SOUTHLAND DEMONSTRATION FARM

Focus Day

105 Wallacetown – Riverton Highway

Information Handout

13th May 2010

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

Ravensdown

LIC

S I D D C
South Island Dairying Development Centre
Partners networking to advance South Island dairying

DairyNZ

Contents

SOUTHLAND DEMONSTRATION FARM

105 Wallacetown-Riverton Highway

Partnering with:

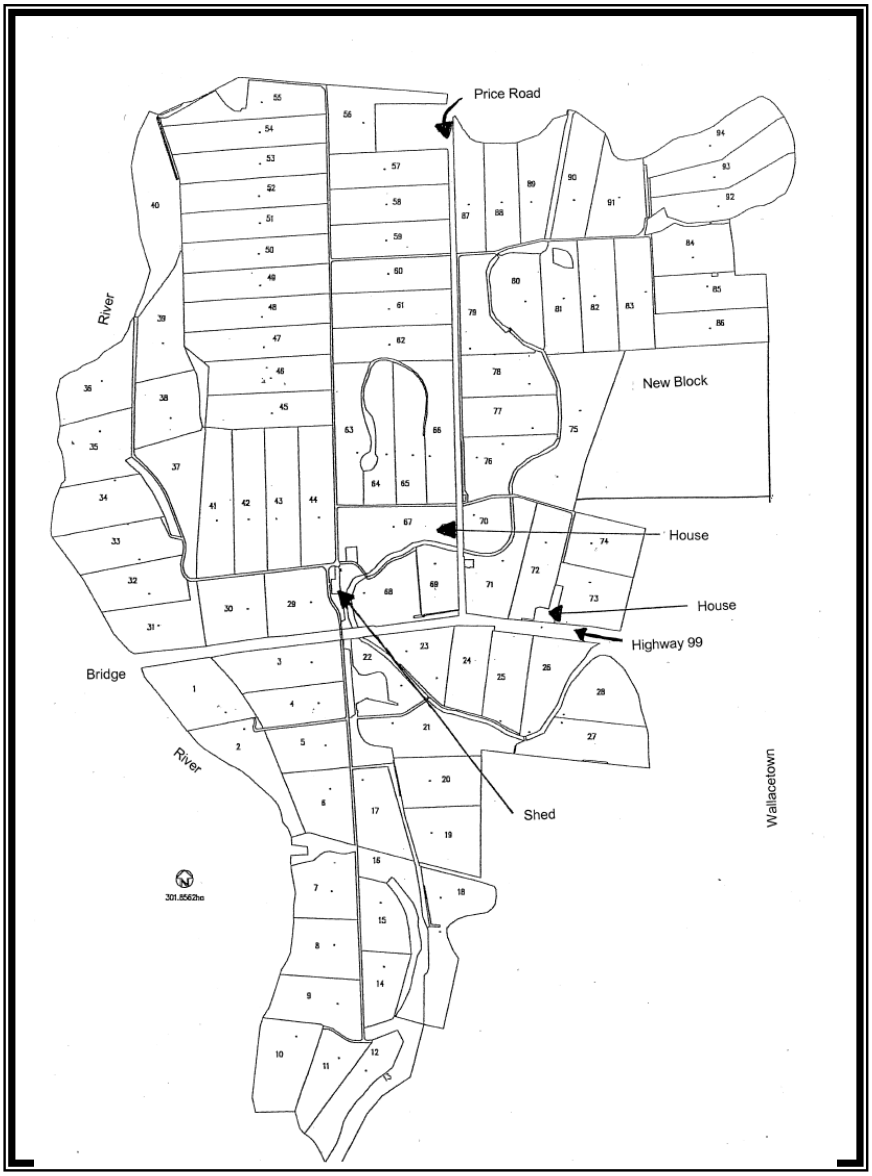
Ravensdown

LIC

SIDDC
South Island Dairying Development Centre
Lincoln University DairyNZ Plant & Food Research SIDE LIC
Partners networking to advance South Island dairying

Research & Extension support from:

DairyNZ



For further detail visit the SIDDC website

www.siddc.org.nz

'Sthld Demo Farm'

Re information on the Farm Walk Notes, Weekly Data, Production graphs, Monitor Farm Weekly Summaries etc.

STAFF

Barry Bethune - Farm Manager
Sherwyn Calos - 2 IC
Harry Ficks – Farm Assistant
Dexter Mag-Abo - Farm Assistant

HAZARDS NOTIFICATION

1. Children are the responsibility of their parent or guardian
2. Normal hazards associated with a dairy farm
3. Other vehicle traffic on farm roads and races
4. Crossing public roads, including busy State Highway
5. Underpasses may be slippery

Please follow instructions given by event organisers or farm staff

VISION STATEMENT

Economical, social and environmental sustainable solutions for the Southern South Island dairy farming community.

KEY OBJECTIVES

1. Economic sustainability [profit] of Southern South Island dairying.
2. Environmental sustainability [land, water, animals] of Southern South Island dairying.
3. Social sustainability [labour] of Southern South Island Dairying.
4. To provide a central focal point for the dissemination of information to assist farmers to meet the challenges going into the future.

INTRODUCTION

The 295 hectare property was leased by Southland Demonstration Farm Limited, controlled by the Southland Demonstration Dairy Farm Trust, on 1st June 2007, to operate as a commercial demonstration farm which provides a focal point for the dissemination of information to Southern South Island dairy farmers.

The milking platform is 254 ha, and the property runs 750 cows. Around 35-40 hectares of brassicas are grown on the property for winter feed. The property supplies Fonterra's Edendale Factory targeting annual production of 335,000 kg/MS [1300 kgMS/ha].

CLIMATE

	Spring	Summer	Autumn	Winter	Annual
Mean Annual Maximum Temperature (ºC)	14	18	15	10	14
Mean Annual Minimum Temperature (ºC)	5	9	5	1	5
Mean daily temperature (ºC)	10	13	10	5	10
Annual rainfall – 2006/07 season	Sep/Oct/Nov 99/77/139	Dec/Jan/Feb 67/80/36	Mar/Apr/May 21/83/54	Jun/Jul/Aug 132/76/72	1036

HERD DETAILS

Breeding Worth: 116 Production Worth: 121
Genemark DNA for the last 3 years.

MATING PROGRAMME

Cows AI for 6 weeks followed by 5 weeks with Hereford bulls. Heifers all AI to Friesian bull for 2 weeks and run with Jersey bulls. Calving starts 10 August.

SOIL

Soil Types	% Farm
Makarewa - Heavy poorly drained gley soil	42.0%
Makarewa moderately deep	8.0%
Mataura - Recent flood plain soil, Silty - Well drained	19.0%
Tomoporakau - Poorly drained silt loam prone to water logging	16.5%
Northope - Imperfectly drained silt loam, variations in topsoil	13.0%
Edendale - Deep well drained Soil, Silt Loam	1.0%
Gore – well drained alluvium base, Silt Loam topsoil	0.5%

SOIL TEST RESULTS

Date	pH	P	K	Sulphate S	Ca	Mg	Na	Organic S	TBK
June 2007	6.1	30	7	8	10	23	13	6.5	1.8

NITROGEN USE

Current Nitrogen Use: Approximately 170 kgN/ha/year.

Southland Demonstration Dairy Farm Trust

Southland Demonstration Farm Business Advisory Group

David Dodunski	Director, Farmer, Isla Bank
Lloyd McCallum	Director, Farmer, Wilsons Crossing
Ivan Lines	Director, Farm Consultant, Invercargill
Abe de Wolde	Director, Farmer, Winton
Barry Bethune	Farm Manager
Stephen Brock	Farm Owner
Gene Marsh	Farmer, Dipton
Robert Bruin	Farmer, Otautau
Ron Pellow	Executive Director, SIDDC
Allan Maxwell	SIDE Representative
Steve Dixon	Ravensdown
Vaughan Templeton	Telford Representative
Peter Moynihan	Westpac
Wayne Nichol	Wrightson Seed
Jim Risk	Environment Southland

Southland Demonstration Farm Limited

Directors:

Abe de Wolde	Winton (Chairman)
David Dodunski	Isla Bank
Ivan Lines	Invercargill
Kevin Ferris	DairyNZ
Lloyd McCallum	Wilsons Crossing
Richard Christie	Ravensdown

Trustees:

David Dodunski	Isla Bank
Lloyd McCallum	Wilsons Crossing
Abe de Wolde	Winton
Gene Marsh	Dipton
Alistair Megaw	Tapanui
John Lang	Wreys Bush

Southland Demonstration Farm Management Team

Sharn Roskam	Farm Supervisor
Barry Bethune	Farm Manager
Howard de Klerk	DairyNZ Regional Leader

Southland Demonstration Farm Staff

Barry Bethune	Farm Manager
Sherwyn Carlos	2 I C
Harry Flicks	Farm Assistant
Dexter Mag-Abo	Farm Assistant

Southland Demonstration Farm – Seasonal Update

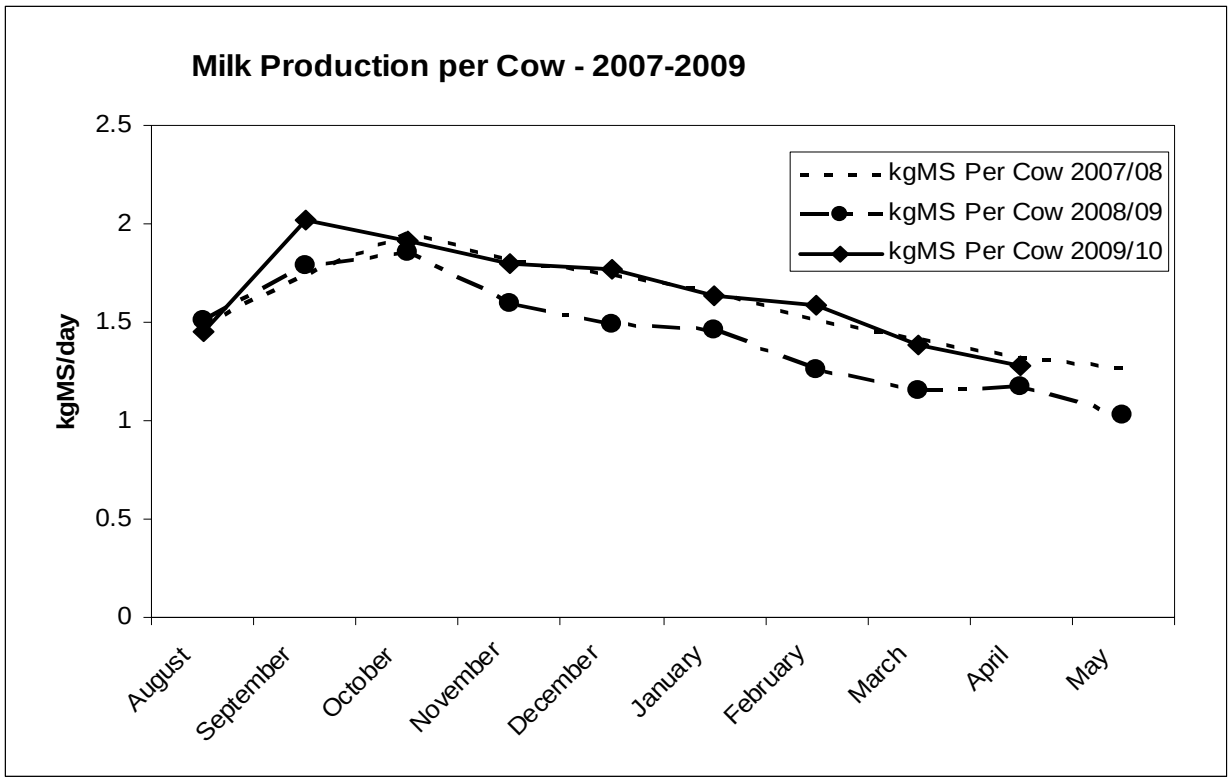
Season Overview (refer to the data table and graphs on the following pages)

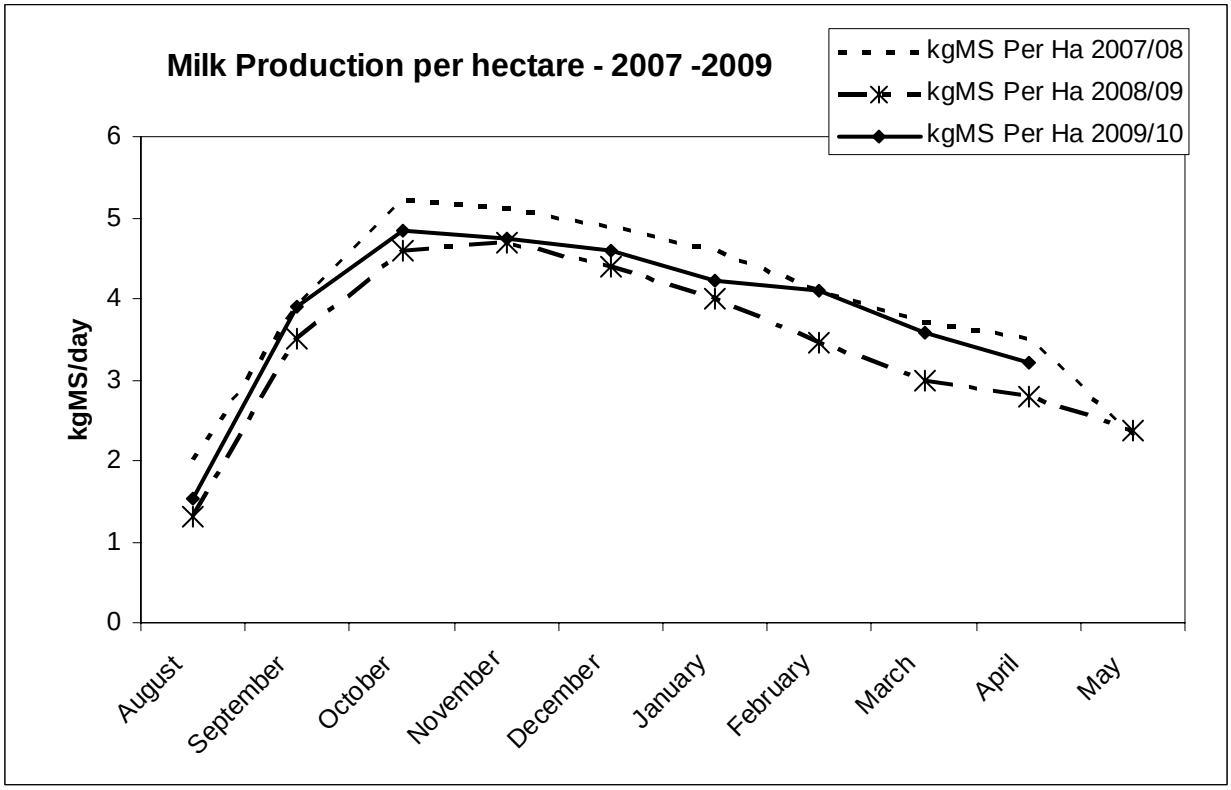
- Growth rates are on average lower than 2007/2008 but higher than 2008/2009
- Slightly lower per cow production than 2007/2008 but much higher than 2008/2009
- Average pasture cover has been more consistent this year than the previous two
- Higher DM and ME this year
- Average 170kgN/ha over 295ha (includes all N used on crops and area in grass)
- Much more rain this year than in 2007/2008, lower soil temp this year than last year
- Lower supplement fed than 2007/2008 and more than 2008/2009 (2007 was the dry summer) we have however fed a over 8kgDM/day as supplement in May due to the flood.
- Per hectare calculations for milk production this year are based on 259ha (total farm area minus winter crop area). See notes on page 13-14.

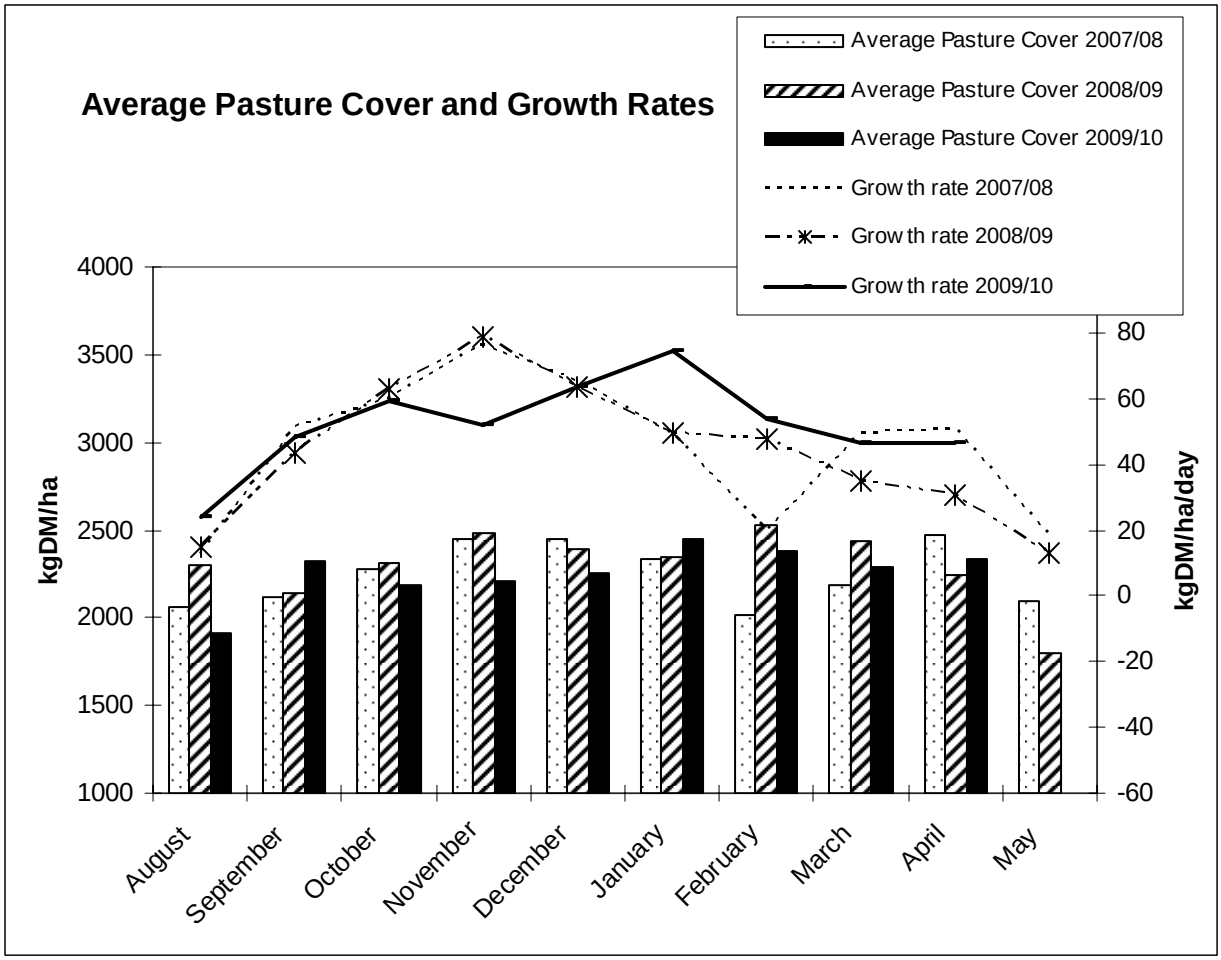
Seasonal Data – 2007/08 – 2009/10

	June			July			August			September			October			November		
Average	2008	2009	2010	2008	2009	2010	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
kgMS Per Cow	0	0		0	0		1.49	1.51	1.45	1.74	1.79	2.02	1.95	1.86	1.91	1.82	1.6	1.8
kgMS Per Ha	0	0		0	0		2	1.3	1.54	3.9	3.5	3.9	5.2	4.59	4.84	5.1	4.7	4.74
No cows calved	-	-		0	0		478	453	375	686	659	682	730	721	721	730	730	730
Growth rate	12.5	6.5		11	7.2		12.75	15	24.25	51.25	43.5	48	60	63	59.5	76.05	79	51.75
Average Pasture Cover	2177	1676		2368	1751		2058	2301	1917	2115	2138	2324	2277	2310	21.89	2447	2482	2213
Rainfall	65.7	87		51.9	63		68.9	84.3	34	72.6	78.6	123	129	106	99	56	65.5	76
Soil Temp	7.5	6.34		5.3	5.13		3.125	5.6	7.7	8.1	8	8.8	10.7	9.5	10.3	13.4	12.6	12.07
ME	-	-		-	-		11.6	-	12.06	12.3	-	12.4	12.7	-	12.3	11.72	12.4	12.5
DM	-	-		-	-		18.8	-	16.86	18.3	-	18	17.1	-	17.05	21.2	16.3	17.7
Supplement fed to date	0	0		0	0		23	0	23	68	0	33.5	71	0	33.5	71	0	33.5
Supplement made to date	0	0		0	0								147	0	382	167	179	563
kgN/ha	0	0		0	0		11	0	28	28	20	33	58	48	60	80	63	62

	Decemeber			January			February			March			April			May		
Average	2007	2008	2009	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
kgMS Per Cow	1.74	1.49	1.77	1.65	1.46	1.63	1.51	1.26	1.59	1.41	1.15	1.38	1.32	1.17	1.28	1.27	1.03	
kgMS Per Ha	4.9	4.4	4.59	4.6	4	4.22	4.1	3.46	4.11	3.7	3	3.58	3.5	2.8	3.2	2.3	2.37	
No cows calved							-	-	-	-	-	-	-	-	-	-	-	
Growth rate	65.6	63.2	63.4	49	49.3	74.25	19.5	47.5	54	49.80	34.75	46.6	50.5	30.5	46.25	18.3	13.25	
Average Pasture Cover	2452	2388	2254	2331	2342	2448	2012	2524	2376	2183	2439	2292	2467	2249	2338	2096	1795	
Rainfall	67	66.3	134	84		144	35.1	-	54	91.6	-	125	61.5		196	86.2	70	
Soil Temp	15.1	14.6	14.14	14.7	16.6	15.54	14.8	14.8	15.78	11.6	13.3	14.14	11	12.8	12.05	7.7	8.3	
ME	11.4	-	12.5	11.2	-	12.2	10.95	-	12.45	11.5	-	12.5	12.2	-	-	-	12.1	
DM	15.3	-	18.75	16.1	-	15	28.7	-	16.95	15.7	-	17.1	14.5	-	-	-	16.8	
Supplement fed to date	71	0	47.7	71	0	47.7	114.5	0	47.7	224.8	0	69.9	225	0	74.8	225	126	
Supplement made to date	757	610	668	885	610	1074	885	748	1383	885	748	1383	885	748	1383	885	748	
kgN/ha	89	67	108	123	71	121	123	71	133.93	154	71	152.52	172	94	170.56	172	94	


Milk Production per Cow - 2007-2009
kgMS/day
2.5
2
1.5
1
0.5
0
kgMS Per Cow 2007/08
kgMS Per Cow 2008/09
kgMS Per Cow 2009/10
August
September
October
November
December
January
February
March
April
May


Milk Production per hectare - 2007 -2009
kgMS/day
6
5
4
3
2
1
0
kgMS Per Ha 2007/08
kgMS Per Ha 2008/09
kgMS Per Ha 2009/10
August
September
October
November
December
January
February
March
April
May


Average Pasture Cover and Growth Rates
Average Pasture Cover 2007/08
Average Pasture Cover 2008/09
Average Pasture Cover 2009/10
Growth rate 2007/08
Growth rate 2008/09
Growth rate 2009/10
kgDM/ha
kgDM/ha/day
4000
3500
3000
2500
2000
1500
1000
80
60
40
20
0
-20
-40
-60
August
September
October
November
December
January
February
March
April
May

Culling and Replacement Decisions:

Culling:

This season we are culling pregnant animals and replacing them with high BW heifers. Our culls are based on the following criteria:

1) Empty
2) Repeat offenders of clinical cases of mastitis
3) Low production, high SCC

PW was looked at however if her annual production was good and SCC low then she has been kept. However there was a strong correlation between the culls already sent and PW. 26 of the 31 pregnant culls in March and April this year had a PW less than 79 (13 of these were negative). Out of interest 21 cows had a negative LW.

We had Kath Taylor from VetSouth go through our MindaPro records and identify animals to cull to try and help our mastitis problem. Of the animals we still have on farm there were 12 cows identified using the following criteria.

a) Older than 6yrs
b) SCC over 500,000 at least twice in two seasons

The SCC report shows the history of these 12 cows, you can see that most of these animals have had high SCC over more than two seasons.

Replacements:

Our criteria for replacing the pregnant culls is as follows:

a) 150BW or higher
b) R2yr or R3yr olds
c) Greater than 85% recorded ancestry
d) Preferably crossbred
e) Well grown

There is very good statistics on the merit of buying high BW animals. (see next page)

Analysis of Replacing lowest PW cows

The following analysis is farm specific and dependant on the herd test results, current spread of production worth, expected future milk price and market prices of replacement animals relative to cull cows.

Adjusted Annual Production – based on herd test results							
	BW	**PW**	**kg MS per day**	**Number of Cows**	**Annual Revenue per cow**	**5 lactations per cow**	**Total revenue over 5 lactations**
Top 10%	**166**	**246**	1.77	72	$2,528	$12,642	$910,233
Herd Average	**112**	**108**	1.54	728	$2,205	$11,023	$793,652
Bottom 10%	**47**	**-54**	1.29	72	$1,843	$9,217	$663,618

Costs of Culling and Buying Cows		
Cull cow	Average BW Cow	High BW Cow
$500	$1,400	$1,800

Net cost of a replacement cow		**Annual Advantage per cow**	
High BW Replacement	$1,300	$685	This is the difference between the Top 10% which earn $2528 per year per cow and the bottom 10% which earn $1843 per year per cow
Herd Average Replacement	$900	$361	This is the difference between the Herd Average which earn $2205 per year per cow and the bottom 10% which earn $1843 per year per cow

Comparing the production of the lowest 10% of the herd with those in the top 10% identifies the relative earning opportunity of replacing low PW animals with high PW animals.

The net cost based on market prices for culling low PW cows and replacing them with high PW allows calculation of the likely payback period or lifetime benefit (or cost) of this investment.

For more information please discuss with your advisor or genetics representatives.

Somatic Cell Count Report

Sorted by Cow Number

Date: 11/05/2010

C/O Kay McCallum
1100 Wilsons Crossing Road
RD 1
Winton 9781

PTPT Code: BWLX
Herd Code: 6/5664

Animals Included: 12 **Group:** Cull's ID by Kath **Current as at:** 11/05/2010

Cow Number	Year Born	PW $	Previous SCC Exceeded	JAN 2008 Count (000)	APR 2008 Count (000)	SEP 2008 Count (000)	NOV 2008 Count (000)	JAN 2009 Count (000)	MAR 2009 Count (000)	SEP 2009 Count (000)	NOV 2009 Count (000)	FEB 2010 Count (000)	APR 2010 Count (000)	Current SCC Exceeded
5	2001	313/85	3/3	314	348		6071	318	1225	830	990	2266	3269	4/4
8	2002	81/84	3/3	453	219	0	622	1239	1838	1589	3716	936	2204	4/4
90	2006	83/69	4/4			168	420	478	450	1143	380	324	593	4/4
98	1997	6/85	4/4	659	1042	902	2192	450	1139	794	403	2878	1898	4/4
158	1999	-1/85	4/4	14	31	4624	1716	1970	1061	55	73	1019	1061	2/4
271	2001	194/83	4/4	630	1665	277	2488	1127	4672		278	384	2105	3/3
373	2004	76/83	4/4	189	221	423	620	1083	543		2437	1102	2752	3/3
522	2002	72/84	3/3	236	131		1494	387	1147		903	608	1543	3/3
542	2003	-66/83	3/3	928	3965		246	2350	7051		307	39	2465	2/3
545	2003	79/84	3/4	14	19	21	164	365	343	164	512	1028	463	4/4
657	2003	-44/83	1/3	26	65		25	76	285	3806	537	534	923	4/4
740	1999	72/88	4/4	234	549	192	686	1553	554	589	252	1084	991	4/4
Averages		**72**		**336**	**750**	**826**	**1395**	**950**	**1692**	**1121**	**899**	**1017**	**1689**	

Calculating the effective milking area:

1000kgMS or 1200kgMS/ha?

Background

More than 75% of Southland farmers winter their cows off farm. The crops and supplement (hay/baleage/silage) are normally provided by the grazier, bought in or produced on the run-off. It is not normal practice for farmers to produce baleage for wintering from the milking platform. At SDF this season the baleage for wintering was produced on farm.

What is the actual size of milking platform at SDF?

The farm is 295ha in total. Cows will be wintered on farm on 36ha of crop. This leaves a possible 259ha available for platform, but all the baleage for supplementing the winter crops were also produced on farm, further reducing the milking platform area.

The data collected over the last 3 years indicates that SDF grows approximately 14 tons of DM/ha annually. This current year's projections are similar – around 14 tons dry matter per year.

The farm has produced 1300 bales of baleage solely for use on winter crops – or between 230-260 tons of dry matter for winter feeding. This is based on bales weighing 180-200kgDM per bale. On the average annual yield of 14 tDM/ha, this effectively accounts for another 19ha of the farm. As most farms buy this baleage in, it is only fair to exclude this area from the effective milking platform when making comparisons. The effective milking platform for 2009/10 was therefore 240ha. Any silage produced for supplementing cows during autumn and spring were effectively cut from this area. A total of 55ha need to be regarded as run-off and not as milking platform.

Projected MS/ha for 2009/10

Production to 4th of May was 271,323kgMS. Current projections indicate that the farm could produce another 16,000 MS until end of May, bringing production to around 288,000kgMS for the year.

Production per ha

Milk solids production per ha on 240ha is therefore currently 1,130kgMS/ha and projected to be 1200kgMS/ha for 2009/10. This equates to 395kgMS/cow based on 730 cows at peak. Production has been solely off grass and grass silage produced on farm. No supplements were purchased to produce the milk.

A comparison of the last 3 years data is presented in the table below.

Comparison of last 3 years data

	2007/08	**2008/09**	**2009/10**
Peak cows milked	730	734	730
Cows wintered on farm	370	398	600
Estimated Grass production (tonsDM/ha)	14	13.8	14.3
Estimated Grass production (tonsDM/farm)	3570	3502	3698
Plus purchased supplements (tonsDM)	105	209	0
Total feed available	3675	3711	3698
Less Supplements made on farm (tonsDM)	226	191	358
Plus Supplement fed (tonsDM)	164	93	213
Feed used on farm (tonsDM)	3613	3613	3553
Less supplement used 60 days wintering @ 4kg/cow/day	89	96	144
Feed used for milk production (tons)	3524	3517	3409
Total milk production for season (*est for 2009/10)	290,219	256,340	288,000*
kg DM/kg MS during lactation	12.1	13.7	11.8
Effective area for milk production	252 ha	255 ha	240 ha
Adjusted production/ha	**1153**	**1006**	**1208**

The amount of supplement fed and milk produced for 2010 are projected figures, based on 1kgMS/cow/day and 7kg silage per cow per day until end of May.
No supplement was bought in 2010 and less dry matter was used to produce each kgMS than both previous 2 years i.e. the efficiency is improving.

Southland Demonstration Farm Weekly Data			
Farm Area	295	295	295
Sprayed out	0	0	0
Date (Totals at end of period)	27-Apr	4-May	11-May
Total ha used	259	259	259
Total Cows Wintered (July 1st Total)	808	808	808
Farm grazing ha (available to milkers) (eff ha)	259	259	259
Crop ha	36.1	36.1	36.1
Peak cows milked	730	730	730
Dry Cows on grass/ Crop / off farm	0/0/13	0/0/13	5/0/13
TOTAL DRY COWS	13	13	18
Dry cow (kg DM grass/crop/baleage)	10/0/0	10/0/0	10/0/0
Springers (kg DM grass/crop/baleage)	0/0/0	0/0/0	0/0/0
Culls (Includes culls put down & empties)	0	0	0
Culls total to date	98	98	98
Deaths (Includes cows put down)	0	0	0
Deaths total to date	46	46	46
Calved Cows available(avg for week)	644	644	639
Treatment or Sick mob total	46	104	99
lame, mastitis, other, colostrum	45/1/0/0	53/1/50/0	53/1/45/0
Milking twice a day into vat	598	540	540
Milking once a day into vat	45	103	97
Total Cows Milked into vat	643	643	637
TOTAL COWS IN MILK	644	644	639
TOTAL COWS ON FARM	657	657	657
Days in Milk actual cow days/Peak Cows	227	233	240
Milksolids to factory 3-day average per day	799	743	635
MS/cow/day (Actual kg / Cows into vat only)	1.24	1.16	1.00
Milksolids to factory season to date	266,083	270,033	275,135
MS/cow to date (total kgs / Peak Cows	364.5	369.9	376.9
MS/ha/day (total kgs / Total ha used -)	3.09	2.87	2.45
MS/ha to date (total kg / Total ha used)	1028	1043	1063
Cond'n Score	-	-	-
Monitor Group LW (kgs)	-	-	-
Soil Temp (average for week) 10cm	11.7	11.4	
Growth Rate (kgDM/ha/day)	42	22	23
Plate meter height - ave half-cms	12.76	11.73	11.59
Ave Pasture Cover (x140 + 500)	2287	2142	2123
Pre Grazing cover (ave for week)	3117	2955	2723
Post Grazing cover (ave for week)	1623	1614	1576
Highest pregrazing cover	3550	3500	3776
Area grazed / day (ave for week)	8.55	8	7.23
Grazing Interval	30.3	32.4	35.8
Pasture ME (pre grazing sample)	-	12.4	-
Pasture % Protein	-	26.5	-
Pasture % DM	-	17	-
Pasture % NDF	-	40	-
Supplements Type			
Supplements fed kg DM/cow/day in pdk	2.8	8.4	8.4
Supplements fed to date kg per peak cow	75	126	178
Supplements Made On Kg DM / ha cummulative	1383	1383	1383
Supplement Purchased in Kg DM / ha cummulative	0	0	0
Units N applied/ha and % of farm	23.5N/39.5%	0	0
Kgs/ha N to Date	171	171	171
Rainfall (mm)	98	46	1
Effluent spreading - paddock no.	41,43	45	44
Effluent - Ha for week/rate(mm)	7.02/7mm	3.22/7mm	3.54/7mm
Stock Water Consumed litres / cow / day	68*	67*	46.8
Total water used (for week)	381000	421000	357,000
* Water Leaks			

Winter Management Notes

The winter feeding can be divided into the following key components:

1. Determining animal requirements
2. Measuring and calculating crop yields
3. Allocating correct area and break size
4. Transitioning cows to crop
5. Transition back to grass
6. Management issues

Determining animal requirements:

The main nutrients we are concerned with during this phase will be energy, protein and fibre. Ideally dry cows should be on a 12-14% crude protein ration with at least 35% NDF. There are well documented nutritional problems with crops, like the notoriously wide Ca:P ratio (high calcium, low phosphorous), lack of magnesium and copper shortages. The following table will however keep things simple and indicate the amount the cow needs to eat. How much is offered depends on the utilisation of the crop. The amount indicated in the table is a guideline on what cows should eat allowing for cows to gain some condition.

	8 weeks to calving	4 weeks to calving	2 weeks to calving
450 kg Cow	11	12	10
500 kg Cow	12	13	11
550 kg Cow	13	14	12

Neither brassicas nor fodderbeet are ideal feed for cows as the sole diet. All are high in energy (carbohydrates, sugars) but low in fibre. Fodderbeet is also lower in protein (9% vs 12% plus for brassicas). Combining crops with the proper source of roughage can not only balance out the energy/protein/fibre components, but help alleviate any negative nutritional factors such as nitrates, SMCO etc. Feeding straw or cereal silage with fodderbeet is not recommended as it could result in a diet crude protein content below the required 12-14%. Feeding crops with roughage in the following ratio's should not only help to balance the diet, but ensure cows remain healthy. Due to uncertainties with fodderbeet, a maximum of 50% inclusion is recommended.

60 – 70 % Swedes	30 - 40% Hay/Baleage/Silage
70% Swedes	30% Straw
60 - 70% Kale	30 – 40 % Baleage/Hay
50 – 60 % Fodderbeet	40 - 50% Hay/Baleage/silage

Measuring and calculating crop yields:

Now that we know what the cows require, we need to determine what is on offer. This is a simple exercise that is often neglected but is critical to successful wintering.

- Join a piece of 3.544m alkathene pipe together
- Grab those fancy fishing scales (metric ones for those big fish)
- Pull/cut the crop within the circle (excluding the mud – no fishermen exaggeration allowed)
- Determine yield as follows

Weight measured x Dry Matter % = DM yield/m^2 x 10,000m^2 per ha = kg DM per ha yield

Use the following guide for Dry Matter values if the actual values have not been tested:
Kale 14%DM Swedes 11% Fodderbeet 16%

Because of the large variation in DM between crops it is recommended to rather have the crops tested than use average values. Fodderbeet has been testing as low as 12% dry matter – so have the dry matter tested.

Example: The bag of swedes pulled from within the circle of alkathene weighs 12kg.
12kg wet Swedes x 10% DM = 1.2kg DM/m^2 x 10,000m^2 = 12,000kg DM/ha (12 ton yield)
<u>For ridged Swedes</u>:
Assuming rows are 600mm apart, measure 1.67m down the row to get 1m^2 of wet crop yield.

Allocating correct area and calculating break size:

We now have determined how much crop we need to feed the cow (intakes x % of diet from tables above). We also have measured how much crop is available per m^2 or ha.
A cow requiring 14kg DM and receiving 70% swedes in diet needs to eat 10kg Swedes (14kg x 70% intake) and 4kg baleage/hay. (rounded off to nearest kg)
If the crop is yielding 1.2kg DM/m^2 then 10kg/1.2kg yield = 8.33m^2 per cow.
To feed a mob of any number of cows, simply multiply the area required per cow by number of cows, say to feed 100 cows x 8.33m^2/cow = 833m^2 per day for the 100 cow mob.
(For a herd of 500 cows the following: 8.33m2/cow x 500 cows x 60 days = 250,000m^2/10,000m^2 per ha = 25 ha of crop required for 60 days)
Break size:
By simply measuring the width of the paddock (or face length) it is easy to determine the break size required to feed the mob. Let's say the paddock is 200m wide, then the area required for the mob per day divided by the face length will provide the break size per day e.g. 833m^2 area/200m face length = 4.2m break per day
If 70% of the diet is crop, then 30% will need to be roughage, either baleage, hay or silage. In our example 4kg of baleage will be required per cow/day x 100 cows = 400kg baleage per day. Ideally some bales should be weighed as weights can vary enormously, but working on 180kg/bale means the mob will require 2.2 bales per day. (no allowance has been made for poor utilisation in this example)

Transitioning cows onto crops

It is important to remember that cows cannot digest the roughage; be it grass, silage, hay or crops. It is the bacteria within the cow's rumen that digest the roughage, and the bacteria need to adjust to any new source of feed. Bacteria more suited to crops than to grass need to develop and this can take 10 to 14 days. It is therefore important to adapt the cows (or rather the bacteria within the cow's rumen) to

the crops by feeding enough supplement like silage/baleage/hay/pasture in the beginning stages and increase the amount of crop gradually. Start with 1kg DM of crop per cow per day and increase amount offered per cow by not more than 1kgDM per day – that will take at least 10 days to allow for our example cow eating 10kg of swedes per day. Do not allow hungry cows onto crop as they could gorge themselves with possible negative consequences. Best practice is to "fill" cows up the supplement (silage, baleage, hay or pasture) before offering them the break of crop. Some cows simply do not adjust to crops and may need extra adaptation or even be removed from crops. Remember the old adage; It is the eye of the master that fattens the beast! Do not forget to check on cows copper, selenium and iodine status before going onto brassicas, and supplement if necessary. It is advisable to adapt cows to any changes in crop – especially from kale to swedes or fodderbeet.

Transition back to grass

The transition period, 2-3 weeks before and 4-5 days after calving is important in reducing metabolic issues and getting cows to peak production earlier. It appears as though the transition from crops to grass is less problematic than from grass to crops, but the bacteria do however still need some time to adapt before cows intakes can increase. Sudden changes in diet at calving can increase the risk of metabolic issues. As cows suffer depressed intakes 2 weeks prior to calving, it makes sense to introduce cows back to grass before calving, so as not to further suppress intake at calving. The high calcium low phosphorous problem of brassicas could also increase the risk of metabolic problems like milk fever. Brassicas contain low levels of magnesium and high levels of potassium which also increase the chances of metabolic disorders. Magnesium should be supplemented at least 1 month prior to calving by dusting the silage or adding to the water. Around 50-60 grams magnesium oxide per cow may be required. Best practice is to get springers off the crop at least 2 weeks before calving and dust pastures with magnesium.

Management issues

Despite crops having a high moisture content, cows still require a daily source of good clean drinking water. This is not only nutritionally important, but a requirement as set out in the animal welfare code. Back fencing and moving the water troughs will reduce the amount of damage the cows cause to the paddock. Following the practices set out above will ensure cows are well fed and watered, and reduce metabolic issues and cow losses in spring.

While it is too late to influence where this year's crops are situated, consider soil types and proximity to waterways when establishing crops. The flood two weeks ago may have highlighted the risks associated with crops and supplement on river banks, both environmentally and financially.

Remember the 3m rule from waterways – keep at least a 3m buffer zone between grazing and waterways. It is also recommended that the breaks start the farthest from the waterway and work towards the waterway. This is also good practice regarding public roads – start the break at the back of the paddock and work towards the road.

Howard de Klerk
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Regional Team Leader - DairyNZ

Stray voltage

In lay-man's terms it is any voltage where it should not be, causing a potential difference between where it came from to areas causing a current to flow when connected.
Some tell-tale signs you may have a stray voltage issue is that the cows will be hesitant to come into the shed or onto the platform.
They won't like the cups put on them.
They will defecate a lot, while inside the shed, and your milk production will decrease.
The cows will jump or run across a certain area when leaving the shed.
It use to be widely known that a cow could feel a voltage as low as 3 volts, 20% lower than a human, but now that has been set as low as .8 of a volt.

Where can stray voltage come from and how we can fix it

1) **Outside the cow shed:**

- Such as the 11kv grid where you can have faulty overhead lines, insulators, transformers and earthing system.
- Everyone would have stood under high tension lines in the rain and heard the crackling sound – this is voltage leaking to the earth.
- A broken insulator 2 to 3km away can have an effect on your cowshed.
- Power flowing through underground streams.

2) **Inside your cowshed:**

- Some main causes are incorrectly bonded steel work.
- Large loads starting up ie: effluent, wash-down pumps.
- Incorrect wiring used, such as screened cables for Variable Speed Drives.
- Water heaters
- And of course, Variable Speed Drives.

As for bonding, the theory is if everything is bonded together, there can be no potential difference, therefore there is no voltage.

Some areas where you will find these potential differences are between:

- The yard and bridge.
- The yard and vet race.
- The cups and platform or pit.
- The yard and backing gates.

Simple bonding wires or straps between these areas can help, and in some cases fix the problem.

A scraping earth can be fixed to the bridge to earth onto the platform.

With large loads, voltage can be induced into steel work on start-up caused by the high current involved.

Soft-starters or VSDs can eliminate this as they limit the current on start up.

With incorrect wiring, cables to motors, etc, that are too small can cause a volt drop on start up, which in turn causes high current.

Normally this would result in the motor struggling to start and trip the overload.

Incorrect cables that are non-screened when using Variable Speed Drives

Because Variable Speed Drives change the normal 50Hz frequency to a higher frequency, you can get induced voltage into steel work that is running along side the cable, a screened cable will eliminate this.

Along with the screened cable the correct EMC glands at the Variable Speed Drive and motor ends should be installed, If they are not, then you will get a high impedance at these points.

Water heaters can potentially leak voltage from the elements and not blow the fuse, so turning these off during milking is a must.

This can be done automatically by wiring their controls through the plant start.

Lastly, and most importantly, Variable Speed Drives . . .

There are so many different brands on the market these days and most are put together very cheaply, and don't have the necessary input filters in them to stop interference.

The way a VSD is mounted, and the distance between it, and the motor is critical – the shorter, the better.

This interference can be induced or airborne interference.

Nind Dairy Services use the **Danfoss** brand as it is one of only two Variable Speed Drives that comply.

3) Electric fence units

Electric fence units must not be mounted in the cowshed or effluent or bore pump sheds that link to the cowshed.

Their earthing system should be to the manufacturer's specification, and if in a dry area more earth stakes should be used.

Just on that note, the main earth at the cowshed should be in an area where the ground is not too dry.

A lot of sheds were built with the earth stake beside the front wall and then at a later date a large area surrounding the stake has been concreted.

A metre-wide pathway is fine, but more than that, the ground underneath will dry out over time.

A small fence unit on the top gate is fine as long as it is well earthed, not just the wire wrapped around the pipe.

In some cases, the neighbour's electric fence unit is at blame, so check out theirs also.

4) **Static electricity**:

Because, we are only talking about .8 of a volt, it doesn't take much to generate static electricity, a earth grid under your feet could eliminate this in a herringbone.

This could mean a single strip of metal the entire length of the pit where you stand, and in a rotary, the same, both earthed to the main steel work.

In summary:

In most cases, you do not have to spend a lot of money to rid stray voltage.

Be wary when getting a VSD installed – they are great for saving power and prolonging the life of a motor, and are a great piece of kit, but not all are properly filtered.

And unfortunately not all electricians are qualified to install them correctly.

The best way to find a short on your electric fence unit is to tune into a AM radio station and listen for the clicking.

As far as the supply into your shed, first get your electrician to check this out before tackling the power company.

And it is good to note if you had a stray voltage problem and you get it fixed, don't expect instant results as a cow, just like us, has a memory and doesn't forget easily. Normally it takes a week to see a difference.

Nigel McClymont, Manager/ Director, Nind Dairy Services

BVD – the silver bullet?

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WHAT IS BVD?

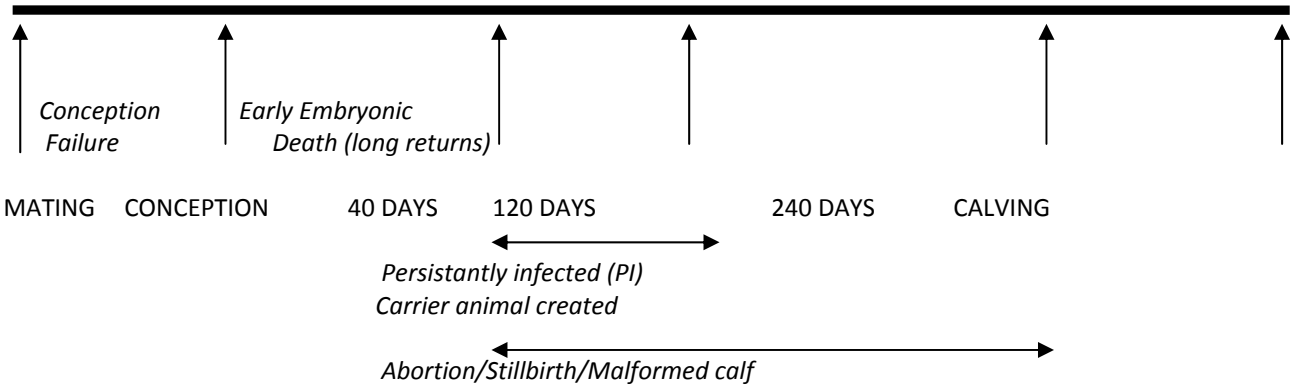
BVD stands for Bovine Viral Diarrhoea. It might appear in a dairy farming operation as one of two syndromes:

Ill thrift in young stock

BVD causes a green scour and immune suppression in young stock. It may take months for the infection to spread through the whole mob. Growth rates are reduced and they are more susceptible to other diseases. Their tails are dirty. They might have ringworm and/or cough when moved. The diarrhoea might be explained away as worms or lush feed. Eventually they recover but unless there is some significant compensatory growth, it can result in smaller, less productive two year olds that struggle to get in calf when they enter the herd. Sometimes there are losses due to secondary infections like pneumonia and Yersiniosis.

Reproductive failure

If a cow is infected with BVD virus for the first time while she is trying to get pregnant or is pregnant, depending on what stage of the mating/pregnancy she is at, one of the following things can happen:



If a bull is infected with BVD virus for the first time while he is mating cows the quality of his sperm will be lower and he will spread BVD virus to a lot of cows because of the close contact he will have with them. It is wise to buy immune bulls (vaccinated or had the disease) if you are an infected herd.

Carrier animals

Carrier animals are created when a cow is infected for the first time while she is 40-120 days pregnant. At this stage the foetus has no effective immune system. When the immune system develops, it doesn't recognise the virus as "foreign", so it never fights the virus off. Sometimes, within these animals, the virus mutates into a more damaging form and the animal fades away and dies (mucosal disease). The mutated virus can spread to other carrier animals in the mob and sometimes there are "outbreaks" of mucosal disease if there are a lot of carriers in the mob. Only carrier animals get mucosal disease.

50% of PI (carrier animals) die before 2 years old and never enter the herd but 50% enter the herd looking completely normal. Carrier animals are the source of infection for other stock. If carrier animals are removed from the herd, then after passing from cow to cow for a while, the virus will eventually die out. Bulls which are carriers have significantly reduced fertility as well as spreading disease. Test bulls to make sure they are not carriers before purchasing them.

HOW DO YOU KNOW IF YOU HAVE IT? TESTS FOR BVD

There are two types of test for BVD.

Tests that detect antibodies and indicate previous exposure to the disease
*The presence of antibodies in a **blood sample from an individual animal** indicates that the animal has been exposed to the virus and has mounted an immune response.*

***Vat milk** can also be tested for antibodies. It gives an indication of the level of immunity in the herd and whether it has been recently exposed to the virus. It is reported back as Low, Moderate or High.*

Result	*S:P ratio*	*% of herd immune*	*Interpretation*
Low	*<0.2*	*0-30%*	*Naïve, BVD free herd with minimal/no antibody formed i.e. no exposure to BVD*
Moderate	*0.2-1*	*30-70%*	*Has been exposed to BVD and cows are producing antibody but unlikely there is a PI (carrier) currently present.*
High	*>1*	*50-90%*	*Has been recently exposed to BVD. 40% of herds in this category still have a PI (carrier) within the herd.*

Tests that detect the presence of the virus and indicate current infection
*There are two different tests that detect presence of the virus in **individual animal samples.***
***PCR** (polymerase chain reaction) detects viral DNA. **Antigen** testing detects physical parts of the virus.*

*PCR testing (but not antigen testing) can be done on **vat milk** and can detect even one carrier animal in herds of 1000-2000 cows. Carrier animals are more susceptible to disease and are likely to be in the penicillin herd. If you are doing a PCR test on vat milk the animals in the penicillin/lame mob on the day of testing needs to be recorded and they should be blood tested.*

WHAT SHOULD YOU DO? – Test? Vaccinate? Eliminate? Ignore?

What you choose to do about BVD in your herd depends entirely on:

1. *the status of your herd*
2. *the risk of becoming infected if currently uninfected*
3. *the chance of clearing the infection without doing anything*
4. *the cost of being infected*
5. *your attitude to risk.*

Fortunately, recent research is measuring some of these risks and costs but our knowledge is still incomplete and only you know your attitude to risk.

Test?

You can't make an informed decision without information. How much BVD is costing you depends on your BVD status.

BVD can be a costly disease if you are a ***naïve herd and suddenly introduce BVD.***
Example. a naïve group of heifers are sent out grazing and come in contact with the disease, 40% end up empty – a true case that happened this year.

BVD can be a costly disease if you are an ***infected herd and have the virus in your herd.***
A transiently infected animal (TI), is an animal that gets infected but then fights the disease off. Overseas these animals have been shown to have a decrease in milk yield of 10% while they are infected. Recent research by Andrew Weir in Taranaki showed that, compared with immune cows and cows that remained uninfected, these transiently infected cows had 7.5% less conceiving to AI, 3.1% lower final preg rate, 6 days longer to get in calf and more disease (mastitis, lameness). He put the cost of having one cow transiently infected in the herd at $81, without including for milk production losses.

Table 1: Extra loss due to transient infection (TI) with BVD virus in comparison to antibody negative or immune cows in 10 dairy herds in Taranaki (Weir et al, 2009, unpublished)

Source	Loss	Cost per TI and year
Reduced days in milk through increased calving-conception period	+6.6 days	$39.60
Lower final pregnancy rate	-3.1%	$24.80
Lower conception to artificial breeding	-11.0%	$6.60
Extra clinical disease		$10.50
Milk production decline (kg solids/d)	no detectable*	
Total loss per TI		$81.50

* Sampling was too infrequent to be able to detect a milk production difference

*Of course the **overall cost of BVD in your herd** depends on how many cows within your herd are susceptible to transient infection (are not yet immune) and whether or not there is a PI (carrier) around to infect them.*

Example (Line 2 in the table below)
High Bulk Milk antibody level indicates only approx 10% of the herd are susceptible.
Bulk Milk PCR shows no carrier present.
40% of the 10% susceptible cows still sero convert (become infected) because although there is no carrier present the virus is still spreading around as a transient infection or there is continued contact with a non-milking PI (calf or dry cow). This was found to be the average sero conversion rate for high antibody, PI negative herds in a Taranaki study.
= 4% of the herd have a transient infection in the season
= 0.04 x 500cows x $81 = $1620 total cost = $1620/500 = $3.20 per cow
The table below from a VetScholar course 2009 outlines some other scenarios.

Box 3: Conversion of BTM test results to the expected loss per cow due to TIs in the herd if infection is present

BTM antibody	BTM-PCR	% naïve	% serocon	%TI	$/TI	$TI/cow*
high	pos	10%	80%	8%	81	$6
high	neg	10%	40%	4%	81	$3
low	pos	90%	80%	72%	81	$58
low	neg	90%	40%	36%	81	$29

*Add 35$ per cow to account for the loss of PI in an infected herd

Vaccinate?

Obviously if the cost per cow in your herd is more than the cost of vaccination it would be cost effective to vaccinate. Vaccine costs around $6 per dose. However in the first year the whole herd has to be vaccinated twice.

Unfortunately, unlike in the table above the exact % of naïve cows in the herd is not something that is easy to find out. A high bulk milk antibody result indicates somewhere between 50-90% of the herd are making antibodies. That leaves 10-50% of the herd susceptible to transient infection (TI), the result doesn't tell you an exact figure.

In the above chart, the highest cost per cow is if a naïve herd becomes PCR positive (acquires a carrier). The chances of this happening are not that clear yet. In a Taranaki study 6% of herds that were PCR negative (no carrier) became infected by the next year. However we don't know what the risk is here in Southland. In Taranaki there are less infected herds and more "closed herds" with fewer stock movements. That risk could be a lot higher here. Even if you operate as a closed herd and winter at home, the virus can spread across fences, be brought in with bulls or cows pregnant with PI calves inside them. It can also be introduced by vets and AI technicians and other people entering the farm. Whether or not to vaccinate depends on your risk aversion.

What about natural vaccination? *Purposefully exposing calves to a PI (carrier animal) before they are trying to get in calf would theoretically have all of them immune prior to mating as a 15 month old animal. Nice idea, but the problems with that are:*

(a) you have to find a PI animal (time and lab fees)
(b) unfortunately the animals have to get sick before they get immune and will suffer growth retardation.
(c) carriers also have the inconvenient habit of dying.
(d) studies have shown that under grazing conditions new infection rate may be as low as 1% per day (Horner, G 1996). This and waning of immunity means that there may always be a percentage of the mob susceptible to the virus. In one case a mob of heifers were block grazed with PIs for a year and 19% didn't become immune.

Will vaccinating improve reproductive performance?
Poor reproductive performance is usually due to a number of factors. Vaccinating for BVD is not going to correct all of these factors. The following is a table of the reduction in empty rate experienced in some herds from a Dargaville Vet clinic when they started to vaccinate. These herds (except for Dennis) had high empty rates and the vet suspected BVD was playing a role.

Farmer	*2007/08 empty rate*	*2008/09 empty rate (after vaccination)*	*change*
Barry	*22%*	*14%*	*8%*
David	*30%*	*22%*	*8%*
Andrew	*16%*	*9%*	*7%*
Bryce	*22%*	*16%*	*6%*
Grant	*14%*	*9%*	*5%*
Brian	*15%*	*9%*	*6%*
Dennis	*20%*	*20%*	*9%*

NOTE: In the absence of other information regarding changes to management practices, seasonal differences etc, CARE must be taken when interpreting cause and effect in the above table.

Eliminate?

Testing animals for carrier status costs about $10/animal. 90% of carrier (PI) animals can be found in the lowest 15% producing cows. Obviously you need to be herd testing to know who the lowest 15% are. To eliminate PIs from young stock mobs the whole mob has to be tested. This is expensive.

If you eliminate the carrier animals, could you save yourself the cost of vaccination? *If all PI's in the herd and young stock are eliminated then natural immunity will slowly wane and after 2.5-5 years cows again become susceptible. Eventually the herd ends up in the same situation as a low bulk milk antibody naïve herd. As mentioned above we don't know how often uninfected herds become reinfected, but the cost would be high if it occurred. Whether or not to vaccinate depends on your risk aversion.*

What happens if you just vaccinate and don't eliminate the carriers?
Vaccinating prevents PIs being born to transiently infected animals but doesn't stop PIs having PI calves every year. In the Taranaki study 60% of herds that had a carrier (PI) in them in one

year, no longer had a carrier the following year. They have a tendency to die of secondary infections or to be culled for low production. However most infected herds have 1-2% of the herd as PI's, in our larger herds in Southland there will be more PI's and more chance of at least one surviving from year to year.

Without removing the PI's the herd remains infected and you have to be committed to vaccinating long term. However it may be cheaper than going searching for carriers and still deciding to vaccinate.

Ignore?

I hope you have now gained enough information to decide about that.

SUMMARY

- *BVD is a complicated disease*
- *What control measures to put in place depends on your herds status. To make informed decisions testing is recommended.*
- *Even in the absence of BVD testing all bulls purchased should be vaccinated and tested for carrier status (PCR or antigen testing). The last vaccine shot should be 2 weeks before they are mixed with the cows.*
- *The cost of BVD is greatest when it is introduced to a non-immune herd but there can be insidious and significant costs in herds that have been infected for some time.*
- *Your vet is the best person to talk to about BVD.*

STAFF MANAGEMENT: TEMPLATES FOR SUCCESS

THE PROBLEM:

"How do I get my staff to manage the effluent system properly?"
"How do I get my staff to keep on top of mastitis?"
"How do I get my staff to maintain the bikes and machinery?"
...in other words
"How do I get my staff to do what they should?"

THE SOLUTION:

By making sure they know the following:

1. Why is it important to the farm, them, the owner, the industry
2. What is it they have to do, what outcomes are expected, how clear are the expectations
3. What the consequences of NOT doing it are...
4. That you will follow through on the consequences if necessary

Of course this sounds easy but it is not always that simple is it. It can be hard to remember to tell them "the why", or we assume they know this. What do you mean by having clear expectations, isn't that just telling them what they should do?

There are a number of ways we often use to try and give clear expectations of what has to happen. For example; tell people verbally, write up lists, show, etc. Each of these methods have limitations if used on their own, they often lead to confusion or jobs not done as you would like.

Outcomes of not getting the message across clearly can be mistakes or jobs not done properly, this can be costly and time consuming. For example;

- Effluent not managed properly – costs = time and $
- Mastitis not identified and treated – costs = wastage, time and $
- Not maintaining machinery – costs = breakages, time and $

So how can we save time and money and make it clear what we expect from our people?

By investing some time...

What we have initiated at SDF and LUDF is a simple system to help clarify what is expected from people.

THE SYSTEM:

This system is about providing feedback and ongoing clarification of expectations. The easiest way to achieve this is with regular sessions, ideally each month for junior staff and every two to three months for more senior staff to agree on priorities, clarify expectations and give feedback on performance to date.

Meet with each of your staff and identify their priorities for the next couple of months, the priorities should be things they are responsible for or have a impact on, need to learn or work

on. Complete the Coaching Sheet (see attached), filling in each section. Once you have done this a few times this should only take you 30 minutes to complete with your staff.

Key things to remember:

- Keep it simple
- Focus on short, regular sessions
- Focus on five relevant skills at a time
- Set goals together
- Focus forward, don't spend too much time on what has already happened.
- Identify clear outcomes and action steps

Break down requirements into six areas;

- Key responsibility (goal)
- Key Tasks required (action point)
- Purpose (why?)
- Current position (where am I now?)
- Measure and review period (what by when?)
- Result (actual)

At each session with your people spend a small amount of time reviewing the goals and action points you set last time; if goals weren't achieved find out why. Was it a resource issue, a training issue, a time issue, a behavioural issue? Were expectations unclear?

Spend the rest of the session (80% of time) focused on setting goals, actions and expectations for the next review period. This system will identify training needs, so make sure if you are training an employee in a new skill they will have a chance to practice it. Once the system is running it is easier to identify training requirements and responsibilities for all staff.

Reviewing progress can identify road blocks, show up a problem before it becomes significant, and identify underperforming staff quickly so they can be managed.

Diary in meetings so you follow through on anything you start. The success of any system is the regular review and resetting of action points. Document the system you are going to use.

Often Performance Management systems get complex. Performance review documents with pages of specific responsibilities, lots of detail!! Simple systems work the best, focus on the main requirements for each staff member, keep the big picture view. What are the IMPORTANT things to do for this time of year? Have clear requirements and measures. If results aren't achieved ask why – don't blame! Ask yourself –"As the manager, did I communicate clearly enough?" "Did I do what I said I was going to?"

Sarah Watson
Developer - Human Capability, DairyNZ

Name: Joe Bloggs (Farm Assistant)_____

Todays date: 27/04/2010 Next meeting: _____

DEVELOPMENT PROGRAMME – FEEDBACK SHEET

Key Responsibility (Goal)	**Key Tasks** (Action points)	**Purpose** (Why)	**Current Situation & Training required** (Where am I now)	**Measure & review period** (What by when)	**Results** (Actual)
1500kgDM/ha residuals at all times when cows have finished grazing Goal agreed – 30 March 2010	Use platemeter always to check actual residual Discuss actual residual with Tom (Farm Manager) or Jim (assistant farm manager) and determine whether to return cows to clean up paddock Record residual in grazing log at cowshed	Help to make sure we don't eat the pasture down 'too hard', which would possibly slow regrowth. Or leave pasture 'too long' and effect pasture quality. Both these things can have an impact on milk production.	Joe has completed the pasture management AgITO module Joe thinks his eye assessment is as good as the platemeter	Residuals discussed each day and grazing modified accordingly Results recorded on grazing log to show to farm owner at next meeting – 27 April 2010	*At 27 April 2010: Joe's eye assessment was good on the new pasture species but incorrect on the old pasture.* *Grazing log shows desired residuals achieved 90% of time.* *Pasture quality tests now above 11.5MJME/kgDM*

Performance Appraisal: Farm Manager

Name: _____

Date:

Competency Level: *(Allocate a score in every box, you must use the scores 0 to 5)*

5	100%	Achieves targets, with supervision less than 5% of the time, can train others
4	75%	Requires supervision between 5 to 20% of the time, can train others, achieves targets
3	50%	Minimum expected level of manager, mostly achieving targets, still developing skills, requires regular contact to get done
2	33%	Requires constant contact to achieve targets or doesn't achieve targets, lack of skill in this area, improvement required
1	0%	Non performance
0	0%	No score at this time - hasn't done this job

Key Area	Objective & Duties	Competency Score	Competency %	Employee Rating
The Farm Manager is required to supervise and implement the jointly agreed management plan, completing all tasks required for herd and farm management.				
Financial Management	Responsible for the implementation of the Financial Budget for the farm, including;			
	Providing input into the development of the budget	0	0%	
	Managing within budgeted parameters	0	0%	
	Getting invoices to Farm Owner before 15th of each month (KPI=12 reports to Farm Owner)	0	0%	
	Monitoring progress against budget and reporting trends to Farm Owner, monthly	0	0%	
	Average competency score		0%	
	Weighted average for Financial Management	**20%**	0%	

Comments: Financial Mgmt

Key Area	Objective & Duties	Competency Score	Competency %	Employee Rating
Staff Management	Operate the farm conducive to maintaining a team of quality staff and enhancing the farm's reputation as an employer, including;			
	Effectively managing staff/contractors on farm by developing/communicating and achieving the day to day management plan		0%	
	Meeting the requirements of the Farms employment standards accreditation program (IIPNZ)		0%	
	Holding staff meetings at least monthly; meetings to include agenda, record of attendance, H&S, actions, etc		0%	
	Managing staff rosters to ensure staff have required days off and hours of work are within targets		0%	
	No staff to accrue more than 10 days annual leave, unless by prior arrangement		0%	
	Completing regular performance appraisals with staff as required by Farm Owner		0%	
	Working to fill staff vacancies within 6 weeks of any resignation (or as mutually agreed with Farm Owner)		0%	
	Minimising unplanned staff turnover, and the impact of staff issues and conflict		0%	
	Managing farm OSH requirements according to the farm guidelines and OSH Manual		0%	
	Completing orientation requirements for new staff		0%	
	Identifying training and development needs for staff and working to fulfil these needs		0%	
	Ensuring staff are managed in a way that meets legal requirements		0%	
	Average competency score		0%	
	Weighted average for Staff Management	**20%**	0%	

Comments: Staff Mgmt

Performance Appraisal: Farm Manager (Continued)

Pasture & Feed Management	Responsible for collecting and using information to manage herd feeding, maximise milk production, protect pasture quality and avoid pasture damage, including;			
	Accurate and timely measurement and recording of pasture cover and analysis of information by;			
	Complete farmwalk using a rising plate metre (formula 140+500), emailed to Farm Owner by Thur night weekly(season), fortnightly(winter)		0%	
	Using spring rotation planner, feed wedge and feed planning tools in consultation with Farm Owner. SRP to FO by 15th July		0%	
	Actively manage surplus/deficit		0%	
	Responsible for all grazing residuals throughout the season and ensure they meet with agreed KPI targets		0%	
	Actively manage winter feed, ensuring cow condition targets are met		0%	
	Average competency score		0%	
	Weighted average for Pasture & Feed Management	**20%**	0%	

Comments: Pasture/Feed Mgmt

Herd Management	Maximise herd production, including;			
	Achieving target milk production as defined by the KPI for the farm		0%	
	Monitoring day to day production per cow against targets, communicate results to Farm Owner		0%	
	Achieving fertility targets as per KPI sheet		0%	
	Tail painting to observe and record cows in season prior to and during mating		0%	
	Supervising mating and keeping accurate herd records as defined by the farm approved database		0%	
	Minimising death rates, meeting targets set in KPI sheet		0%	
	Promoting animal health and preventing health problems by proactive identification and treatment of stock		0%	
	Particularly milk fever, bloat, trace element disorders and parasite problems are to be minimised		0%	
	Stock must be moved and handled in a way that protects the welfare of the animals		0%	
	Animal Health strategies must be agreed with the Farm Owner before being implemented		0%	
	Accurately completing stock reconciliation forms and returning to Farm Owner by the 3rd of each month		0%	
	Ensuring calving is achieved with minimal wastage, loss, stress and damage to stock and people		0%	
	Dry herd drafted for springers at least once a week		0%	
	Cows only calve in the springer mob		0%	
	The springer mob is checked at least 5 times per day		0%	
	Average competency score		0%	
	Weighted average for Herd Management	**20%**	0%	

Comments: Herd Mgmt

Performance Appraisal: Farm Manager (Continued)

Other Competencies

Record Keeping	To maintain accurate and timely records in the following areas;			
	Herd records (incl calving and mating details);			
	Daily record calvings into yellow notebook, accurately identifying replacement heifer calves and dam information		0%	
	All heifer calves must be accurately tagged		0%	
	Calvings must be recorded within 4 weeks of the event, all info entered by 1st Oct		0%	
	Animal Health Traceability Records (to include all treatments for animals and completion of 'BOFP' book)		0%	
	Resource Management Act requirement records (effluent disposal and water consent)		0%	
	Staff leave (including annual holidays, public holidays, sick leave, bereavement leave and scheduled days off)		0%	
	Ensuring the timely and accurate completion of weekly and monthly reports		0%	
	All monitoring and associated paperwork required to comply with TB legal requirements must be correctly completed at the time		0%	
	Monthly written reports are to be completed and provided to Farm Owner not later than 3 working days after the end of each month		0%	
	Record details of cows confirmed as requiring induction at final scan		0%	
Comments				
Calf Rearing	Objective is to rear calves to achieve the KPI targets, including;			
	Rearing all available heifer calves to weaning meeting calf KPI targets		0%	
	Ensuring all calves kept for rearing are fed colostrum, tagged correctly, recorded and delivered to calf rearing facility		0%	
	Rearing heifer calves so target weights are met before they leave the property		0%	
	Monitor heifer progress post weaning, manage the reintroduction of IC heifers, to ensure quality replacements at 24mths		0%	
	Ensuring gate sale bobby calves are four days old, above minimum specified weights, free of inhibitory substances		0%	
Comments				
Shed Management & Milk Quality	Objective is continuous grade free seasons meeting KPI targets, including;			
	Ensuring shed check completed and all faults rectified before the start of the season		0%	
	Ensuring only milk of the finest quality is presented for collection		0%	
	Ensuring shed hygiene and cleanliness is maintained to agreed standards		0%	
	Ensuring completion of all milking, herd feeding and day-to-day dairy shed management		0%	
	Ensuring milking finished (including wash-down) by 8:30am and no later than 6:00pm		0%	
	Follow BOFP (best on farm practice manual) ensuring full compliance with annual Agriquality inspection		0%	
	Ensure all faults are rectified prior to the start of the season	0	0%	
Comments				
Land Use & Appearance	Effective use of land, including;			
	Ensuring the establishment of crop and pasture is completed in a timely manner, as agreed with Farm Owner		0%	
	Ensuring that all rolling is completed in a timely manner		0%	
	Ensuring that silage stacks are covered as required		0%	
	Implementing an effective weed control programme to ensure no weed reaches flowering stage in any season		0%	
	Ensuring the property is always tidy and well presented		0%	
	Ensuring all accommodation, garden and section areas are maintained in a tidy, well presented state		0%	
Comments				

Performance Appraisal: Farm Manager (Continued)

Farm Maintenance	Ensuring necessary irrigation of the milking platforms occurs; all systems must operate within Resource Consents conditions		0%	
	Ensuring there is a maintenance schedule that ensures all farm vehicles and plant properly maintained		0%	
	Scheduled servicing happens when due and all maintenance undertaken is recorded		0%	
	Completing farm maintenance/farm development as identified or requested by the Farm Owner, including fencing and fixing water leaks		0%	
	Maintain fence voltage according to KPI		0%	

Comments

Effluent & Nutrient Management	Effluent management plan is adhered to		0%	
	Training all staff in the correct operation of the effluent system		0%	
	Developing an understanding of nutrient budgeting and fertiliser management		0%	
	Implementing fertiliser plan in timely way and record all applications, ensuring fert use on effluent areas is as per fert plan		0%	
	Ensuring the farm operates within its Resource Consent conditions at all times		0%	

Comments

Health & Safety	Objective is achieving a safe working environment, by;			
	Ensuring there is an up to date hazard map located in a visual position		0%	
	Annually complete H&S checklist and produce an updated hazard map		0%	
	Complying with requirements of H&S in Employment legislation		0%	
	Complying with farm H&S policies and procedures	0	0%	
	Notifying Farm Owner of new potential hazards as identified	0	0%	
	Notifying the Farm Owner of any accident , (injury or non-injury) and complete the report in the Accident Register book	0	0%	
General Duties	To complete all other tasks as may be reasonably and lawfully requested, including but not limited to;			
	Managing winter grazing		0%	
	Average competency score		0%	
	Weighted average for Other Competencies	**20%**	0%	
Training	Attend discussion groups and/or other self-development activities, including LUDF field days	Yes/No		
	Committed to learning new skills	Yes/No		

Comments

	Key Competencies		
	Financial Management	20%	0%
	Staff Management	20%	0%
	Pasture & Feed Management	20%	0%
	Herd Management	20%	0%
	Other	20%	0%
	Total (This represents the overall level of competency the Manager has in this role)	**100%**	**0%**

The Flood at Southland Demonstration Farm – 28 April 2010