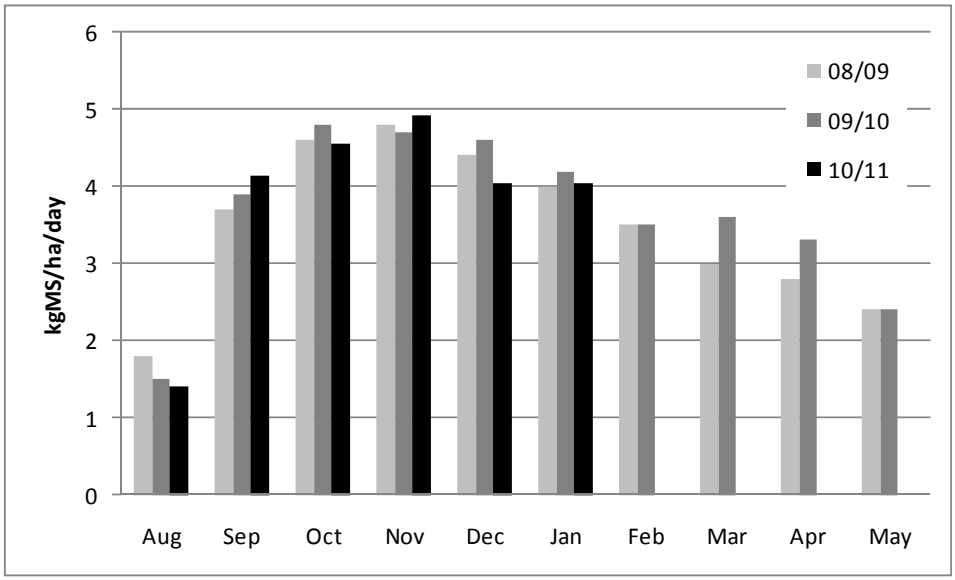
Variance Report
for
Southland Demonstration Farm

Compare Budget Main(2011) With Actual (2011)
DateRange: Jun To Dec

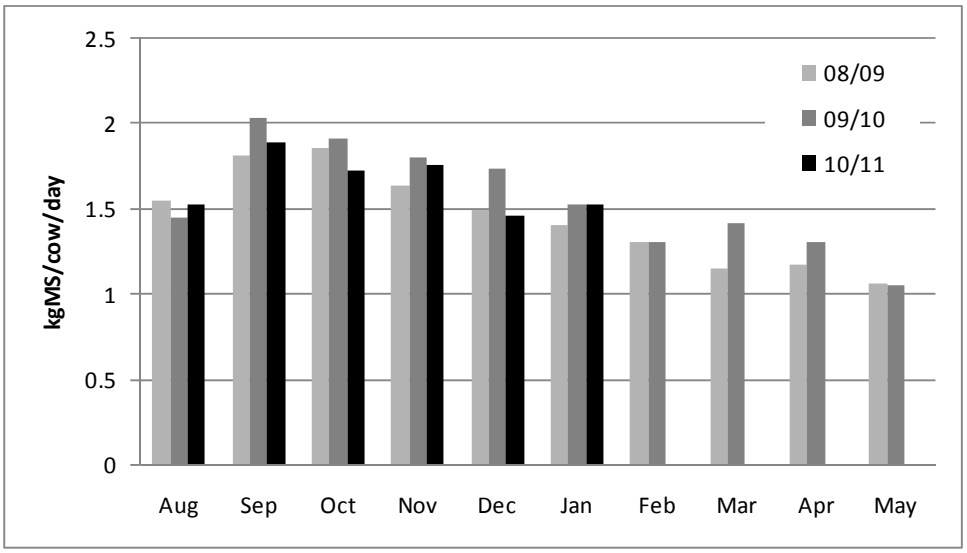
Enterprise: All Enterprise
GST Exclusive

	Budget 2011		Actual 2011		Variance		Budget 2011 as a % of Actual 2011	
	$	Qty	$	Qty	$	Qty	$	Qty
INCOME								
Other Farm Income			4,773		(4,773)		0 %	
Dairy (Sales)	47,815		42,810		5,005		112 %	
Milk Production	966,422		989,028		(22,606)		98 %	
INCOME	1,014,237		1,036,612		(22,374)		98 %	
PURCHASES								
Dairy (Purchases)	(14,000)		(56,000)		42,000		25 %	
PURCHASES	(14,000)		(56,000)		42,000		25 %	
NET INCOME	1,000,237		980,612		19,625		102 %	
FARM EXPENDITURE								
Animal Health	(35,000)		(55,381)		20,381		63 %	
Electricity	(15,750)		(6,083)		(9,667)		259 %	
Feed	(126,174)		(123,706)		(2,468)		102 %	
Fertiliser	(124,000)		(75,589)		(48,411)		164 %	
Freight General	(3,500)		(3,585)		85		98 %	
Wages	(132,415)		(125,774)		(6,641)		105 %	
Farm Working	(16,800)		(7,161)		(9,639)		235 %	
Weed & Pest	(3,000)		(1,163)		(1,837)		258 %	
Repairs & Maint	(42,000)		(53,501)		11,501		79 %	
Vehicle Expenses	(14,000)		(19,592)		5,592		71 %	
Administration	(11,435)		(21,667)		10,232		53 %	
Interest			(1,493)		1,493		0 %	
Rates & Insurance	(14,000)		(16,546)		2,546		85 %	
Breeding Expenses	(29,000)		(40,744)		11,744		71 %	
Cropping			(35,187)		35,187		0 %	
Shed Expenses	(14,000)		(1,633)		(12,367)		857 %	
FARM EXPENDITURE	(581,074)		(588,805)		7,731		99 %	

Average Milk Production per hectare per day

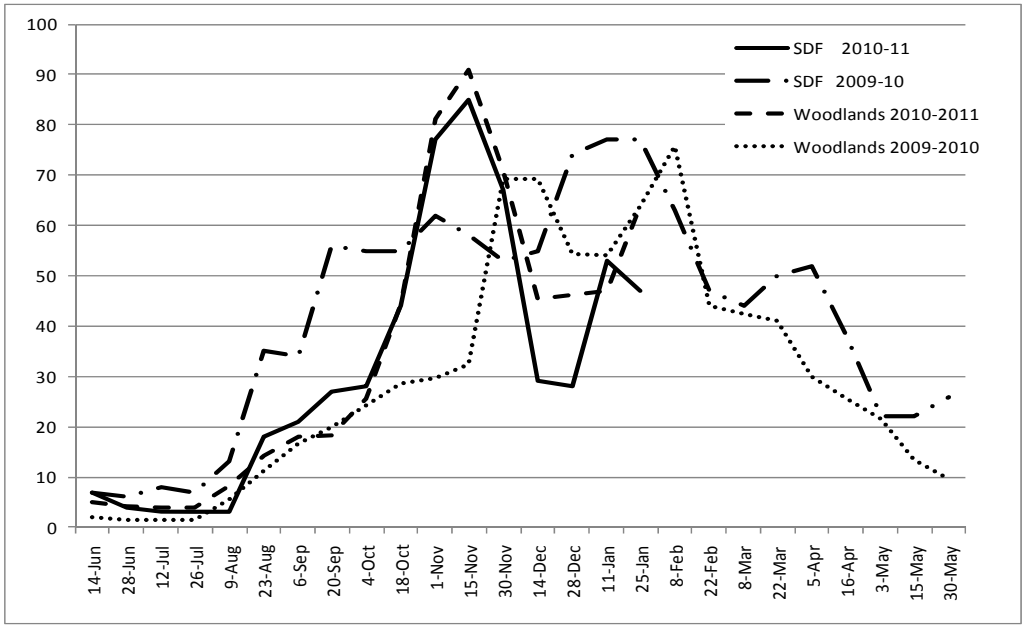


Average Milk Production per cow per day



Growth Rate Comparison – SDF vs AgResearch Woodlands

	Woodlands mean	Woodlands 2009-2010	Woodlands 2010-2011	SDF 2009-10	SDF 2010-11
14-Jun	8	2	5	7	7
28-Jun	5	1	4	6	4
12-Jul	5	1	4	8	3
26-Jul	4	1	4	7	3
9-Aug	6	6	8	13	3
23-Aug	10	11	14	35	18
6-Sep	17	17	18	34	21
20-Sep	28	20	18	56	27
4-Oct	40	24	26	55	28
18-Oct	48	29	44	55	44
1-Nov	62	30	81	62	77
15-Nov	68	33	91	58	85
30-Nov	68	69	71	53	67
14-Dec	63	69	45	55	29
28-Dec	64	54	46	74	28
11-Jan	66	54	47	77	53
25-Jan	64	64	64	77	47
8-Feb	57	76		63	
22-Feb	54	44		47	
8-Mar	51	42		44	
22-Mar	49	41		50	
5-Apr	39	30		52	
16-Apr	30	26		38	
3-May	24	22		22	
15-May	17	14		22	
30-May	12	10		26	
Total	**13408**	**11045**		**15344**	


SDF 2010-11
SDF 2009-10
Woodlands 2010-2011
Woodlands 2009-2010
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70
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14-Jun
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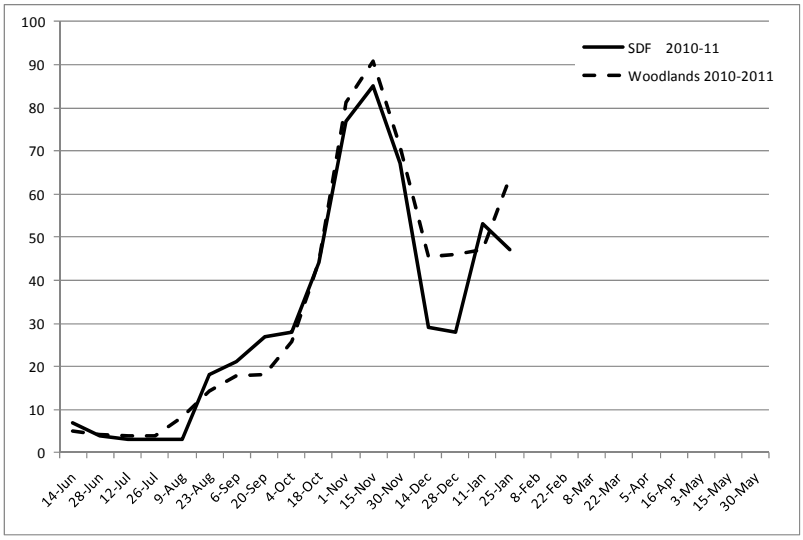
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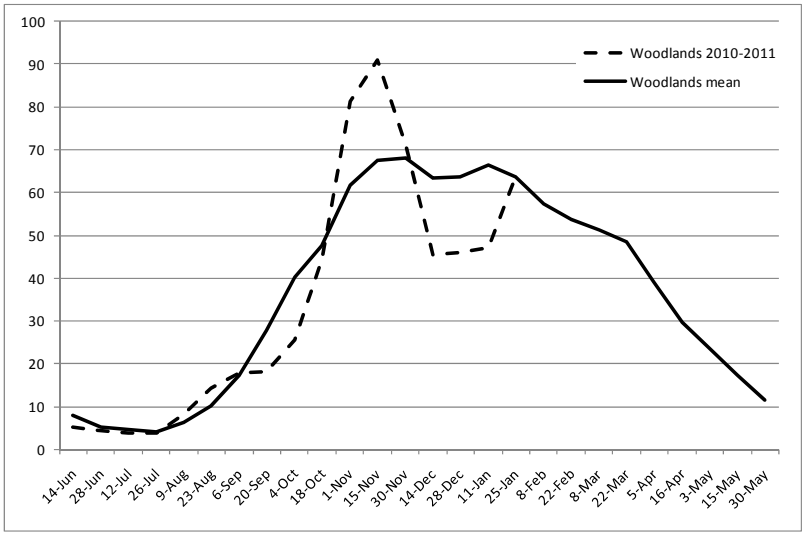
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22-Feb
8-Mar
22-Mar
5-Apr
16-Apr
3-May
15-May
30-May

Wednesday 22nd December 2010 Management Team meeting notes for the Board: -

Options for dealing with the dry conditions till 29 Dec 2010:

	PRO'S	CON'S
1. OAD	• Less feed required • Little or no de-stocking • Labour could be used to do other jobs	• To be effective milk production must drop • Little to be saved on walking alone • Hit on production too high at current per cow (1.4kgMS/cow/day) • Production unlikely to improve to previous levels if conditions improve in 3weeks time
2. 16hrs	• Could return to TAD when conditions improve	• Unlikely to save much feed.
3. Monitor Status Quo	• Not eating into Autumn feed	• Lengthen round (19 to a 24day) • Keeps cows tight until conditions improve • At 35kgDM/ha per day growth rate (+9kg on last two weeks at 26kgDM/ha/day) APC will still drop to 1900kgDM/ha without supplement use. • Cows would be underfed by 2kgDM/cow/day = potentially dropping production by 0.3kgMS/cow/day = $1550/day over 748cows • If supplement 2kg/cow/day then APC on 24day round = 1950kgDM/ha and maintain MS production (?) silage not 12ME • Further condition score loss
4. Send off 40 cows and 10 culls	• Cover 1950kgDM/ha • Only feed out 1kg supplement (5tDM in to total compared to 10tDM/week) • If conditions improve then will be able to make winter supplement on farm • Schedule for culls good now	• Have a cost of $8.50/cow/week grazing cost • Lose production 50 cows @ 0.85kgMS/cow (from milk meters and BM MS%) = 42.5kgMS/day @ $6.90 = $293.25/day • Feed saved 50 x 12kgDM/cow/day (80ME/kgMS = 12kgDM/cow) = 600kgDM/day • 600kgDM silage @ $0.40 = $240/Day • Or 600kgDM then goes into remaining cows at 12ME (latest herbage test) goes into MS production not maintenance in higher producing cows remaining = 90kgMS • 90kgMS less 42.5kgMS lost from drying cows off = 47.5kgMS increase @ $6.90 = $327/day • If supplement 700cows 1kgDM/cow/day and growth rate of 35kgDM/ha/day cover will be 1900kgDM/ha in two weeks

Option 4 was chosen, cows were trucked out at 1pm Thursday 23rd December.

Other points

- If cover 1900kgDM or below in two weeks time we review our options again
- Rough Stock take:
  750 cows
  -75MT (10%) MT rate
  675cows
  +210 heifers (224 @ 6% MT)
  885 cows
  -810 wintered
  75 culls or 60 culls @ 12% MT
- Could potentially have 40-50 good budget cows to sell at end of season as opposed to true cull cows as have picked out the really bad ones at this point
- Have booked 1st scan for Wednesday 19th Jan
- 1st culls gone early Jan – still have space booked late Jan
- Culls dried off now and put on rough ground to clean up over next 10days to two weeks
- Still awaiting to hear from contractors regarding standing silage
- If make bales from standing silage @ $0.20/kgDM will cost $62.50/bale (34.7c/kgDM) to make plus cartage so looking into what baleage we can source now and at what price.
- Off farm grazing @ $30/wk including cartage = 30.6c/kgDM so this is also an option but lose control – would need to land baleage for $55/bale to match this.
- Have fed out 8tDM from silage stack to date (2.1kgDM/cow/day). Cows being observed at lunchtime to assess if silage needed each day – not always fed each day.
- DM in grass is 23-26% confirming our thoughts on relatively content cows being offered only 15.7KGDM/cow/day on plate meter readings
- NEED 299,340kgDM in bales (1663 @ 180kgDM/bale or 1497 @ 200kgDM/bale)
- We have 70 bales so still need minimum of 1427 bales or to cut 110ha @ 2500kgDM/ha harvested.
- Current feed demand (700cows) = 47kgDM/cow/day so would need to grow 67kgDM/ha/day over 60day to get this amount of feed! Possible but highly unlikely as this is above the long term growth rate average for Jan and Feb. However still have 26ha of young grass to come it but it is very slow this year.
- We also need a further 153.8tDM in the stack (covers the 8tDm already fed out and includes the 5t budgeted to feed out)
- TOTAL feed still needed on farm =439.2tDM @ 19c/kgDM = $83,450 plus harvesting if all feed needs to be purchased in.
- Harvesting 1427 bales @ $26.5/bale = $37,816
- Harvesting 153.8tDM @ $0.07/kgDM = $10,766
- Total Harvesting = $48,582
- If we do the same production as last year (285k) then even with the extra $0.30/kgMS we are still $13,500 down on income from budget (300k @ $6.60)

We have $95k in the budget for feed which leaves us with $80k. The above costs for harvesting and purchase of standing feed totals $132k. This makes us $52k over budget (not including the extra feed purchased after the flood or snow just working on our budgeted figures for a normal year for supplements purchased in). To break even we would need to harvest 273.7tDM at home saving $0.19/kgDM – unlikely....very unlikely!

Winter Feed Strategies: Cow Responses

Jim Gibbs
Lincoln University

BACKGROUND

Winter feeding is getting a lot of attention: what do we need from it?

- Cow condition now, for production next season
- Safe feed for cow health
- Uncomplicated feeding regime
- Minimal paddock loss/ environment impact
- Least cost for all the above

Winter crops offer:

- Smaller area for greater yields (<$$$)
- Relatively high ME
- Reliable quality
- Positive cow health…..?

Practical Farmer Concerns:

- Adequate energy intake in all weather?
- Will all the herd eat it?
- Minimising cow adaption/ deaths
- Trace element supply
- Hard crop to grow?

Choices:

- Swedes
- Kale
- Fodder Beet

So, what crop is best suited to a particular farm?

Winter Project Southland Demonstration Farm 2010

- Split the herd equally on age and PW to three groups
- Groups to Swedes, Kale and Fodder Beet
- Feed quality testing through winter
- Blood samples from 15 cows each group early winter and winter end – cow health
- BCS through winter and pre-mating
- Follow MS production and reproduction this season

Results

- Blood tests: no difference in health, production physiology or trace element status between crop groups
- Small differences between average BCS (<0.5) between crop groups….allocation?

NOTES

Lincoln University Dairy NZ Kale and Fodder Beet Research 2008-11

- Why (and when) do cows die on kale/FB? - rumen problems, cow health problems.
- What is the real feed value in the paddock? - determining actual ME as fed in industry.
- How much supplement is enough? - correct supplement type and % with fodder beet.

Results

- Rumen problems
  - Kale = no rumen health issues
  - Kale protein nutrition…..???
  - FB = genuine acidosis risk!
  - FB is a slow adaption, different intake pattern….> risk
  - Low protein…..marginal for rumen function, requires supplement of adequate protein %.

NOTES

Cow health problems

Kale

- 'Redwater' anaemia
- Low iodine….selenium?
- Safe feed…few deaths.

FB

- Die in two windows: 7-10 days on crop + early lactation.
- TE's all low….odd milk fever syndrome
- Oxalates??? Likely **NOT** the issue.

NOTES

The 'Paddock' ME of Kale and FB

- Kale < Swedes < FB
- Field and pen feeding of kale and FB says clearly FB is NOT a ME of >13-14 MJ/kg DM
- Add that FB ***REQUIRES*** more supplement %.....reduces 'paddock' ME
- Probably approximately 12 vs 12.5 ME

NOTES

How much supplement?

- Kale…..only issue with low supplement is bloat.
- Kale…..safe with low/ rough supplement for both acidosis and protein nutrition.

- FB…..supplement type and feeding (when + amount) is critical – nutrition + health.
    - Straw is too low protein, grass silage required
    - Supplement needs to be right before crop opened
    - % supplement – minimum 35% of total DM…..ie 7kg DM FB needs about 2.5 kg DM grass silage.

NOTES

COSTS

Kale: $1200/ha cropping for 10 t/ ha = 12c/ kg
10kg/ day = $1.20
Add 4 kg/ day balage @ 30c/ kg (fed) = $2.40/ day total (+ labour).

FB: $2000/ha cropping for 20 t/ ha = 10c/ kg
8 kg/ day = 80c
Add 6 kg/ day grass silage @ 30c/ kg (fed) = $2.60 total (+labour).

NOTES

Practical Summary

- No health/ physiology differences between Swedes, Kale, and Fodder Beet groups wintered on Southland Demonstration Farm.

- Pros and cons
  - Swedes: predictable, uncomplicated, mid range feed.
  - Kale: cheap, uncomplicated, safe, mid range feed.
  - FB: higher energy, greater yields, needs careful attention to crop, feeding and supplements.

- All three crops can be made to work……FB requires more careful attention at crop and feeding level, and at low yields can be expensive.

MATING INTERVENTION - OBSERVATIONS AT SDF

Howard de Klerk, DairyNZ

BACKGROUND

This season has been characterised by large variations in growth rates, with periods of shortages after the snow to a period of surplus, only to be followed by an unseasonal shortage in December. This variation not only knocked the cow's production but resulted in cows with a lower BCS. The pre-mating heat observations during October were lower than expected, with only 58% showing signs of oestrous by end of October. The vet was summonsed to palpate 288 anoestrous cows that were more than 40 days in milk. Of these, 201 cows were deemed to be non-cycling and treated with CIDR's. A further 33 cows received CIDR treatment on the 11th of November and 46 cows on the 24th of November. A total of 280 cows were CIDR treated. Average cow body condition score was 5.0 pre- calving and 3.8 pre-mating.

CIDR TREATMENT

CIDR is short for Controlled Internal Drug Releasing device. It consists of a progesterone impregnated device that is placed intra-vaginally into the cow. The cow gets a GnRH injection simultaneously with the device. After 7 days the device is removed and the cow injected with PGF2 alpha. Cows are inseminated as they come on heat over the next 2 days. Cows that have not yet been inseminated receive a further GnRH injection and blanket inseminated some hours later.

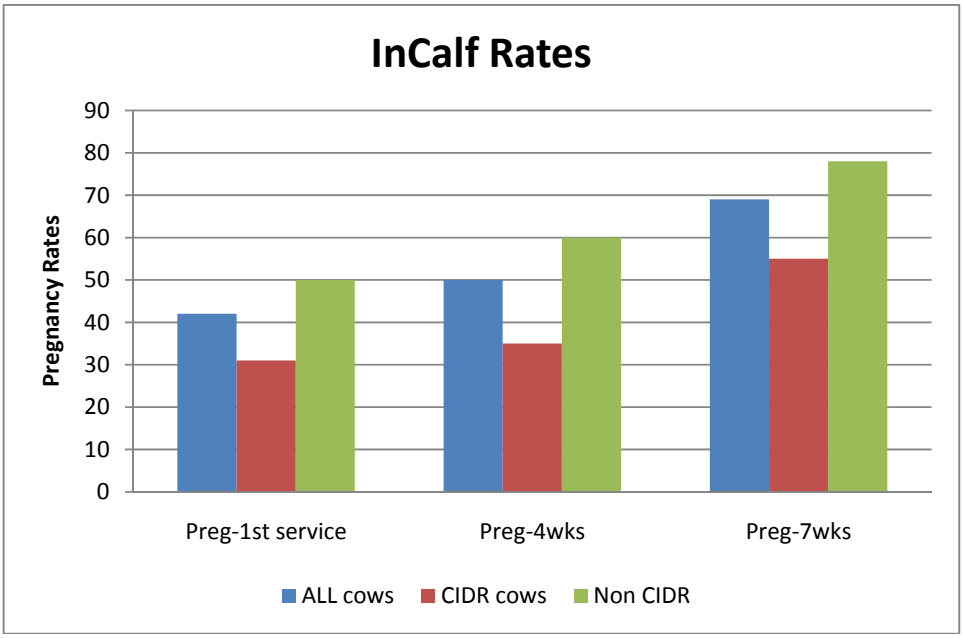
CIDR's are commonly used to treat cows that are in anoestrous in order to get them cycling and to condense the calving pattern. There is considerable debate as to the effectiveness of CIDR's in the dairy community, while Rabiee et al (2004) found that CIDr's enhanced the submission rate but did not influence first service conception rates or overall pregnancy rates. Some argue that the cows would have cycled if given another week or two, while others believe that introducing bulls to the non-cycling cows will bring cows on heat and improve conception rates. Limited research has shown that introducing bulls improved the 3 week submission rate by 7% and 4 week in-calf rate by 6%. Bulls reduced the time taken to get cows in calf, but did not reduce the final empty rate. (Norton, undated)

Published results indicate that 35-45% of CIDR treated cows will conceive to the first service. Wanganui Vet Services (2006) reported that a study undertaken by Livestock Improvement showed that cows treated 1 week before PSM had a 95% submission rate compared to 63% submission rate in untreated cows over 21 days. When conception rates were included, treatment reduced the mean day of conception by 6,7 days. They found it to be financially more viable to treat cows at PSM rather than after the first round of AB.

RESULTS

All results in this article are based the pregnancy diagnosis from the first scan conducted 40 days after the end of the AB period. A cautionary note is posted at the end of the article. Cows were treated with CIDR's because they were considered to be in anoestrous (not cycling). Direct comparisons between CIDR'd cows and non-CIDR'd cows that were cycling normally cannot be made. Normally cycling cows were not a control treatment for CIDR treatment. The results below are a summary of the observations.

	% Cows Conceived 1st service	% Cows Incalf 4 wks	% Cows Incalf7 wks
All Cows	42	50	69
CIDR'd cows	31	35	55
Normally cycling cows	50	60	78



The number of cows that conceived to the first service was 42% for all cows, 31% for CIDR treated cows and 50% for untreated cows. 50% of all cows, 35% of CIDR'd cows and 60% of untreated cows were pregnant 4 weeks after start of mating. By 7 weeks 69% of all cows were pregnant, while 55% of CIDR'd cows and 78% of the untreated cows were pregnant. (note that the untreated group was NOT a control for the treatment group) The cows CIDR treated generally had a lower BCS (3.6) than untreated cows (3.9) and were deemed to be in anoestrous by the vet. Direct comparisons between the groups should therefore not be made as cows were not randomly assigned to a treatment as in an experiment. Cows were treated with CIDR's because they were not cycling.

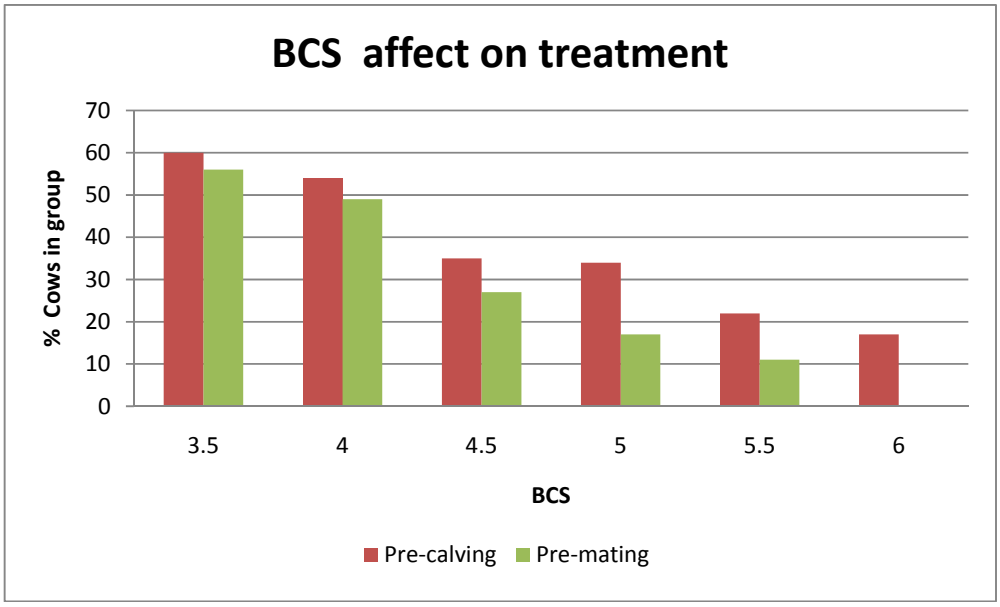
BCS INTERACTIONS

It is well documented that high producing freshly calved dairy cows cannot consume enough dry matter to meet their demand. It takes 8-10 weeks for the cow's intake to increase to a level that meets demand. During this period the cow is in a negative energy balance and therefore loses body weight as measured by BCS. This weight loss is inevitable and ensuring all cows (not herd average) are at a 5 BCS will ensure that they have enough reserves during this period of energy deficit, if adequately fed during this period.

Burke et al (1998) found evidence that cows in poor body condition and negative energy balance are more likely to be anovulatory. Researchers have concluded that a prolonged postpartum anoestrous period was a major factor affecting reproduction performance in pasture fed dairy cows with a seasonal calving pattern. (Xu and Burton, 1996).

PRE-CALVING AND PRE-MATING BCS AFFECT ON CIDR TREATMENT

Observations during this season clearly illustrate that lower BCS at pre-calving or pre-mating increased the likelihood of the cow being in anoestrous and therefore treated with a CIDR. Research has shown that low BCS at calving and mating can significantly increase the length of the anoestrous period. (Grainger et al 1982; McDougall et al 1995; Burke et al 1998).

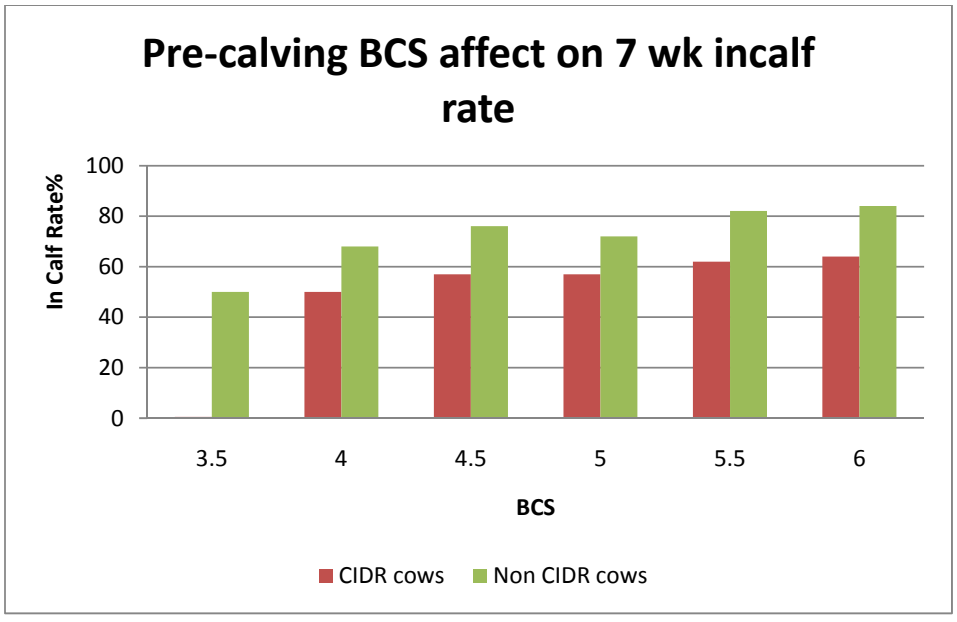


60% of cows with a pre-calving BCS of 3.5 were anoestrous and CIDR treated. This dropped to 22% and 17% for cows with BCS of 5.5 and 6 respectively.

56% of cows with a pre-mating BCS of 3.5 received treatment while only 11% of the cows with a BCS of 5.5 were CIDR treated. The lower the BCS the greater the chance of cows in anoestrous and requiring treatment with a CIDR. This clearly reinforces research and best practice recommendations advocating CS targets of 5 at calving for all cows and 5.5 for heifers to avoid the risk of cows being anoestrous at the start of mating.

PRE-CALVING BCS AFFECT ON PREGNANCY RATES

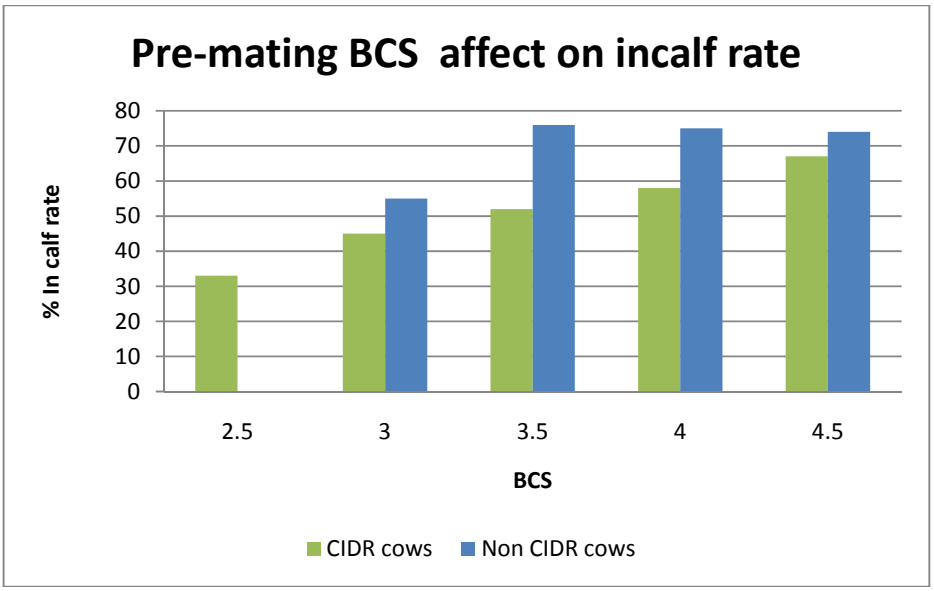
The data demonstrates that the lower the BCS pre-calving, the lower the in-calf rate at 7 weeks for both CIDR treated and untreated cows. This supports research published by Grainger et al (1982).



No CIDR treated cow with a pre-calving BCS of 3.5 conceived within 7 weeks, while 50% of the untreated cows that had a 3.5 BCS pre-calving were pregnant. This observation must be treated with caution as there were relatively few cows in this group. Treated cows with BCS at pre-calving from 4-6 had in-calf rates at 7 weeks improving from 50% - 64% as BCS improved. The same trend was observed in untreated cows.

AFFECT OF PRE-MATING BCS ON PREGNANCY RATES

The pre-mating BCS affect on 7 week in-calf rate for CIDR treated cows follows a similar pattern i.e. the pregnancy rate improved as the BCS improved. This is in keeping with research where Roche et al (2007) found pregnancy rates positively associated with BCS at nadir.

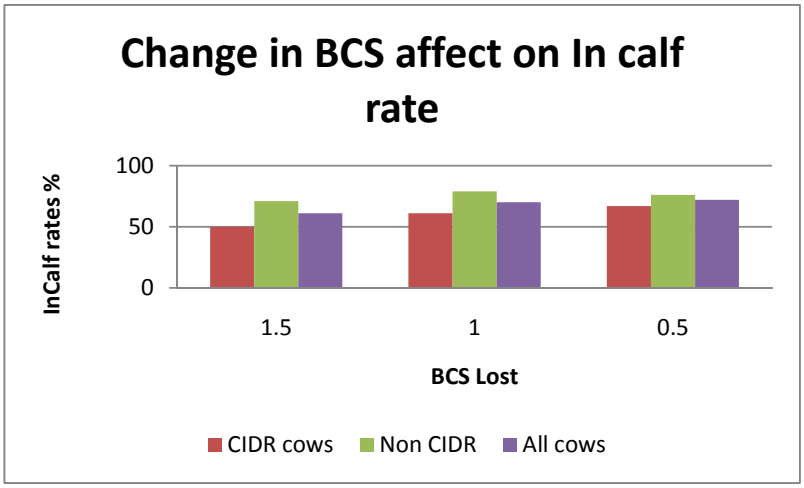


In untreated cows there appears to be a large drop in pregnancy rate in cows with a BCS below 3.5 but a constant conception rate of above 70% for cows above 3.5 BCS. Not only was there a drop in pregnancy rates below 3.5 but a BCS of 3.5 increased the likelihood of cows requiring treatment i.e. being in anoestrous at PSM.

CHANGE IN BCS AFFECT ON PREGNANCY RATES

Cows calving with a BCS of between 4.5 and 5.5 were further analysed to observe what the affect of loss in BCS had on pregnancy rates. These cows lost between 0.5 and 1.5 BCS between calving and mating.

The data indicates that the more BCS the cows lost between calving and mating the lower the pregnancy rates achieved at 7 weeks after start of mating, irrespective of whether the cows were CIDR treated or not. For all cows in this group, 61% of the cows that lost 1.5 BCS were diagnosed pregnant, while cows that had lost 1 BCS and 0.5 BCS had pregnancy rates of 70 and 72% respectively. In the untreated group, pregnancy rates were 79% and 76% respectively. Again, in line with past research and best practice recommendations, this indicates that cows calving at 5 BCS can lose up to 1 BCS by start of mating without negatively impacting on reproduction. Greater losses than 1 BCS did tend to impact negatively on reproduction. This once again supports research by Roche et al (2007) that found pregnancy rates at 21, 42 and 84 days were negatively associated with loss of BCS – the more BCS the cow lost the lower the chances for pregnancy.



WAS THE CIDR INTERVENTION SUCCESSFUL?

As there was no control group to test the difference between treated (CIDR) cows and untreated cows, no decisive conclusions can be made. Rabiee et al (2004) reported that the response to CIDR treatment was influenced by the cow's physiological state at the time of treatment, other hormonal treatment and the duration of the treatment and given these factors, it was inevitable that there would be considerable variation in the results of various individual trials.

In this observation, only 55% of the CIDR treated cows were in calf at 7 weeks as opposed to 78% of cows that were untreated, however treated cows had a lower average BCS (3.6) than untreated cows (3.9) and received CIDR's because they were deemed to be in anoestrous at the time of treatment. Whether these "problem cows" would have cycled naturally and conceived by 7 weeks remains unanswered.

The cost of treatment was $55/cow using new CIDR's and best-practice treatment regime. The CIDR programme can be economically justified if 2.7 extra days in lactation are gained for the whole herd or 7 days extra per cow treated. Of the 280 anoestrous cows, 81 cows (31%) conceived to the first service. If these anoestrous cows were brought forward by one heat cycle, it would amount to an average gain of 6 extra days for the treated cows. This supports the data reported by Wanganui Vet Services. From this observation it appears likely that CIDR treatment can be economically justified at current prices.

On the other hand, the cost of CIDR treatment is the same as 150kgDM silage supplement costing 35c/kg. During the adverse weather the cows were supplemented with a limited amount of silage and PKE, but at the cost of treatment, cows could have been fed an extra 5kgDM silage/day (if available) for the month during the adverse weather. This represents enough energy to prevent a loss of 1 BCS if all the energy was used to prevent weight loss. Some of the energy would have undoubtedly been channelled into milk production but the extra feed could have helped to reduce the loss in body weight and therefore the anoestrous period. Roche et al (2007) clearly showed that loss in BCS between calving and nadir had a negative effect of reproductive performance. Burke et al (2006) showed that post calving supplementation with grain reduced the post calving anoestrous period by 6 days, even though the diets contained the same amount of energy as the pasture/silage treatment groups.

Is it realistic to expect hormonal treatment to get cows that are in a negative energy balance and possibly in anoestrous to conceive? Actively managing cow BCS must surely be the priority, but it appears as though CIDR treatment can be used as a tool in conjunction with other sound animal and pasture management policies. CIDR treatment may not improve overall reproductive results (reduce the number of empties) but can condense calving and reduce the number of late calving cows giving more days in milk.

KEY MESSAGES

1. Managing BCS at calving and the loss of BCS between calving and mating is crucial in obtaining acceptable pregnancy rates – irrespective of CIDR treatment or not.
2. Cows will inevitably lose BCS between calving and mating. A minimum pre-calving BCS of 5 for cows and 5.5 for heifers is essential for good reproductive performance.
3. Achieving good reproductive performance starts with autumn drying off and winter feeding and management.
4. Cows are in a negative energy balance in early lactation and will not be able to consume enough feed to meet their demand. Feeding cows even less than what they can actually consume (which is already insufficient) during early lactation will only further increase the loss of BCS. Allowing BCS to drop more than 1 BCS from calving to mating can negatively impact on pregnancy rates.

*DATA WARNING: The data presented in this article are based on on-farm observations. They are not the results of scientifically based experiments with statistical analyses or controls. This must be borne in mind when making conclusions from these observations.

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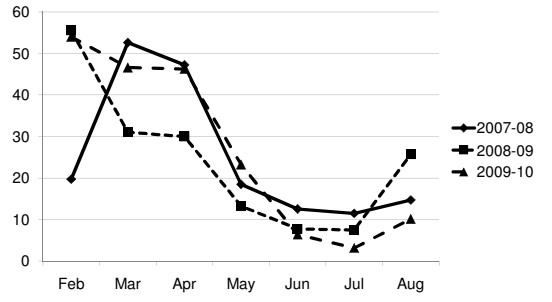
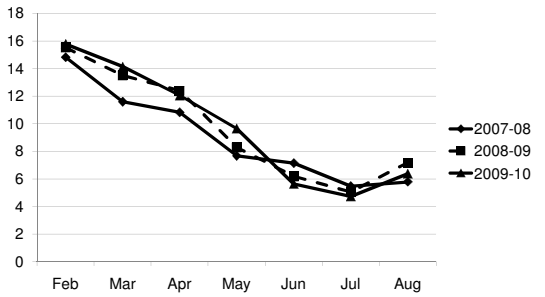
Autumn Feed Management

Dawn Dalley & Barry Bethune
10 March 2011

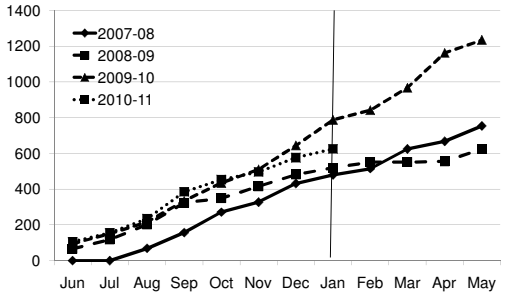
Autumn-winter growth variation



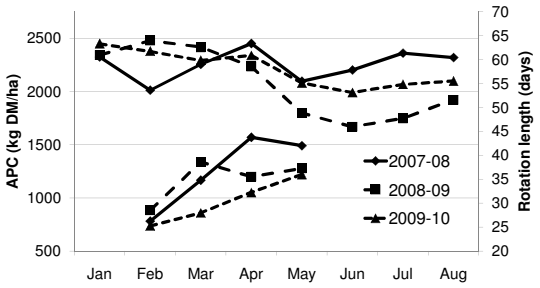
Autumn-winter soil temperature



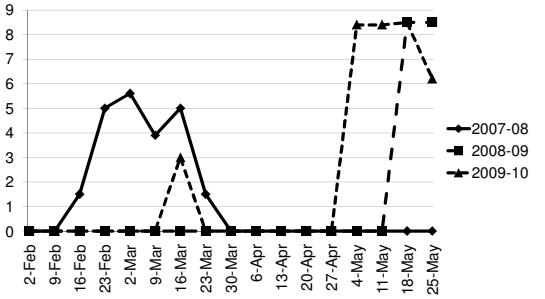
Cumulative rainfall



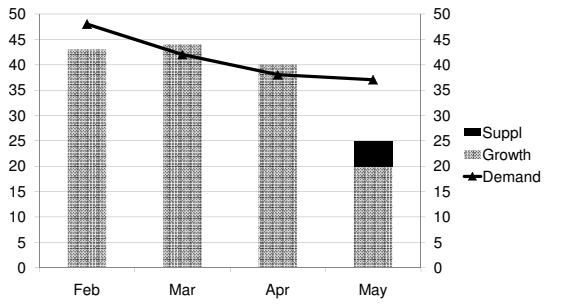
APC & rotation variation



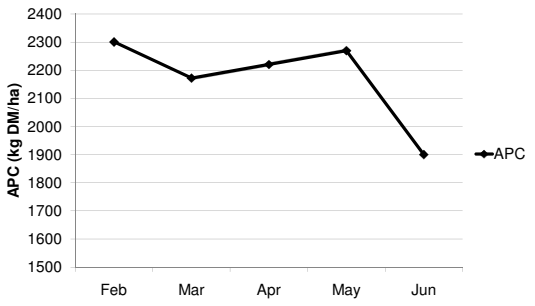
Supplement (kg/cow/day)

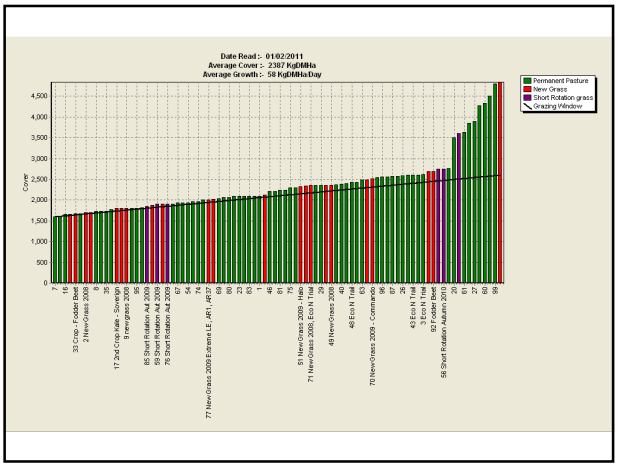


Autumn feed budget

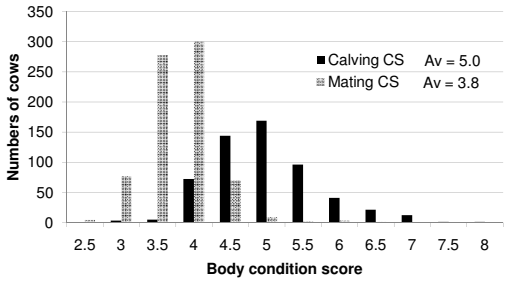


APC monthly targets





Herd BCS distribution



BCS management

Cow	Rising 3 year old	Days cows need to be dried off before calving (1)	Days cows need to be dried off before calving (1)
		Autumn pasture	Autumn pasture + supplement fed above maintenance
3.0	3.5	160	120
3.5	4.0	130	100
4.0	4.5	100	80
4.5	5.0	70	60
5.0	5.5	Calving	Calving

Note: time includes 10 days when cows are being dried off and not gaining weight and 30 days when cows do not gain weight before calving

Trigger points

- Weekly growth & APC targets
- Supplement type and availability
- Animal management – especially R3yo
  - BCS
  - Milk yield
- Winter feed budget
  - Crop yield and supplement on hand
  - Number of cows to winter
  - BCS gain required

Management of feed demand

- Full herd BCS early March
  - Distribution, age
  - Supplements – availability & cost
  - Milking frequency
- Culls
  - Reduced options for SDF due to early dry conditions
- Empties
- Production & SCC
  - Protrack
  - Herd test

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Key messages

- Plan
  - Autumn-winter feed budget
- Monitor, Monitor, Monitor
  - Average pasture cover and growth
  - Body condition score
  - Winter feed situation

Failure to achieve dry off APC & BCS targets will impact on next season's production

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Resource links

- Pasture management tools
  - http://www.dairynz.co.nz/page/pageid/2145861206/Seasonal_Management
  - http://www.dairynz.co.nz/page/pageid/2145864458/Late_lactation_to_dry-off
- Body condition score tools – DairyNZ farmfact
  - http://www.dairynz.co.nz/page/pageid/2145863047
- DairyNZ Facts & Figures book

DairyNZ

DairyNZ

11 May 2010

Autumn/Winter Feed Budget

Spring or Autumn or Split Calving
(From March to Start of Calving or Balance Date)

Budget Period: _____ = _____ days

Effective ha = _____ha Spring Calving Cows = _____ Autumn Calving cows = _____

FEED SUPPLY

Refer Page 2 to calculate Average pasture growth rate kg DM/ha/day	*Days*	*x*	*Avge Growth/day Kg DM/ha/day*	=	Kg DM/ha
Pasture Growth		*x*		=	A

	No. Cows Grazing off.	*X*	*Intake per cow kgDM/cow/day*[1/]	*x*	*Days*	÷	*Ha*	Kg DM/ha
Grazing Off Note [1/]		*X*		*x*		÷		B

1/ Intake at grazing is feed eaten therefore multiply intake offered x 85% dry or 75- 80% wet conditions eg offer 12 kg DM/cow/day x 85% utilisation = 10.2 kg DM/cow eaten

	Supplement Eaten Total Kg DM	÷	*ha*	Kg DM/ha
Supplements *Refer Page 2 to calculate total supplements eaten*		÷		C
TOTAL FEED SUPPLY ***A + B + C = D***				**D**

LESS FEED DEMAND

	No.	*x*	*Intake/head Fr (Jersey)*	*x*	*Days*	*Total Feed Heifers/Other*	÷	*ha*	Kg DM/ha
R 1 yr Hfrs		*x*	6 (5)	*x*			÷		E
In Calf Heifers/Other		*x*	10 (8)	*x*			÷		F

Maintenance **Milking/Dry Cows**	*Cows*	*x*	*Intake kgDM/cow/d Fr (Jersey)*	*x*	*Days*	*Total kg DM*	÷	*ha*	Kg DM/ha
Spring Dry Cows		x	8.0 (7.0)	x					
Autumn Milkers		x	6.0 (5.5)	x			÷	*ha*	Kg DM/ha
Total Feed for Maintenance	*(Refer Table 1 for maintenance intake per cow)*						÷		G

	Cows	*x*	*Kg DM/c/d Milk Prod'n (Refer Table 3)*	*x*	*Days*	=	*Total KgDM for Milk Production*	÷	*ha*	Kg DM/ha
Milk Production		x		x		=		÷		H

	MA Cows	*x*	*DM/score Fr (Jersey) (Refer Table 4)*	*x*	*No. of scores*	*Total Cond'n Kg DM*		*ha*	Kg DM/ha
Cow Condition		x		x			÷		I

	Pasture Cover at Calving	*Less*	*Opening Pasture Cover*		Kg DM/ha
Pasture Cover		-		=	J
Total Feed Demand ***E + F + G + H + I + J = K***					**K**
FEED SURPLUS/DEFICIT KG DM/HA ***D - K***					

Table 1 Average Pasture Growth Rate for Budget Period

	Days		Growth rate		Total
March		x		=	
April		x		=	
May		x		=	
June		x		=	
July		x		=	
August		x		=	
September		x		=	
Total	b				a
	Total		*Days*		
Average Monthly Growth Rate	b	÷	a	=	**A**

Table 2 Supplementary Feed kg DM/ha

Supplement	**Tonnes DM**			
Grass Silage (150-200 kg DM/m^3; avge 180 kgDM/m^3)				
Maize Silage (200 kgDM/m^3 stack; 220 kgDM/m^3 bunker)				
Hay (18 kg DM/BE)				
Other (PKE 90% DM; grain 87% DM)				
Other		*Ha*	=	*Kg DM/ha*
Total			÷	**C**

Table 3 Milksolids Requirements – kg DM Eaten/kg MS above Maintenance (for 11.0 MJME/kg DM)

Kg MS/cow/day	**0.7**	**0.8**	**0.9**	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**
Kg DM above maintenance	5.2	5.9	6.7	7.4	8.1	8.9	9.6	10.4	11.1	11.8	12.6	13.3

Table 4 Kg DM Offered for One Body Condition Score (above maintenance)

Breed	**Autumn Pasture 6% wastage**	**Supplement**		
		Utilisation		
		90%	**85%**	**75%**
Jersey	**180**	**140**	**150**	**165**
Friesian	**220**	**155**	**180**	**200**

Autumn/Winter Feed Budget EXAMPLE

Spring or Autumn or Split Calving
(From March to Start of Calving or Balance Date)

Budget Period: 11th May – 10th July = 60 days

Effective ha = 129 ha **Spring Calving Cows = 490 wintered**

FEED SUPPLY

Refer Page 2 to calculate Average pasture growth rate kg DM/ha/day	*Days*	*x*	*Avge Growth/day Kg DM/ha/day*	=	Kg DM/ha
Pasture Growth	*60*	*x*	*20*	=	A 1320

	No. Cows Grazing off.	*x*	*Intake per cow kgDM/cow/day*[1/]	*x*	*Days*	÷	*Ha*	Kg DM/ha
Grazing Off Note [1/]	-	*x*	-	*x*	-	÷		B

1/ Intake at grazing is feed eaten therefore multiply intake offered x 85% dry or 75- 80% wet conditions eg offer 12 kg DM/cow/day x 85% utilisation = 10.2 kg DM/cow eaten

		Supplement Eaten Total Kg DM	÷	*ha*	Kg DM/ha
Supplements	*Refer Page 2 to calculate total supplements eaten*	*180000*	÷	*129*	C 1395

TOTAL FEED SUPPLY	***A + B + C = D***	**D** 2715

LESS FEED DEMAND

	No.	*x*	*Intake/head Fr (Jersey)*	*x*	*Days*	*Total Feed Heifers/Other*	÷	*ha*	Kg DM/ha
R 1 yr Hfrs	-	*x*	6 (5)	*x*	-	-	÷		E
In Calf Heifers/Other		*x*	10 (8)	*x*			÷		F

Maintenance **Milking/Dry Cows**	*Cows*	*x*	*Intake kgDM/cow/d Fr (Jersey)*	*x*	*Days*	*Total kg DM*	÷	*ha*	Kg DM/ha
Spring Dry Cows	495	x	8.0 (7.0)	x	60	237600			
Autumn Milkers		x	6.0 (5.5)	x			÷	*ha*	Kg DM/ha
Total Feed for Maintenance	*(Refer Table 1 for maintenance intake per cow)*					237600	÷	*129*	G 1842

	Cows	*x*	*Kg DM/c/d Milk Prod'n (Refer Table 3)*	*x*	*Days*	=	*Total KgDM for Milk Production*	÷	*ha*	Kg DM/ha
Milk Production		x		x		=		÷		H

	MA Cows	*x*	*DM/score Fr (Jersey) (Refer Table 4)*	*x*	*No. of scores*	=	*Total Cond'n Kg DM*	÷	*ha*	Kg DM/ha
Cow Condition	490	X	180	x	1.0	=	88200	÷	129	I 683

	Pasture Cover at Calving	*Less*	*Opening Pasture Cover*		Kg DM/ha
Pasture Cover	*2500*	-	*2075*	=	J 425

Total Feed Demand	***E + F + G + H + I + J = K***	**K** 2950
FEED SURPLUS/DEFICIT KG DM/HA	***D - K***	**-235**

Table 1 Average Pasture Growth Rate for Budget Period

	Days		Growth rate		Total
March		x		=	
April		x		=	
May	20	x	20	=	400
June	30	x	20	=	600
July	10	x	20	=	200
August		x		=	
September		x		=	
Total	a 60				b 1200
	Total		*Days*		
Average Monthly Growth Rate	b 1200	**÷**	a 60	**=**	**20**

Table 2 Supplementary Feed kg DM/ha

Supplement	**Tonnes DM**			
Grass Silage (150-200 kg DM/m^3; avge 180 kgDM/m^3)				
Maize Silage (200 kgDM/m^3 stack; 220 kgDM/m^3 bunker)	60			
Hay (18 kg DM/BE)				
Other (PKE 90% DM; grain 87% DM)	120			
Other		*Ha*	=	*Kg DM/ha*
Total	180,000	129	÷	**C 1395**

Table 3 Milksolids Requirements – kg DM Eaten/kg MS above Maintenance (for 11.0 MJME/kg DM)

Kg MS/cow/day	**0.7**	**0.8**	**0.9**	**1.0**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**
Kg DM above maintenance	5.2	5.9	6.7	7.4	8.1	8.9	9.6	10.4	11.1	11.8	12.6	13.3

Table 4 Kg DM Offered for One Body Condition Score (above maintenance)

Breed	**Autumn Pasture 6% wastage**	**Supplement**		
		Utilisation		
		90%	**85%**	**75%**
Jersey	**180**	**140**	**150**	**165**
Friesian	**220**	**155**	**180**	**200**

DairyNZ farmfact

1-10 Herd Condition Scoring – A 3-step process

This FarmFact supports the booklet: "**Condition Scoring Made Easy**". Both aim to help you become consistent in condition scoring over time and against the industry standard for dairy cows.

Learning condition scoring is based on a 3-step system of "hands on" calibration (Pg 8 in the booklet), visual condition scoring (Pg 34 in the booklet) and using a simple recording chart (Pg 32 - 35 in the booklet).

1. Learn the "hands on" condition scoring method at the dairy (Pg 8)

- Line up about 15 cows and put your hands on the important body points.
- Note and record your estimate of each cow's condition score (CS).
- This will calibrate your eye for the next stage: scoring cows visually in the paddock.
- This "hands on" calibration can be used for cows irrespective of age and breed.

2. Score cows visually in the paddock, using the chart overleaf (Pg 34)

- Score cows in the paddock using the photos and descriptions in the handbook as a reference check.
- Score cows visually viewing both sides and rear.
- Use a half score if you cannot decide whether the cow is a 4 or 5 - meaning somewhere in between.
- Record the individual cow's CS in the appropriate category as a 1 with no more than five scores per line (e.g. 11111).
- Score at least 70 randomly picked cows irrespective of herd size.
- Aim to do 4-6 cows per minute, to complete this within 20 minutes.

3. Use the recording chart to help your herd management (Pg 32 - 35)

- Refer to the chart overleaf and in the booklet.
- This system gives a graphic description of the herd condition score - the average, range, and distribution of scores within the herd.
- Work through the questions below, to use it in your decision-making.
    - How many cows are below target condition score?
    - How has condition score changed since the last check?
    - How much condition could the cows put on at the current level of feeding?
    - What changes will be made to achieve target condition score?
    - How will these changes affect your farm (e.g. supplement reserves, pasture cover, achieving milk production targets)?
- Repeat the process at regular intervals during the year for all mobs of cows to help you in your decision making.

Condition Score Recording Chart

Date Herd No. of Cows

Condition Score	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	Totals	
Number of cows												(A)
Total CS												(B)
% of sample												
								Average CS =				(B÷A)

Print this BCS recording and calculating chart off the DairyNZ website.