

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 30th May 2017

LUDF – focus for 2016/17 Season: Nil-Infrastructure, low input, low N-loss, maximise profit.
Farm system comprises 3.5 cows/ha (peak milked), Target up to 170kgN/ha, 300kgDM/cow imported supplement, plus winter most cows off farm. FWE of less than \$1 million and Target production of over 500kgMS/cow (>100% liveweight in milk production).

Critical issues for the short term

1. Monitor pasture growth through winter to ensure the farm is well set up for calving
2. Keep in contact with the grazing block to ensure wintering of cows goes well.

LUDF Profitability Benchmark Analysis presentations coming to your region on the week of 3rd July to the 7th July. Keep an eye out for venues and times when confirmed.

Key Numbers - week ending Tuesday 30th May 2017

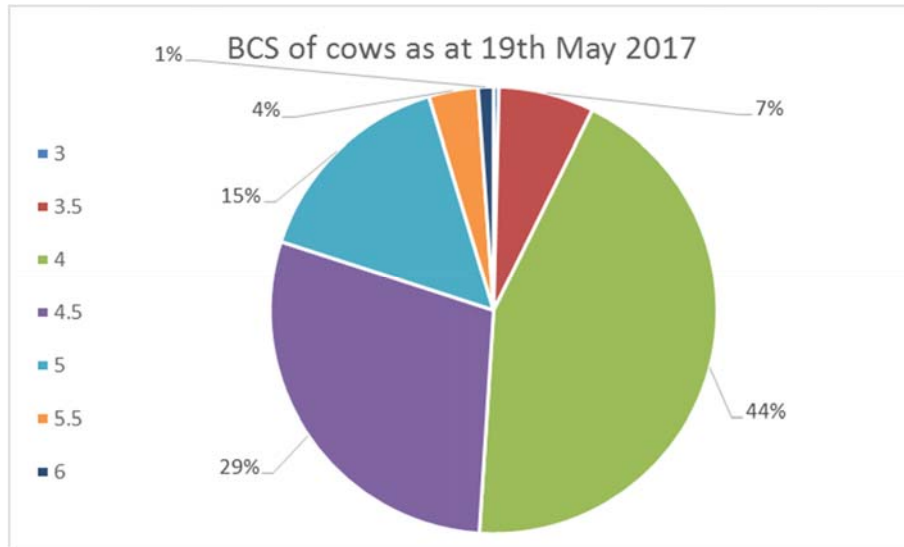
Ave Pasture Cover	2066 kgDM/ha	Pasture Growth Rate	22 kgDM/ha/day – from feed wedge
No Cows on farm	11 lames	Ave Soil Temp (week)	8.4

Key Results for 2016-17 Season

Average Milk Production	516 kgMS/cow	Nitrogen Fertiliser	173 kgN /ha
	1789 kgMS/ha	Imported Supplement	397 kgDM/cow

Herd Management

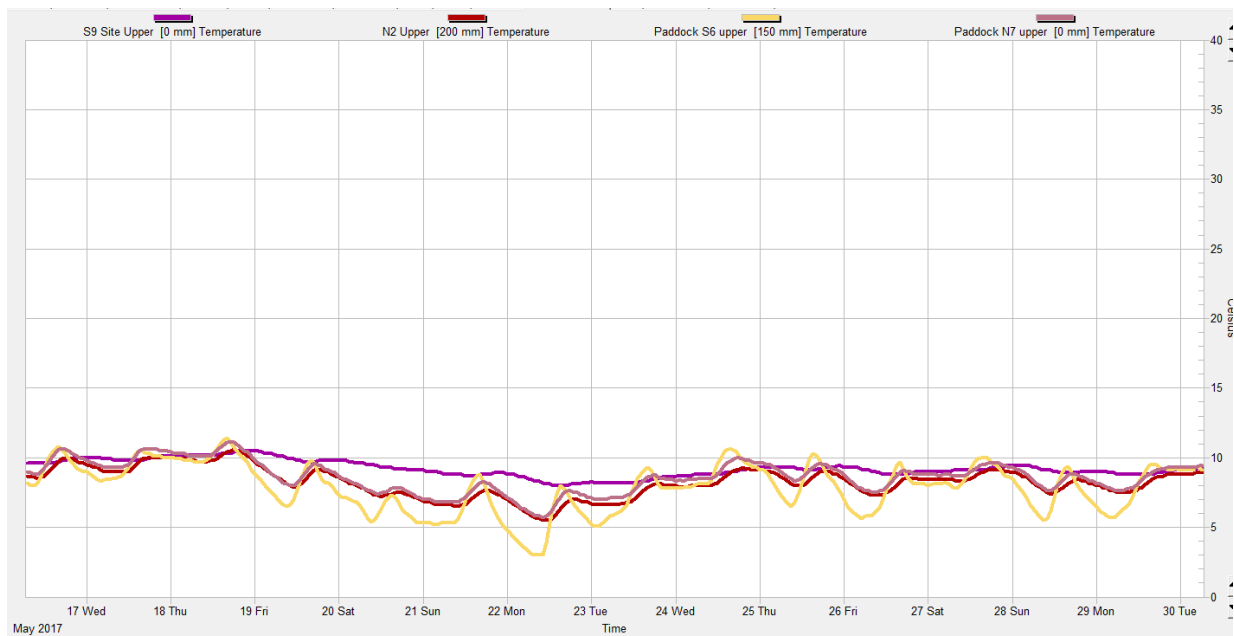
3. All cows have been dried off on Thursday 25th May and sent to their wintering block in Hororata on Friday 26th May.
4. All culls have left the farm on Wednesday 24th May
5. There are only 13 cows left on farm (lames)
6. 2 cows died last week after being diagnosed and treated for acidosis, however the fodder beet feeding regime had not changed.
7. R2 heifers have been teat sealed on the 18th May and they received an IBR and Salmonella vaccine with a B12 and Se boost on the 29th May
8. All cows in the herd have been BCS on the 19th May. The average BCS for the herd is 4.3 (unchanged for the last 3 months). Of this, 44% cows are at BCS 4, 7% are below 4 (only 2 cows at BCS 3.5), 29% of cows are BCS 4.5 and 20% of cows are 5 or greater.



Growing Conditions

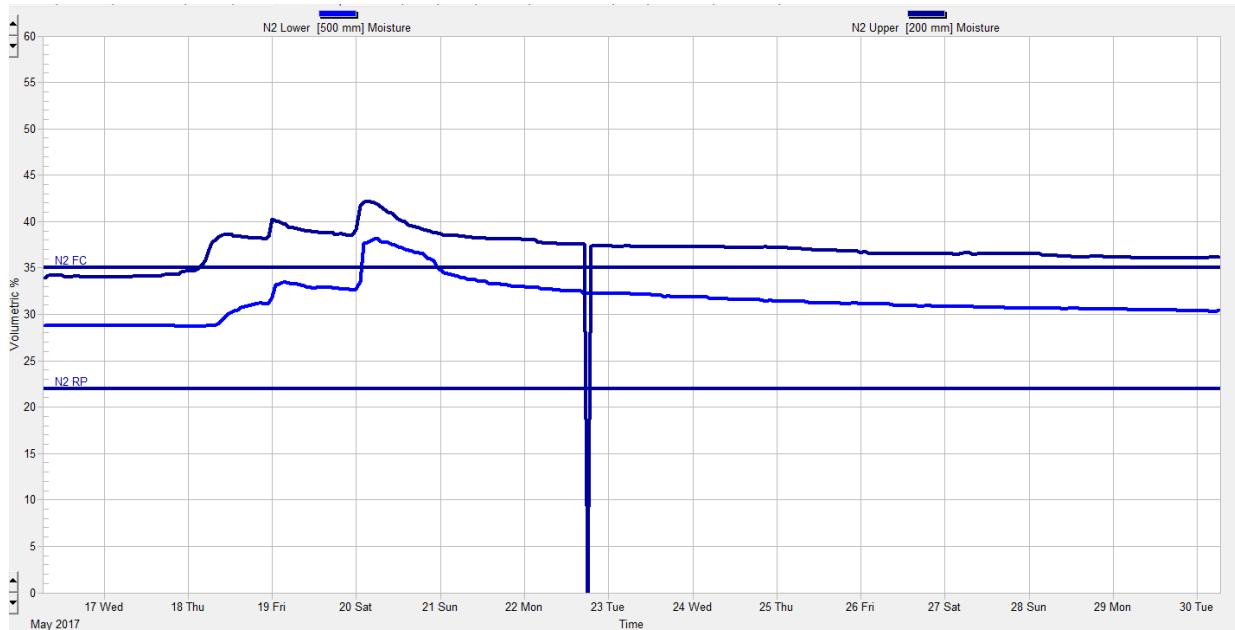
9. The average 9 am soil temperature for the past week has increased 0.4°C to 8.4°C.

Figure 1: Soil temperature history for the last 2 weeks



10. The farm received 0.6mm of rain this last week. Soil conditions remain wet.

Figure 2: Soil moisture history for the last 2 weeks (Paddock N2)



11. A total of 173kgN/ha has been applied to the platform for the season. The N application finished in early April.

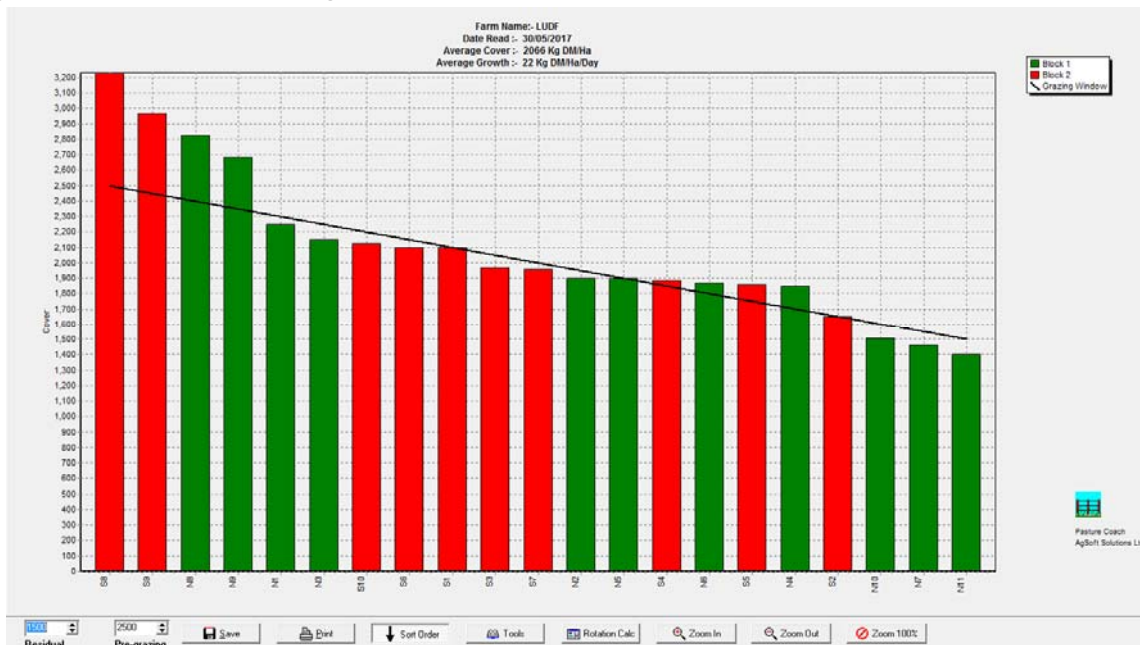
Pasture and Feed Management

12. Cows did not graze any new paddocks before they left the farm last week, they only cleaned up paddocks that had been grazed or were being grazed.

13. Pasture quality from samples collected on 16th May showed:

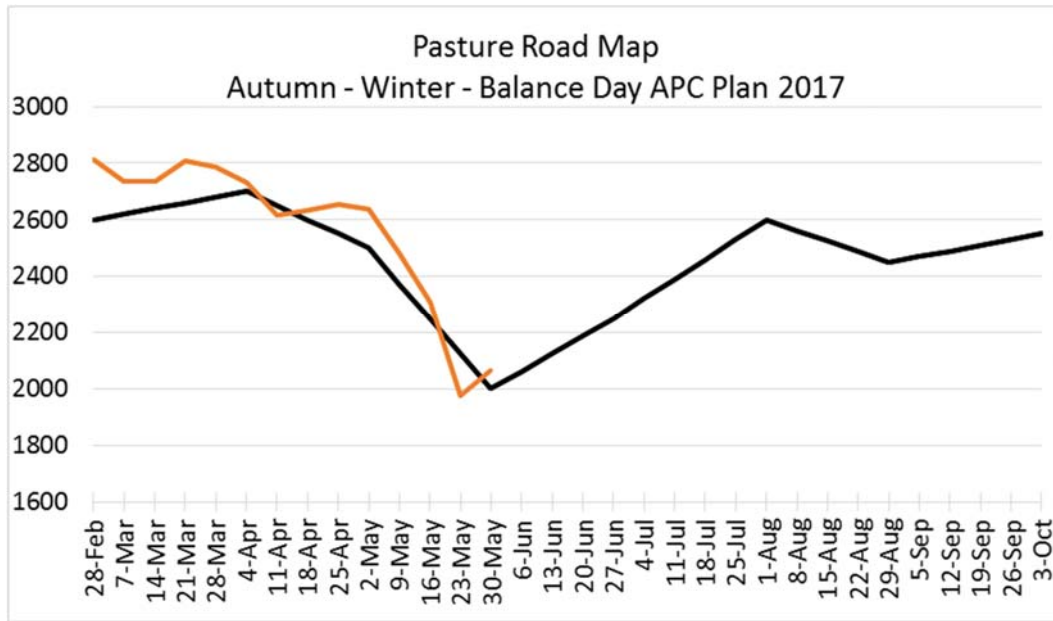
- Average of 12.18% DM (after having reached levels above 15% in the previous 2 weeks).
- Energy content of 12.1 MJME/kgDM
- Protein levels at 21.7 %
- Average NDF% of 38.8%

Figure 3: This week's feed wedge



14. There is little use for a demand line from now on so do not pay attention to where it lays.

15. The current Average pasture cover has increased to 2066kgDM/ha, this is approximately our target for 31st May



Feeding Management for the coming week:

16. The only cows remaining on farm now are 11 lames. They will leave the farm on Friday.
17. Cows in the wintering block in Hororata have started their transition onto the fodder beet crop on Monday 29th May. They started again at 2 kgDM/cow/day of fodder beet and silage. The fodder beet proportion of the diet will increase to full allocation within 2 weeks all going well.
18. The herd has been split in 3 mobs:
 - a. Light and early calving cows. Fed 11 kg FB/cow/day and 5 kgDM/cow/day silage when fully transitioned
 - b. Middle BCS cows: 11 kg FB/cow/day and 3 kg DM/cow/day silage when fully transitioned.
 - c. Fat cows: 7 kgDM FB/cow/day and 3 kgDM/cow/day low quality silage. These will be on grass paddocks overnight to avoid break out problems.
19. We will closely observe the cows daily for the first 2 weeks, particularly looking for any cows not eating fodderbeet. If required those cows may be grazed on pasture over the winter.

LUDF Weekly report	2-May-17	9-May-17	16-May-17	23-May-17	30-May-17
Farm grazing ha (available to milkers)	160	160	160	160	160
Dry Cows on farm / East blk /Jackies/other	10/0/0/0	16/0/0/0	55/0/0/0	66/0/0/0	32/0/0/437
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	22	22	22	22	22
Deaths (Includes cows put down)	0	0	0	1	2
Deaths total to date	17	17	17	18	20
Calved Cows available (Peak Number 560...)	532	525	525	474	0
Treatment / Sick mob total	2	2	3	2	0
Mastitis clinical treatment	2	1	1	1	0
Mastitis clinical YTD (tgt below 64 yr end)	72	73	74	75	75
Bulk milk SCC (tgt Avg below 150)	169	193	167	185	238
Lame new cases	7	11	6	10	0
Lame ytd	192	203	209	219	219
Lame days YTD (Tgt below 1000 yr end)	5082	5222	5397	5614	5614
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	492	506	497	441	0
Milking once a day into vat	38	17	25	31	0
Small herd	147	154	152	0	0

Main Herd	345	352	345	472	0
MS/cow/day (Actual kg / Cows into vat only)	1.49	1.47	1.35	1.30	1.28
Milk Protein/Fat ratio	0.79	0.78	0.78	0.82	0.80
Milk Fat %	5.95	6.19	6.00	6.23	6.40
Milk Protein %	4.69	4.74	4.85	5.09	5.14
MS/cow to date (total kgs / Peak Cows 560)	486	497	505	514	516
MS/ha/day (total kgs / ha used)	4.96	4.81	3.29	3.83	0.90
Herd Average Cond'n Score	0.00	0.00	0.00	4.30	0.00
Monitor group LW kg WOW 281 early calvers	504	501	502	501	0
Soil Temp Avg Aquaflex	11.2	9.5	8.2	8.0	8.4
Growth Rate (kgDM/ha/day)	44	33	32	20	22
Plate meter height - ave half-cms	15.3	14.2	12.9	10.5	11.2
Ave Pasture Cover (x140 + 500)	2636	2485	2308	1976	2066
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3611	3303	3257	3070	0
Post Grazing cover (ave for week)	1800	1600	1500	1600	1500
Highest pregrazing cover	3600	3500	3400	3400	0
Area grazed / day (ave for week)	3.68	4.45	5.24	7.40	0.49
Grazing Interval	43	36	31	22	327
Milkers Offered/grazed kg DM pasture	0.0	0.0	0.0	0.0	0.0
Estimated intake pasture MJME	0	0	0	0	0
Milkers offered kg DM Grass silage	0	0	0	0	0
Silage MJME/cow offered	0	0	0	0	0
Estimated intake Silage MJME	0	0	0	0	0
Estimated total intake MJME	0	0	0	0	0
Target total MJME Offered/eaten (includes 6% waste)	0	0	0	0	0
Pasture ME (pre grazing sample)	0.0	12.1	0.0	0.0	0.0
Pasture % Protein	0.0	20.1	0.0	0.0	0.0
Pasture % DM - Concern below 16%	0.0	15.5	0.0	0.0	0.0
Pasture % NDF Concern < 33	0.0	37.2	0.0	0.0	0.0
Mowed pre or post grazing YTD	277.2	277.2	277.2	277.2	277.2
Total area mowed YTD	310.4	310.4	310.4	310.4	310.4
Supplements fed to date kg per cow (555peak)	411.0	447.2	473.9	500.9	500.9
Supplements Made Kg DM / ha cumulative	361.47	361.47	361.47	361.47	361.47
Units N applied/ha and % of farm	0	0	0	0	0
Kgs N to Date (whole farm)	173	173	173	173	173
Rainfall (mm)	15.6	8.8	3.6	24.4	0.6
Aquaflex topsoil relative to fill point target 60 - 80%	90-100	90-100	90-90	100-100	90-100

Next farm walks: **Tuesday 20th June, 4th July and 18th July at 9am**, then weekly from 1st August. Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter and gumboots. Phone SIDDC – 03 423 0022.

Peter Hancox, Farm Manager, Natalia Benquet, Chris Norton

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 23rd May 2017

LUDF – focus for 2016/17 Season: Nil-Infrastructure, low input, low N-loss, maximise profit.
Farm system comprises 3.5 cows/ha (peak milked), Target up to 170kgN/ha, 300kgDM/cow imported supplement, plus winter most cows off farm. FWE of less than \$1 million and Target production of over 500kgMS/cow (>100% liveweight in milk production).

Critical issues for the short term

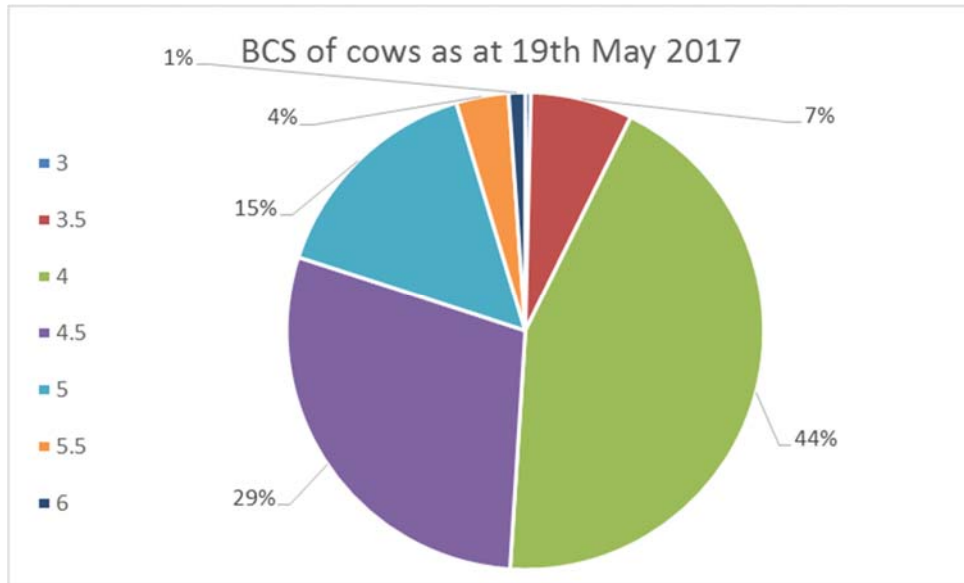
1. **Observe grazing behaviour of herd as they transition to fodderbeet over winter grazing.**
2. **Observe cow health as the herd is dried off and moved to the Winter Grazing block**
3. **Monitor winter pasture cover so the farm is set up for next season with target APC**
4. **Monitor cow BCS changes.**

Key Numbers - week ending Tuesday 23rd May 2017

Ave Pasture Cover	1976 kgDM/ha	Pasture Growth Rate	20 kgDM/ha/day – from feed wedge
Round length	21.6 days	Average Supplement used	4.0 Kg/DM/Day of fodder beet
No Cows on farm	540 (472 in milk)	Ave Soil Temp (week)	8.0
Kg MS/cow (546 cows)	1.3	SCC	185,000
Milk Protein : Fat ratio	0.82	Protein: 5.09%	Fat: 6.23%

Herd Management

5. A total of 541 calved cows are on farm. Of those 472 are in milk and the rest have been dried off and all cows are now in one herd.
6. All culls will leave the farm tomorrow (Wednesday 24th May) and the rest of the herd will be dried off on Thursday the 25th May. They are booked to be trucked to the wintering block in Hororata on Monday 29th May.
7. There was 1 new case of mastitis over the past week (76 clinical cases season to date vs 95 cases at the same time last season).
8. This week, there were 10 new cases of lameness (219 cases season to date vs 179 cases same time last year).
9. Trace minerals and magnesium chloride are running through the stock water to all cows on the milking platform.
10. Phosphorus is being supplied through water troughs.
11. Average herd liveweight (whole herd) for the week was 506 kgLW, 2 kg heavier than as last week. The monitor group (281 early calving MA cows) was 501 kgLW, down by 1kg compared with last week.
12. All cows in the herd have been BCS on the 19th May. The average BCS for the herd is 4.3 (unchanged for the last 3 months). Of this, 44% cows are at BCS 4, 7% are below 4 (only 2 cows at BCS 3.5), 29% of cows are BCS 4.5 and 20% of cows are 5 or greater.

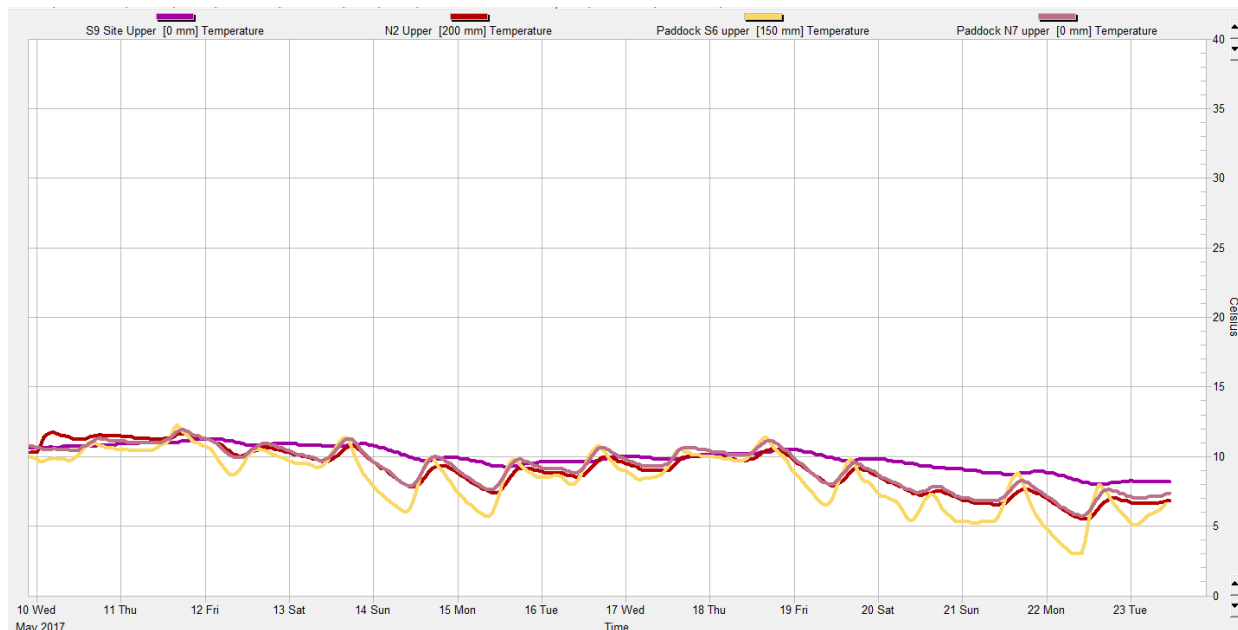


13. Cows were scanned for the last time on Wednesday the 17th May (final scan). 6 more cows were found empty. They received a Lepto vaccine, B12 and Selenium at the same time. All cows to be wintered also received a Salmonella vaccine on Monday the 22nd May.
14. The herd should now be well set up for wintering (vaccines, B12, Selenium) and they will receive dry cow therapy and teat seal.
15. R2 heifers have been teat sealed on the 18th May. They have also had their mineral boosters and most vaccinations, except a dose of Salmonella vaccine that will be done in early June.

Growing Conditions

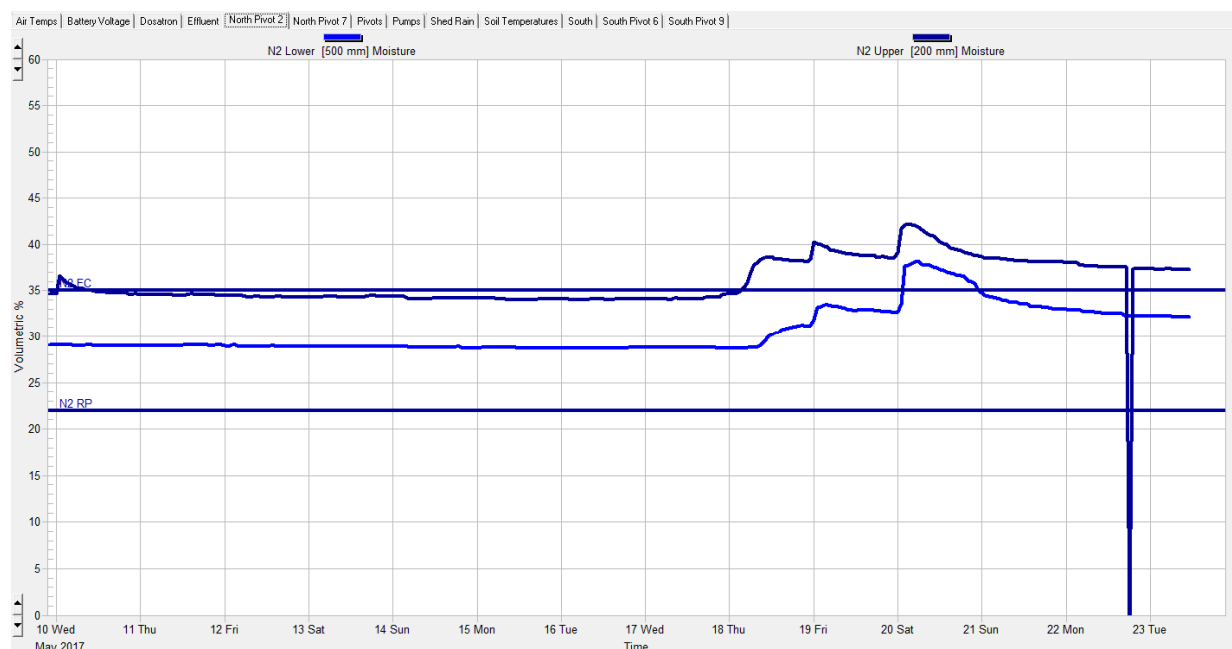
16. The average 9 am soil temperature for the past week has dropped a little more from 8.2°C to 8.0°C (well below this time last year, 9.1°C). This time last year soil moisture was low and irrigation had continued into late April / early May.

Figure 1: Soil temperature history for the last 2 weeks



17. The farm received 24.4mm of rain this last week, probably contributing to the spike in lameness. Soil conditions remain wet.

Figure 2: Soil moisture history for the last 2 weeks (Paddock N2)



18. A total of 173kgN/ha has been applied to the platform for the season. The N application finished in early April.

Pasture and Feed Management

19. This week's pasture feeding was managed in such a way to allow the farm to get as close as possible to dry-off target cover of 2000 kgDM/ha. For that purpose, the farm was run on a 21.6 day round and dry stock was used to tidy paddocks to get to target residuals. There was no silage fed, but fodder beet continued in the diet at 4 kgDM/cow/day.

20. There is only 2 more days of milking.

21. There remains approximately 20% of the herd that are not consuming fodder beet.

22. Cows will be re-transitioned when they get to the wintering block to ensure that the remaining 20% of the herd does go onto the crop and consumes it through winter. There is a limited amount of grass and grass silage in place for a small number of cows if they don't take to the fodder beet over the winter.

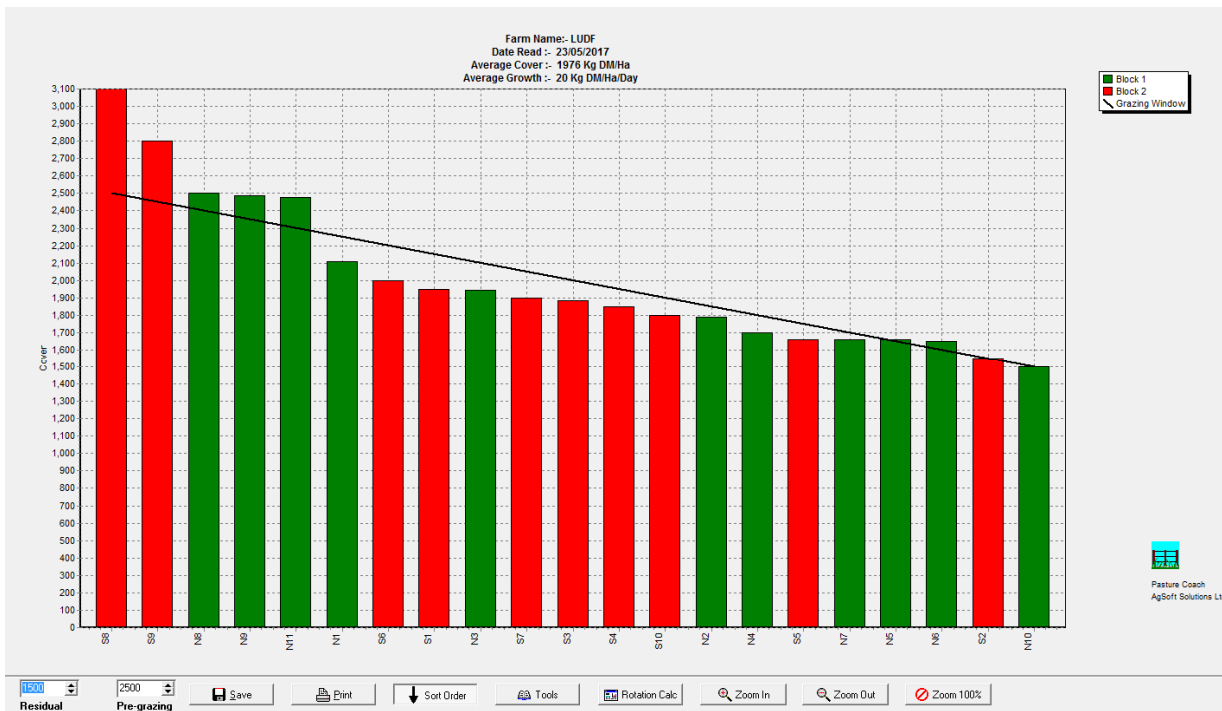
23. In general, all paddocks grazed in this last round have achieved 1500 kgDM/ha residuals and have been very well tidied up for winter.

24. The feeding of fodder beet has resulted in slightly more soil damage than in previous year due to difference in how the cows eat the beet comparing to the silage. These areas of damage will be evaluated in the new season and as required may have additional grass seed drilled in.

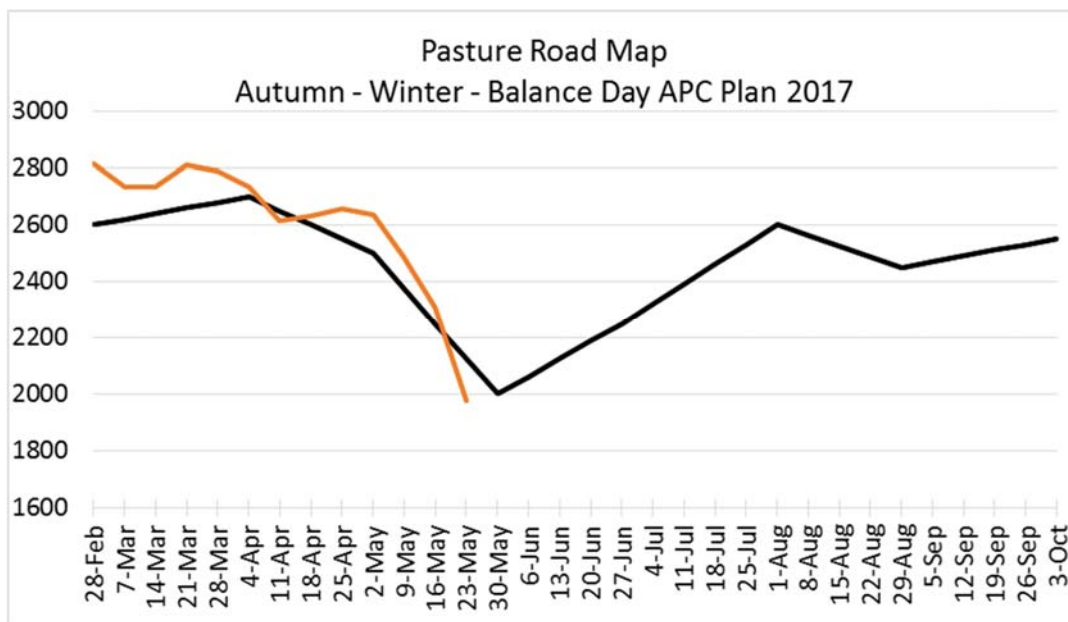
25. Pasture quality from samples collected on 2nd of May showed:

- Average of 15.5% DM (after 6 weeks below 15%).
- Energy content of 12.1 MJME/kgDM
- Protein levels at 20.1 %
- Average NDF% of 37.2%

Figure 3: This week's feed wedge



26. There is little use for a demand line from now on so this week's line was calculated as follows:
 Pregrazing cover = (target average pasture cover x 2) - target postgrazing cover. Ie
 (2000kgDM/ha x 2) - 1500 kgDM/ha = 2500 kgDM/ha
27. The current Average pasture cover of 1976 kgDM/ha is slightly below the target at dry-off.
28. Reducing pasture cover by 332 kgDM/ha/ 8 days has provided the equivalent of approximately 40kgDM/ha/day of pasture or 12.5kgDM/cow/day. (2308-1976 = 332kgDM/ha. 332 / 8days = 41.5kgDM/ha/day. At 3.3 cows/ha = 12.5 kgDM/cow/day).
29. Total feed demand was about 53 kgDM/ha/day, but given the average supplement fed of 4kgDM/cow/day or 13kgDM/ha/day the demand for pasture was approximately 40kgDM/ha/day.
30. This implies the farm grew minimal pasture for the week as the demand for pasture was effectively met by the decrease in APC. In practice some growth has occurred but this is probably masked by grazing of nearly 1/3 of the farm over the past week, and the low residuals over the past 2-3 weeks.
31. Pasture growth as calculated by Pasture coach was around the 20 kgDM/ha/day, which again overstates the probable growth.



Feeding Management for the coming week:

- 32. All milking cows are in one herd now, and will remain so until dry-off.
- 33. Dry-off will be on Thursday the 25th May
- 34. All culls will leave the farm on Wednesday 24th May and all winter cows will be trucked to the wintering block on Monday 29th May
- 35. The current Average Pasture Cover is slightly below the dry-off target we had to achieve by 30th May, for this reason, all cows that remain on platform until the 29th of May will be tidying residuals in already grazed paddocks rather than grazing new paddocks and will continue to receive their daily allocation of fodder beet.
- 36. Fodder beet will continue to go in the diet at about 4 kgDM/cow/ha. We will remain very vigilant of cow health as the slightly restricted diet in terms of pasture availability could cause some of the 20% of animals not eating the crop, to suddenly start consuming it, putting them at risk of acidosis.
- 37. Silage could be required for the cows. The decision will be made day by day according to how much clean up the cows will have to do.

LUDF Weekly report	25-Apr-17	2-May-17	9-May-17	16-May-17	23-May-17
Farm grazing ha (available to milkers)	160	160	160	160	160
Dry Cows on farm / East blk /Jackies/other	9/0/0/0	10/0/0/0	16/0/0/0	55/0/0/0	66/0/0/0
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	22	22	22	22	22
Deaths (Includes cows put down)	0	0	0	0	1
Deaths total to date	17	17	17	17	18
Calved Cows available (Peak Number 560...)	532	532	525	525	474
Treatment / Sick mob total	0	2	2	3	2
Mastitis clinical treatment	0	2	1	1	1
Mastitis clinical YTD (tgt below 64 yr end)	70	72	73	74	75
Bulk milk SCC (tgt Avg below 150)	157	169	193	167	185
Lame new cases	5	7	11	6	10
Lame ytd	185	192	203	209	219
Lame days YTD (Tgt below 1000 yr end)	4837	5082	5222	5397	5614
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	497	492	506	497	441
Milking once a day into vat	35	38	17	25	31
Small herd	150	147	154	152	0

Main Herd	347	345	352	345	472
MS/cow/day (Actual kg / Cows into vat only)	1.50	1.49	1.47	1.35	1.30
Milk Protein/Fat ratio	0.77	0.79	0.78	0.78	0.82
Milk Fat %	6.08	5.95	6.19	6.00	6.23
Milk Protein %	4.70	4.69	4.74	4.85	5.09
MS/cow to date (total kgs / Peak Cows 560)	475	486	497	505	514
MS/ha/day (total kgs / ha used)	5.06	4.96	4.81	3.29	3.83
Herd Average Cond'n Score	0.00	0.00	0.00	0.00	4.30
Monitor group LW kg WOW 281 early calvers	502	504	501	502	501
Soil Temp Avg Aquaflex	11.8	11.2	9.5	8.2	8.0
Growth Rate (kgDM/ha/day)	56	44	33	32	20
Plate meter height - ave half-cms	15.4	15.3	14.2	12.9	10.5
Ave Pasture Cover (x140 + 500)	2656	2636	2485	2308	1976
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3616	3611	3303	3257	3070
Post Grazing cover (ave for week)	1800	1800	1600	1500	1600
Highest pregrazing cover	3950	3600	3500	3400	3400
Area grazed / day (ave for week)	3.92	3.68	4.45	5.24	7.40
Grazing Interval	41	43	36	31	22
Milkers Offered/grazed kg DM pasture	0.0	0.0	0.0	0.0	0.0
Estimated intake pasture MJME	0	0	0	0	0
Milkers offered kg DM Grass silage	0	0	0	0	0
Silage MJME/cow offered	0	0	0	0	0
Estimated intake Silage MJME	0	0	0	0	0
Estimated total intake MJME	0	0	0	0	0
Target total MJME Offered/eaten (includes 6% waste)	0	0	0	0	0
Pasture ME (pre grazing sample)	12.0	0.0	12.1	0.0	0.0
Pasture % Protein	19.5	0.0	20.1	0.0	0.0
Pasture % DM - Concern below 16%	13.2	0.0	15.5	0.0	0.0
Pasture % NDF Concern < 33	39.0	0.0	37.2	0.0	0.0
Mowed pre or post grazing YTD	277.2	277.2	277.2	277.2	277.2
Total area mowed YTD	310.4	310.4	310.4	310.4	310.4
Supplements fed to date kg per cow (555peak)	356.9	411.0	447.2	473.9	500.9
Supplements Made Kg DM / ha cumulative	361.47	361.47	361.47	361.47	361.47
Units N applied/ha and % of farm	0	0	0	0	0
Kgs N to Date (whole farm)	173	173	173	173	173
Rainfall (mm)	0	15.6	8.8	3.6	24.4
Aquaflex topsoil relative to fill point target 60 - 80%	90-100	90-100	90-100	90-90	100-100

Next farm walk: **Tuesday 30th May at 9am.** Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter and gumboots. Phone SIDDC – 03 423 0022.

Peter Hancox, Farm Manager, Natalia Benquet.

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Critical issues for the short term

1. **Observe grazing behaviour of herd with fodderbeet as about 20% are still not eating fodderbeet.**
2. **Balance rotation length (target 30 days) and silage fed as we eat the pasture cover down to end of May target.**
3. **Set the farm and herd up for next season with target APC at the end of May, and BCS / calving dates the most important criteria.**
4. **Monitor cow BCS changes.**

Key Numbers - week ending Monday 15th / Tuesday 16th May 2017*

Ave Pasture Cover	2308 kgDM/ha	Pasture Growth Rate	32 kgDM/ha/day – from feed wedge / 11 kgDM /ha/day calculated from APC change
Round length	30.5 days	Average Supplement used	4.0 Kg/DM/Day - comprising: 0.7 kgDM/cow/day silage + 3.3 kgDM fodder beet/cow/day
No Cows on farm	541 (522 in milk)	Ave Soil Temp (week)	9.7
Kg MS/cow (546 cows)	1.35	SCC	167,000
Milk Protein : Fat ratio	0.78	Protein: 4.85%	Fat: 6.00%

*Farm walk completed on Monday 15th due to DairyNZ farmers forum held Tuesday 16th May.

Herd Management

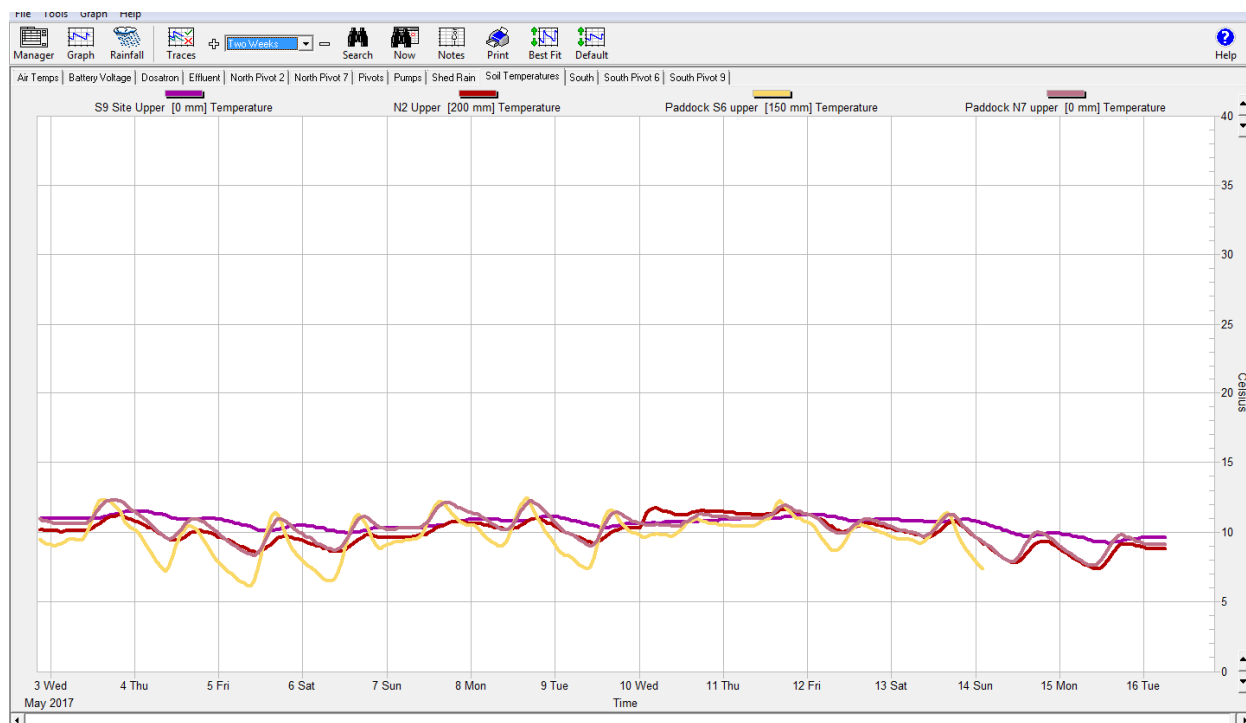
5. A total of 541 calved cows are on farm. Of those 525 are in milk and the rest have been dried off. There are 2 milking herds and the make up of them has changed on 1 May.
6. The small herd (152 cows) now comprises all cull cows and approximately 70 higher condition score cows (cows with BCS at 5 or above). This herd follows the main herd ensures target grazing residuals are achieved as the farm completes the last grazing round before the winter.
7. The large herd comprises all other animals (345 cows)
8. There are 522 cows going into the vat, with 497 cows on twice a day milking, 25 once a day.
9. There was 2 new case of mastitis over the past week (75 clinical cases season to date vs 95 cases at the same time last season).
10. This week, there were 6 new cases of lameness (209 cases season to date vs 179 cases same time last year).
11. Trace minerals and magnesium chloride are running through the stock water to all cows on the milking platform.
12. 32 cows have been dried of today, 26 of them on BCS dry-off rules and 6 lames. Milking Cow number for calculations on demand will now be 493 at 16 kgDM/cow/day. Dry cows remain on the platform so they can receive fodder beet daily.
13. Phosphorus is being supplied through water troughs.
14. Average herd liveweight (whole herd) for the week was 504 kgLW, 1 kg heavier than as last week. The monitor group (281 early calving MA cows) was 502 kgLW, also up by 1kg compared with last week.

15. All cows in the herd have been BCS on the 19th April.
16. Calves have been weighed and drenched and have received the Lepto booster vaccination and a copper bullet in readiness to be moved to the young stock rearing facilities in Silverwood where they'll be wintered on fodder beet.
17. R2 heifers were weighed and received Lepto vaccine, copper bullet and drench on the 27th April in readiness to go into the fodder beet for winter.
18. Cows will be scanned again on Wednesday the 17th May (final scan). They will get a Lepto vaccine, B12 and Selenium at the same time. They will also receive a Salmonella vaccine on Monday the 22nd May.
19. The plan at this stage is to dry off on the 25th May, and cows are booked to be trucked to the wintering block on Monday the 29th May.

Growing Conditions

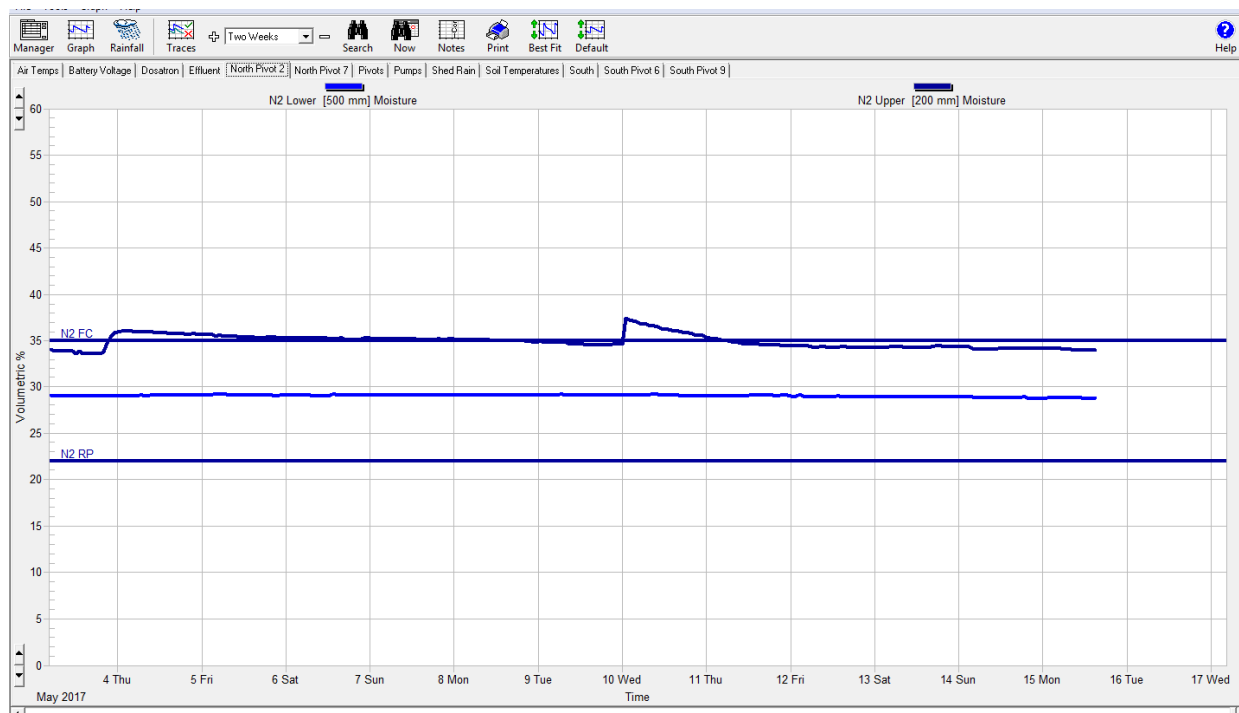
20. The average 9 am soil temperature for the past week has increased 0.2°C to 9.7°C but remain well below this time last year (11.6°C). This time last year soil moisture was low and irrigation had continued into late April / early May.

Figure 1: Soil temperature history for the last 2 weeks



21. The farm received 3.6mm rain this last week, probably contributing to the spike in lameness. Soil conditions remain wet.

Figure 2: Soil moisture history for the last 2 weeks (Paddock N2)

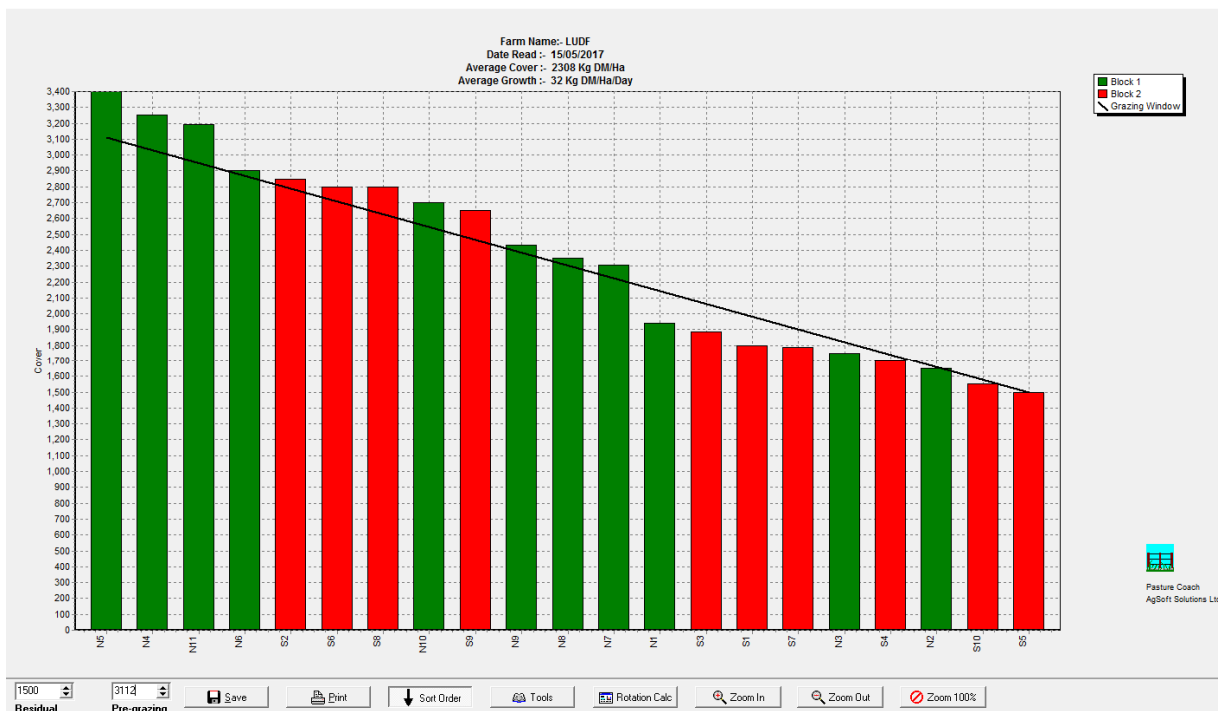


22. A total of 173kgN/ha has been applied to the platform for the season. The N application finished in early April.

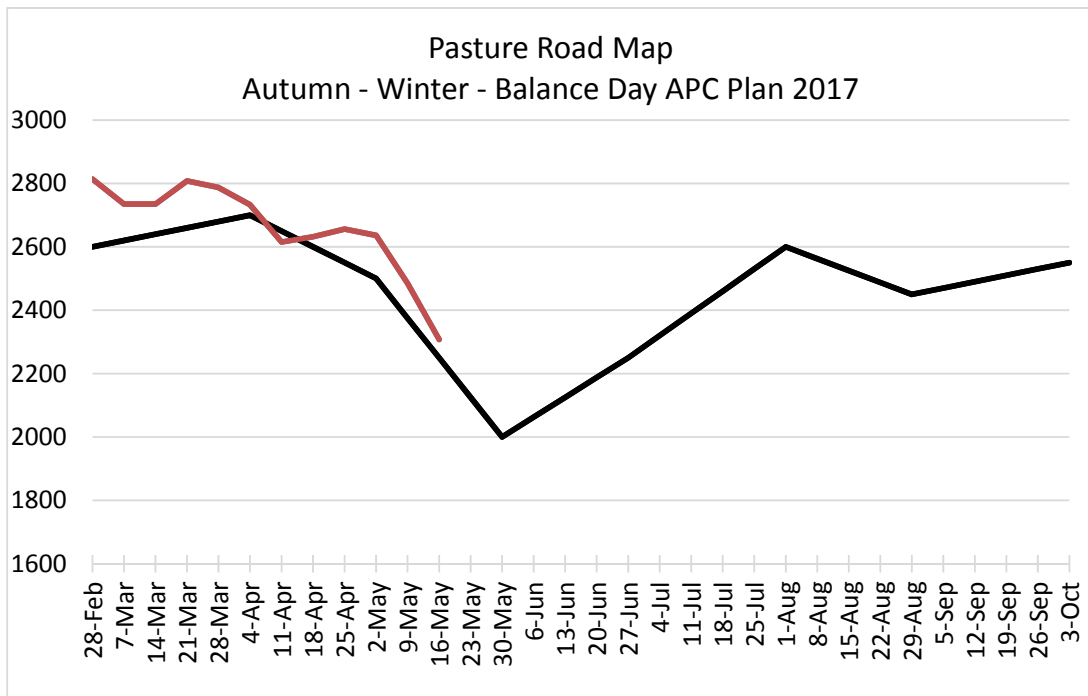
Pasture and Feed Management

23. Cows have managed a 30.5 day round this week using 0.7 Kg DM/cow/day silage fed and 3.3 Kg DM fodder beet/cow/day average for the week (a 0.9 kgDM/cow/day increase of fodder beet from the last week).
24. There remains approximately 20% of the herd that are not consuming fodder beet. We anticipate this portion of the herd are not likely to eat fodder beet while milking this autumn, but remain wary that they could at any time begin eating beet and potentially consume a high amount, having not transitioned themselves the way the rest of the herd has.
25. Given the amount of fodder beet still available, the crop will continue to be increased weekly.
26. Cows will be re-transitioned when they get to the wintering block to ensure that the remaining 20% of the herd does go onto the crop and consumes it through winter. There is a limited amount of grass and grass silage in place for a small number of cows if they don't take to the fodder beet over the winter.
27. In general, there is no visually evident loss of pasture quality. The small herd is cleaning paddocks up really well, achieving 1500 kgDM/ha residuals and being fed fodder beet but no silage.
28. Paddock S5 has been cleaned really well by the small herd. Paddock S6 remains to be cleaned up during this coming week.
29. Pasture quality from samples collected on 2nd of May showed:
 - a. Average of 15.5% DM (after 6 weeks below 15%).
 - b. Energy content of 12.1 MJME/kgDM
 - c. Protein levels at 20.1 %
 - d. Average NDF% of 37.2%

Figure 3: This week's feed wedge



30. The demand line on the pasture wedge graph is calculated as follows:
 - a. 493 milking cows eating an estimated 16 kgDM/cow/day = 7888 kgDM/day for milkers
 - b. 55 dry cows, eating an estimated 12 kgDM/cow/day = 660 kgDM/day
 - c. Total demand is 8548 kgDM/day (53 kgDM/ha/day)
 - d. The target is to run a 30 day round. Over 160 ha this equates to 5.3 ha/day
 - e. Demand (if supplied solely from pasture) of 8,548 kgDM/day from 5.3 ha/day requires 1,612kgDM/ha available.
 - f. Assuming the target residual is 1,500kgDM/ha (paddocks are being tidied up as this is the last round of the season), target pregraze covers are 3,112 kgDM/ha (1,500 kgDM/ha + 1,612 kgDM/ha).
 - g. Target APC would therefore be $(3,112+1500)/2 = 2,306$ kgDM/ha
31. The feed wedge above is calculated as if cows were being fully fed on grass and it estimates a small feed surplus of 5 tDM total (less than 1 days' worth of feed)
32. Average pasture cover has dropped from 2485 kgDM/ha down to 2308 kgDM/ha. This was as expected and as per the plan over the past couple of weeks to consume the pasture accumulated over the past 2 months.
33. Reducing pasture cover by 177 kgDM/ha/ 6 days has provided a further 29.5 kgDM/ha/day or 8.9kgDM/cow/day. $(2636-2485 = 177\text{kgDM/ha. } 177 / 6\text{days} / 3.3 \text{ cows/ha} = 8.9 \text{ kgDM/cow/day})$.
34. Total demand as above is 53 kgDM/ha/day, but given the average supplement fed of nearly 13kgDM/ha/day $(3.3\text{cows/ha} \times 4 \text{ kgDM/cow/day supplement})$ plus the effect of reducing pasture cover (equivalent to another 29.5 kgDM/ha/day), the demand from pasture was therefore only 11 kgDM/ha/day.
35. Pasture growth calculated from last weeks wedge to this weeks wedge was 32 kgDM/ha/day whereas pasture growth estimated above at 11 suggests growth rates have again been significantly overestimated.
36. Comparing current vs target APC for this point in the season, we are still running the farm a little ahead of target (about 60 kgDM/ha above).



Feeding Management for the coming week:

37. The small herd will continue to graze behind the large herd to tidy residuals in the last round of grazing.
38. Assuming current pasture cover on farm is as plated – at approx. 2300kgDM/ha – and with a target at the end of May of 2000kgDM/ha, there is approximately 300kgDM/ha x 160 ha = 48,000 kgDM available. If all cows leave the farm on the 29th May, this provides 6kgDM/cow/day. (48,000kgDM / 13 days / 540 cows) cow/day. A growth rate of 10kgDM/ha/day at 3.3 cows /ha provides a further 3 kgDM/cow/day. Continuing to feed fodderbeet at an average of 3.3kgDM/cow (all cows) provides a total of over 12kgDM/cow/day from pasture and fodderbeet, with the remainder likely to be needed from silage.
39. Additionally, considering the BCS data, weather forecast and the availability and costs of supplements, the following strategy will continue -
 - a. Keep as many animals in milk as practical until the projected dry-off date of the 25th May.
 - b. Only drop culls if the average pasture cover starts dropping too quickly
 - c. Continue drying cows off on autumn dry-off rules for BCS gains.
40. Continuing to hold the culls on farm is practical for this farm given its overall stocking rate, feed supply, costs of supplements, milk price and production of both the whole herd and cull cows. At the last herd test, cull cows were producing around 12% more MS/cow/day than the rest of the herd. Using the cost of supplements at \$0.34/kgDM (as per our most expensive supplement, which is silage), and noting wastage is nearly zero as feeding conditions have been really good, plus adding \$0.10/cow/day in costs related to milking and feeding these animals estimates the daily cost of having these cows on farm at \$5.54/cow/day (16 kgDM/cow/day x 0.34\$/kgDM supplement +\$0.10 running costs). At 1.35 kgMS/cow/day herd average production and a \$6.00/kgMS the return is likely to be at least \$7.8/cow/day.
41. In connection to the fodder beet transition, the current system of feeding the beet after morning milking before the silage will continue – including -
 - a. Slow increase of the level of fodder beet fed to cows (increasing by 0.5kgDM/cow every 3-4 days)
 - b. Ongoing observation of cows. Careful observation of the herds will be made moving forward, watching for signs of acidosis including rumen fill, cud chewing, dung consistency, evidence of a secondary milk fever and amount of milk being produced by each cow.
 - c. Cows that are suspected of showing signs of ruminal acidosis will treated and moved into the OAD mob
42. Continue to harvest the extra cover achieved on farm. We are still around 60 kgDM/ha above target for the week of the season.

43. Feeding:

- a. The aim is to hold to a 30 day round (which could end of being faster depending on weather conditions).
- b. Both herds will continue to get fodder beet in their diet.
- c. Feed silage only if the round starts getting too fast.
- d. The small herd will be pushed to achieve 1500 kgDM/ha residuals in all paddocks. This ensures the appropriate set up of the farm for drying off at the end of the month.

44. Grazing decisions will continue to be influenced by cow behaviour and pasture growing conditions, taking particular note of area grazed per day.

LUDF Weekly report	18-Apr-17	25-Apr-17	2-May-17	9-May-17	16-May-17
Farm grazing ha (available to milkers)	160	160	160	160	160
Dry Cows on farm / East blk /Jackies/other	0/0/0/0	9/0/0/0	10/0/0/0	16/0/0/0	55/0/0/0
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	22	22	22	22	22
Deaths (Includes cows put down)	1	0	0	0	0
Deaths total to date	17	17	17	17	17
Calved Cows available (Peak Number 560...)	541	532	532	525	525
Treatment / Sick mob total	1	0	2	2	3
Mastitis clinical treatment	1	0	2	1	1
Mastitis clinical YTD (tgt below 64 yr end)	70	70	72	73	74
Bulk milk SCC (tgt Avg below 150)	173	157	169	193	167
Lame new cases	30	5	7	11	6
Lame ytd	180	185	192	203	209
Lame days YTD (Tgt below 1000 yr end)	4627	4837	5082	5222	5397
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	483	497	492	506	497
Milking once a day into vat	57	35	38	17	25
Small herd	148	150	147	154	152
Main Herd	335	347	345	352	345
MS/cow/day (Actual kg / Cows into vat only)	1.50	1.50	1.49	1.47	1.35
Milk Protein/Fat ratio	0.79	0.77	0.79	0.78	0.78
Milk Fat %	5.95	6.08	5.95	6.19	6.00
Milk Protein %	4.70	4.70	4.69	4.74	4.85
MS/cow to date (total kgs / Peak Cows 560	466	475	486	497	505
MS/ha/day (total kgs / ha used	5.07	5.06	4.96	4.81	3.29
Herd Average Cond'n Score	4.30	0.00	0.00	0.00	0.00
Monitor group LW kg WOW 281 early calvers	499	502	504	501	502
Soil Temp Avg Aquaflex	13.2	11.8	11.2	9.5	8.2
Growth Rate (kgDM/ha/day)	60	56	44	33	32
Plate meter height - ave half-cms	15.2	15.4	15.3	14.2	12.9
Ave Pasture Cover (x140 + 500)	2632	2656	2636	2485	2308
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3545	3616	3611	3303	3257
Post Grazing cover (ave for week)	1800	1800	1800	1600	1500
Highest pregrazing cover	3600	3950	3600	3500	3400
Area grazed / day (ave for week)	4.45	3.92	3.68	4.45	5.24
Grazing Interval	36	41	43	36	31
Milkers Offered/grazed kg DM pasture	0.0	0.0	0.0	0.0	0.0
Estimated intake pasture MJME	0	0	0	0	0
Milkers offered kg DM Grass silage	0	0	0	0	0
Silage MJME/cow offered	0	0	0	0	0
Estimated intake Silage MJME	0	0	0	0	0
Estimated total intake MJME	0	0	0	0	0

Target total MJME Offered/eaten (includes 6% waste)	0	0	0	0	0
Pasture ME (pre grazing sample)	0.0	12.0	0.0	12.1	0.0
Pasture % Protein	0.0	19.5	0.0	20.1	0.0
Pasture % DM - Concern below 16%	0.0	13.2	0.0	15.5	0.0
Pasture % NDF Concern < 33	0.0	39.0	0.0	37.2	0.0
Mowed pre or post grazing YTD	277.2	277.2	277.2	277.2	277.2
Total area mowed YTD	310.4	310.4	310.4	310.4	310.4
Supplements fed to date kg per cow (555peak)	302.8	356.9	411.0	447.2	473.9
Supplements Made Kg DM / ha cumulative	361.47	361.47	361.47	361.47	361.47
Units N applied/ha and % of farm	0	0	0	0	0
Kgs N to Date (whole farm)	173	173	173	173	173
Rainfall (mm)	77.6	0	15.6	8.8	3.6
Aquaflex topsoil relative to fill point target 60 - 80%	100-100	90-100	90-100	90-100	90-90

Next farm walk: **Tuesday 23rd May at 9am.** Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter and gumboots. Phone SIDDC – 03 423 0022.

Peter Hancox, Farm Manager, Natalia Benquet, Charlotte Westwood.

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 9th May 2017

LUDF – focus for 2016/17 Season: Nil-Infrastructure, low input, low N-loss, maximise profit.
Farm system comprises 3.5 cows/ha (peak milked), Target up to 170kgN/ha, 300kgDM/cow imported supplement, plus winter most cows off farm. FWE of less than \$1 million and Target production of over 500kgMS/cow (>100% liveweight in milk production).

Next farm walk: **Monday 15th May at 9am** – DairyNZ Farmers Forum on Tuesday 16th May.

Critical issues for the short term

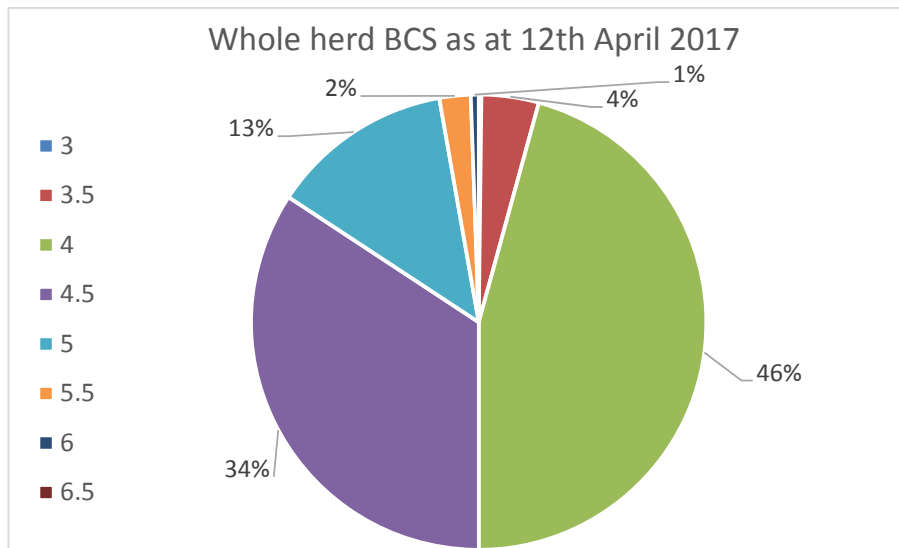
1. **Observe grazing behaviour of herd with fodderbeet as about 20% are still not eating fodderbeet.**
2. **Hold the rotation length to minimum of 35 days as we eat the pasture cover down to end of May target.**
3. **Set the farm and herd up for next season with target APC at the end of May, and BCS / calving dates the most important criteria.**
4. **Monitor cow BCS changes.**

Key Numbers - week ending Tuesday 9th May 2017

Ave Pasture Cover	2485 kgDM/ha	Pasture Growth Rate	33 kgDM/ha/day
Round length	36 days	Average Supplement used	5.4 Kg/DM/Day - comprising: 3 kgDM/cow/day silage + 2.4 kgDM fodder beet/cow/day
No Cows on farm	541 (525 in milk)	Ave Soil Temp (week)	9.5°C
Kg MS/cow (546 cows)	1.47	SCC	195,000
Milk Protein : Fat ratio	0.78	Protein: 4.74%	Fat: 6.19%

Herd Management

5. A total of 541 calved cows are on farm. Of those 525 are in milk and the rest have been dried off. There are 2 milking herds and the make up of them has changed on 1 May.
6. The small herd (154 cows) now comprises all cull cows and approximately 70 higher condition score cows (cows with BCS at 5 or above). This herd follows the main herd ensures target grazing residuals are achieved as the farm completes the last grazing round before the winter.
7. The large herd comprises all other animals (352 cows)
8. There are 523 cows going into the vat, with 506 cows on twice a day milking, 17 once a day.
9. There was 1 new case of mastitis over the past week (73 clinical cases season to date vs 95 cases at the same time last season).
10. This week, there were 11 new cases of lameness (203 cases season to date vs 179 cases same time last year).
11. Trace minerals and magnesium chloride are running through the stock water to all cows on the milking platform.
12. Phosphorus is being supplied through water troughs.
13. Average herd liveweight (whole herd) for the week was 503 kgLW, 4 kg lower than as last week. The monitor group (281 early calving MA cows) was 501 kgLW, also down 3 kg compared with last week.
14. All cows in the herd have been BCS on the 12th April. The average for the herd has remained at 4.3 (same as last month), however there was a small shift of cow number towards higher BCS groups.

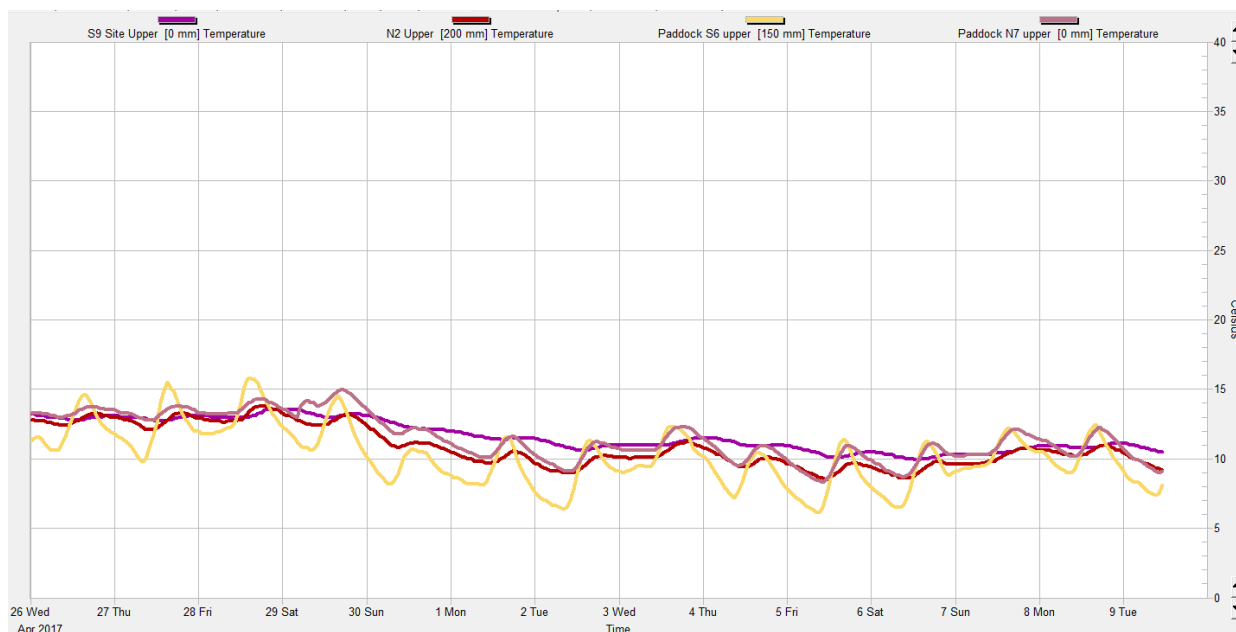


- 15. A further 7 cows have been dried off due to lameness. They have remained on the platform and are still receiving fodderbeet daily.
- 16. Calves have been weighed and drenched and have received the Lepto booster vaccination and a copper bullet in readiness to be moved to the young stock rearing facilities in Silverwood where they'll be wintered on fodder beet.
- 17. R2 heifers were weighed and received Lepto vaccine, copper bullet and drench on the 27th April in readiness to go into the fodder beet for winter.

Growing Conditions

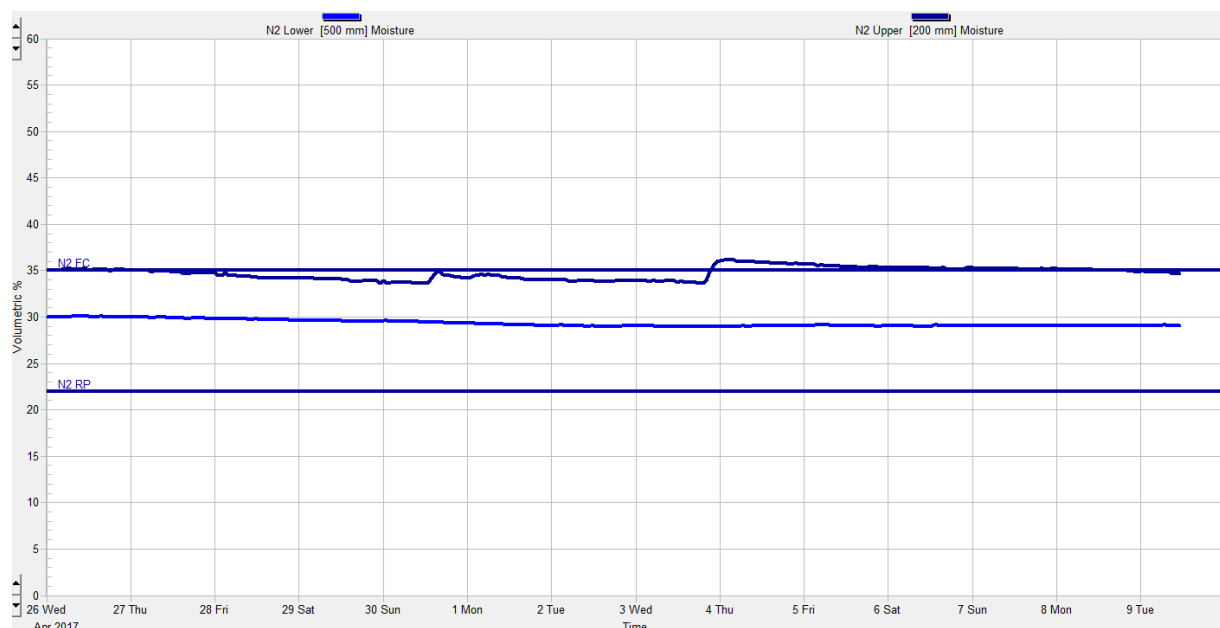
- 18. The average 9 am soil temperature for the past week has decreased 1.7°C to 9.5°C. Soil temperatures are now well below this same time last year (12.3°C), though recalling soil moisture was low this time last year and irrigation had continued into late April / early May.

Figure 1: Soil temperature history for the last 2 weeks



19. The farm received 8.8 ml of rain on Wednesday last week. This contributed to the new spike in lameness. Soil conditions remain wet.

Figure 2: Soil moisture history for the last 2 weeks (Paddock N2)



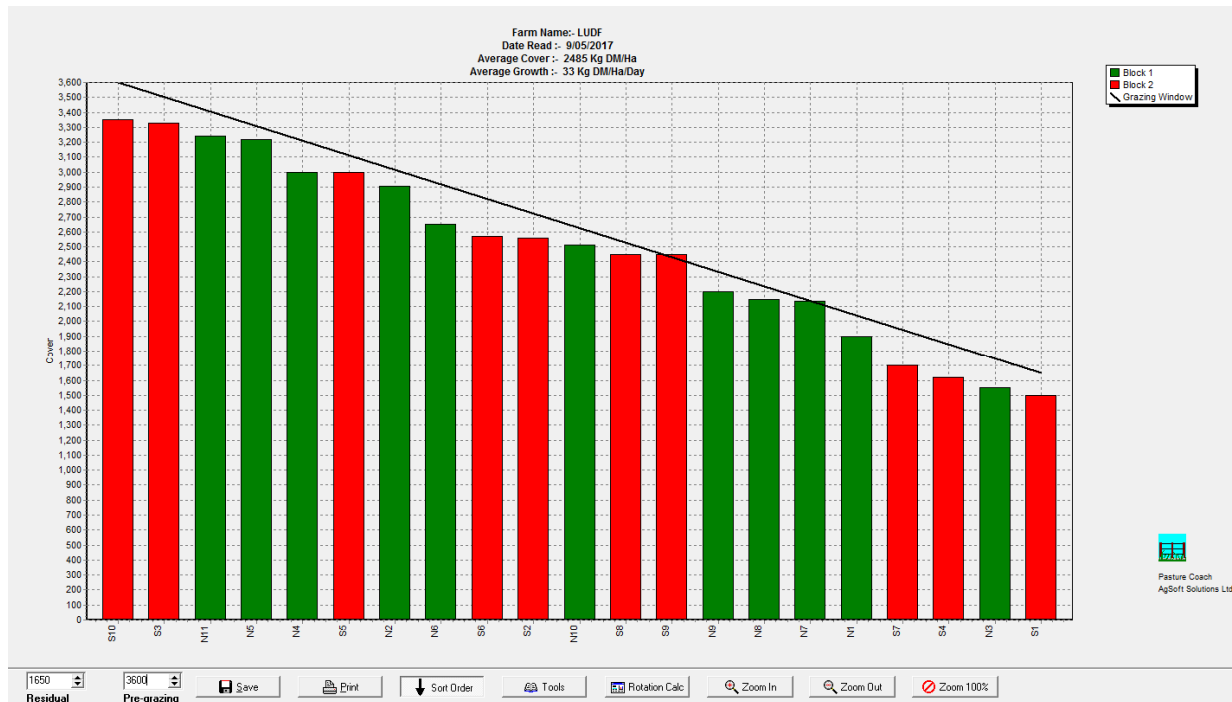
20. A total of 173kgN/ha has been applied to the platform for the season. The N application finished in early April.

Pasture and Feed Management

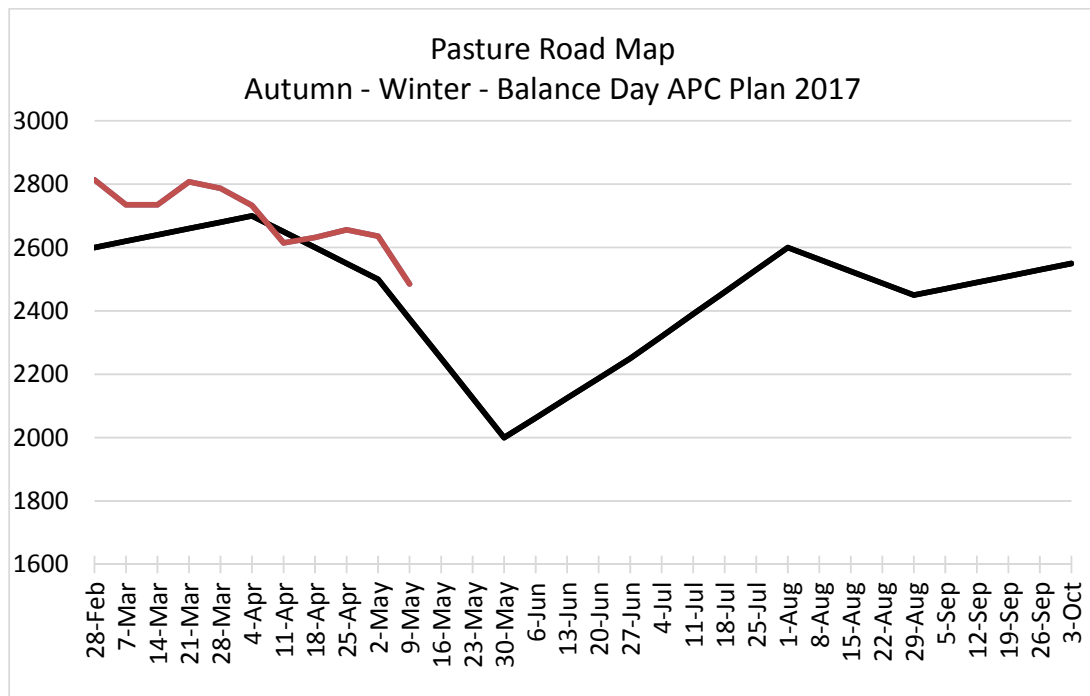
21. Cows have managed a 36 day round this week using 3.0 Kg DM/cow/day silage fed and 2.4 Kg DM fodder beet/cow/day average for the week (a 0.2 kgDM/cow/day increase of fodder beet from the last week).
22. Fodder beet continues to be fed before the silage.
23. There remains approximately 20% of the herd that are not consuming fodder beet. We anticipate this portion of the herd are not likely to eat fodder beet while milking this autumn, but remain wary that they could at any time begin eating beet and potentially consume a high amount, having not transitioned themselves the way the rest of the herd has.
24. Given the amount of fodder beet still available, the crop will start being increased by 0.5 kgDM/cow every 3-4 days. Remaining aware that with 20% less animals eating the crop, those that are eating will be consuming around the 3 kgDM/cow/day now.
25. Cows will be re-transitioned when they get to the wintering block to ensure that the remaining 20% of the herd does go onto the crop and consumes it through winter. There is a limited amount of grass and grass silage in place for a small number of cows if they don't take to the fodder beet over the winter.
26. In general, there is no visually evident loss of pasture quality. The small herd is cleaning paddocks up really well, achieving 1500 kgDM/ha residuals and being fed fodder beet but no silage.
27. Paddocks S5 and S6 show some decay at the bottom of the sward and will be grazed between this week and next.
28. Rising Plate Meter data collected on the farm walk continues as an average of 2-3 plate meters and some discussion on the likely available feed that the herd will consume. This change in approach (since early February 2017) has provided a more realistic data set, including APC. Pasture growth however remains a challenge to explain.
29. Pasture quality from samples collected on 2nd of May showed:
 - a. Average of 15.5% DM (after 6 weeks below 15%).
 - b. Energy content of 12.1 MJME/kgDM

- c. Protein levels at 20.1 %
- d. Average NDF% of 37.2%

Figure 3: This week's feed wedge



30. The demand line on the pasture wedge graph is calculated as follows:
 - a. 525 milking cows on 160 ha = 3.3 cows/ha (dry stock remain on platform but are cleaning up paddocks behind milkers).
 - b. The target is to run a 35 day round. Over 160 ha this equates to 4.57 ha/day
 - c. The dry matter intake for the current level of milksolids production (and a little weight gain) is around 17 kgDM/cow/day
 - d. Total demand: 17 kgDM/cow/day x 525 average cows for the week = 8,925 kgDM/day (55 kgDM/ha/day)
 - e. Demand (if supplied solely from pasture) of 8,925 kgDM/day from 4.57 ha/day requires 1,953 kgDM/ha available.
 - f. Assuming the target residual is 1,650kgDM/ha (paddocks are being tidied up as this is the last round of the season), target pregraze covers are 3,603 kgDM/ha. (1,650 kgDM/ha + 1,953 kgDM/ha = 3,603 kgDM/ha pregraze cover).
 - g. Target APC would therefore be $(3,606+1650)/2 = 2,626$ kgDM/ha
31. The feed wedge above is calculated as if cows were being fully fed on grass (17 kgDM/cow/day) and it estimates a feed deficit of around 24 tDM total (2 day's feed)
32. Average pasture cover has dropped from 2636 kgDM/ha down to 2485 kgDM/ha. This was as expected as the herd began eating into pasture accumulated over the past 4-5 weeks.
33. Reducing pasture cover by this amount has provided a further 6.5 kgDM/cow/day (2636-2485 = 151kgDM/ha for the week. $151 / 7\text{days} / 3.3$ cows/ha = 6.5 kgDM/cow/day).
34. Total demand as above is 55 kgDM/ha/day, but given the average supplement fed of nearly 18kgDM/ha/day (3.3cows/ha x 5.4 kgDM/cow/day supplement) plus the effect of reducing pasture cover (equivalent to another 6.5kgDM/ha/day), the demand from pasture is more like 30 kgDM/ha/day. Growth according to Pasture Coach was estimated at 33 kgDM/ha which would indicate that growth is still being slightly overestimated.
35. This places the farm 100kg DM/ha ahead of its target APC to date.



Feeding Management for the coming week:

36. The small herd will continue to graze behind the large herd to tidy residuals in the last round of grazing.
37. Considering the BCS data, weather forecast and the availability and costs of supplements, the following strategy is being followed:
 - a. Keep as many animals in milk as possible for the longest period possible (final dry-off date for this farm is usually around the 25-28th May). We have a higher than targeted average pasture cover that we are hoping will allow us to achieve this (plus cover us for wet weather spells)
 - b. Only drop culls if the average pasture cover starts dropping too quickly
 - c. Continue drying cows off on autumn dry-off rules for BCS gains.
38. Continuing to hold the culls on farm is practical for this farm given its overall stocking rate, feed supply, costs of supplements, milk price and production of both the whole herd and cull cows. At the last herd test, cull cows were producing around 12% more MS/cow/day than the rest of the herd. Using the cost of supplements at \$0.34/kgDM (as per our most expensive supplement, which is silage), and noting wastage is nearly zero as feeding conditions have been really good, plus adding \$0.10/cow/day in costs related to milking and feeding these animals estimates the daily cost of having these cows on farm at \$5.90/cow/day (17 kgDM/cow/day x 0.34\$/kgDM supplement + \$0.10 running costs). At 1.47 kgMS/cow/day herd average production and a \$6.00/kgMS the return is likely to be at least \$8.82/cow/day.
39. In connection to the fodder beet transition, the current system of feeding the beet after morning milking before the silage will continue – including -
 - a. Slow increase of the level of fodder beet fed to cows (increasing by 0.5kgDM/cow every 3-4 days)
 - b. Ongoing observation of cows. Careful observation of the herds will be made moving forward, watching for signs of acidosis including rumen fill, cud chewing, dung consistency, evidence of a secondary milk fever and amount of milk being produced by each cow.
 - c. Cows that are suspected of showing signs of ruminal acidosis will treated and moved into the OAD mob
40. Continue to harvest the extra cover achieved on farm. We are still around 100 kgDM/ha above target for the week of the season.
41. Feeding:
 - a. The aim is to hold to a 35 day round (which could end of being faster depending on weather conditions).
 - b. Both herds will continue to get fodder beet in their diet.

- c. The large herd will also get some silage in the diet, with the view to reduce the amount gradually over the next 3 weeks to allow the herd to harvest the excess cover through the farm.
 - d. The small herd will be pushed to achieve 1500 kgDM/ha residuals in all paddocks.
 - e. The above will ensure the appropriate set up of the farm for drying off at the end of the month.
42. Grazing decisions will continue to be influenced by cow behaviour and pasture growing conditions, taking particular note of area grazed per day.

LUDF Weekly report	11-Apr-17	18-Apr-17	25-Apr-17	2-May-17	9-May-17
Farm grazing ha (available to milkers)	160	160	160	160	160
Dry Cows on farm / East blk /Jackies/other	0/0/0/0	0/0/0/0	9/0/0/0	10/0/0/0	16/0/0/0
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	22	22	22	22	22
Deaths (Includes cows put down)	1	1	0	0	0
Deaths total to date	16	17	17	17	17
Calved Cows available (Peak Number 560...)	542	541	532	532	525
Treatment / Sick mob total	1	1	0	2	2
Mastitis clinical treatment	1	1	0	2	1
Mastitis clinical YTD (tgt below 64 yr end)	69	70	70	72	73
Bulk milk SCC (tgt Avg below 150)	149	173	157	169	193
Lame new cases	10	30	5	7	11
Lame ytd	150	180	185	192	203
Lame days YTD (Tgt below 1000 yr end)	3962	4627	4837	5082	5222
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	502	483	497	492	506
Milking once a day into vat	38	57	35	38	17
Small herd	154	148	150	147	154
Main Herd	349	335	347	345	352
MS/cow/day (Actual kg / Cows into vat only)	1.53	1.50	1.50	1.49	1.47
Milk Protein/Fat ratio	0.76	0.79	0.77	0.79	0.78
Milk Fat %	5.92	5.95	6.08	5.95	6.19
Milk Protein %	4.57	4.70	4.70	4.69	4.74
MS/cow to date (total kgs / Peak Cows 560)	454	466	475	486	497
MS/ha/day (total kgs / ha used)	5.19	5.07	5.06	4.96	4.81
Herd Average Cond'n Score	0.00	4.30	0.00	0.00	0.00
Monitor group LW kg WOW 281 early calvers	495	499	502	504	501
Soil Temp Avg Aquaflex	12.9	13.2	11.8	11.2	9.5
Growth Rate (kgDM/ha/day)	46	60	56	44	33
Plate meter height - ave half-cms	15.1	15.2	15.4	15.3	14.2
Ave Pasture Cover (x140 + 500)	2615	2632	2656	2636	2485
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3524	3545	3616	3611	3303
Post Grazing cover (ave for week)	1800	1800	1800	1800	1600
Highest pregrazing cover	3750	3600	3950	3600	3500
Area grazed / day (ave for week)	5.07	4.45	3.92	3.68	4.45
Grazing Interval	32	36	41	43	36
Milkers Offered/grazed kg DM pasture	0.0	0.0	0.0	0.0	0.0
Estimated intake pasture MJME	0	0	0	0	0
Milkers offered kg DM Grass silage	0	0	0	0	0
Silage MJME/cow offered	0	0	0	0	0
Estimated intake Silage MJME	0	0	0	0	0
Estimated total intake MJME	0	0	0	0	0
Target total MJME Offered/eaten (includes 6% waste)	0	0	0	0	0
Pasture ME (pre grazing sample)	0.0	0.0	12.0	0.0	12.1

Pasture % Protein	0.0	0.0	19.5	0.0	20.1
Pasture % DM - Concern below 16%	0.0	0.0	13.2	0.0	15.5
Pasture % NDF Concern < 33	0.0	0.0	39.0	0.0	37.2
Mowed pre or post grazing YTD	277.2	277.2	277.2	277.2	277.2
Total area mowed YTD	310.4	310.4	310.4	310.4	310.4
Supplements fed to date kg per cow (555peak)	251.6	302.8	356.9	411.0	447.2
Supplements Made Kg DM / ha cumulative	361.47	361.47	361.47	361.47	361.47
Units N applied/ha and % of farm	25units/33.7%	0	0	0	0
Kgs N to Date (whole farm)	173	173	173	173	173
Rainfall (mm)	57.2	77.6	0	15.6	8.8
Aquaflex topsoil relative to fill point target 60 - 80%	100-100	100-100	90-100	90-100	90-100

Next farm walk: **Monday 15th May at 9am** (due to DairyNZ Farmer's Forum on the Tuesday 16th May). Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter and gumboots. Phone SIDDC – 03 423 0022.

Peter Hancox, Farm Manager, Natalia Benquet, Charlotte Westwood.

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 2nd May 2017

LUDF – focus for 2016/17 Season: Nil-Infrastructure, low input, low N-loss, maximise profit.
Farm system comprises 3.5 cows/ha (peak milked), Target up to 170kgN/ha, 300kgDM/cow imported supplement, plus winter most cows off farm. FWE of less than \$1 million and Target production of over 500kgMS/cow (>100% liveweight in milk production).

Critical issues for the short term

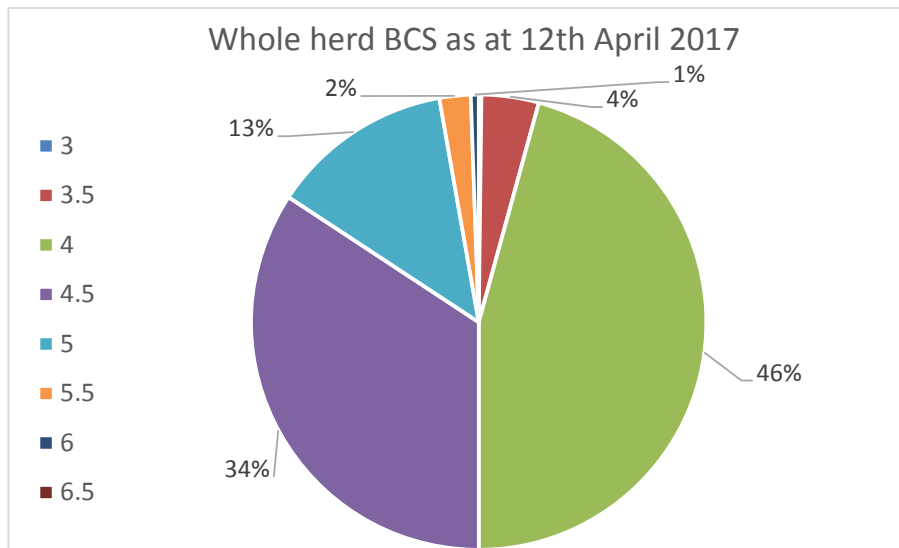
1. **Observe grazing behaviour of herd as fodderbeet has been introduced into the diet.**
2. **Hold the rotation length to minimum of 35 days as we head later into the autumn**
3. **Set the farm and herd up for next season with round length and BCS monitoring and management**
4. **Remain focussed on average pasture cover and pasture quality to ensure enough good quality pasture is offered daily to ensure good production.**
5. **Monitor cow BCS changes.**

Key Numbers - week ending Tuesday 2nd May 2017

Ave Pasture Cover	2636 kgDM/ha	Pasture Growth Rate	44 kgDM/ha/day
Round length	43.4 days	Ave Supplement used	8 Kg/DM/Day - comprising: 6.0 kgDM/cow/day silage + 2.0 kgDM fodder beet/cow/day
No Cows on farm	541 (532 in milk)	Ave Soil Temp (week)	11.2°C
Kg MS/cow (546 cows)	1.5	SCC	169,000
Milk Protein : Fat ratio	0.79	Protein: 4.69%	Fat: 5.95%

Herd Management

6. A total of 541 calved cows are on farm. Of those 532 are in milk and the rest have been dried off. There are 2 milking herds and the make up of them has changed.
7. The small herd (160 cows) now comprises all cull cows and approximately 70 higher condition score cows (cows with BCS at 5 or above). This herd will follow the main herd and be used to ensure target grazing residuals are achieved as the farm completes the last grazing round before the winter.
8. The large herd comprises all other animals
9. There are 530 cows going into the vat, with 492 cows on twice a day milking, 38 once a day.
10. There were 2 new cases of mastitis over the past week (72 clinical cases season to date vs 94 cases at the same time last season).
11. This week, there were 7 new cases of lameness (192 cases season to date vs 176 cases same time last year).
12. Trace minerals and magnesium chloride are running through the stock water to all cows on the milking platform.
13. Phosphorus is being supplied both through water troughs and also dusted on silage.
14. Average herd liveweight (whole herd) for the week was 507 kgLW, 2 kg higher than as last week. The monitor group (281 early calving MA cows) was 504 kgLW, also up 2 kg compared with last week.
15. All cows in the herd have been BCS on the 12th April. The average for the herd has remained at 4.3 (same as last month), however there was a small shift of cow number towards higher BCS groups.

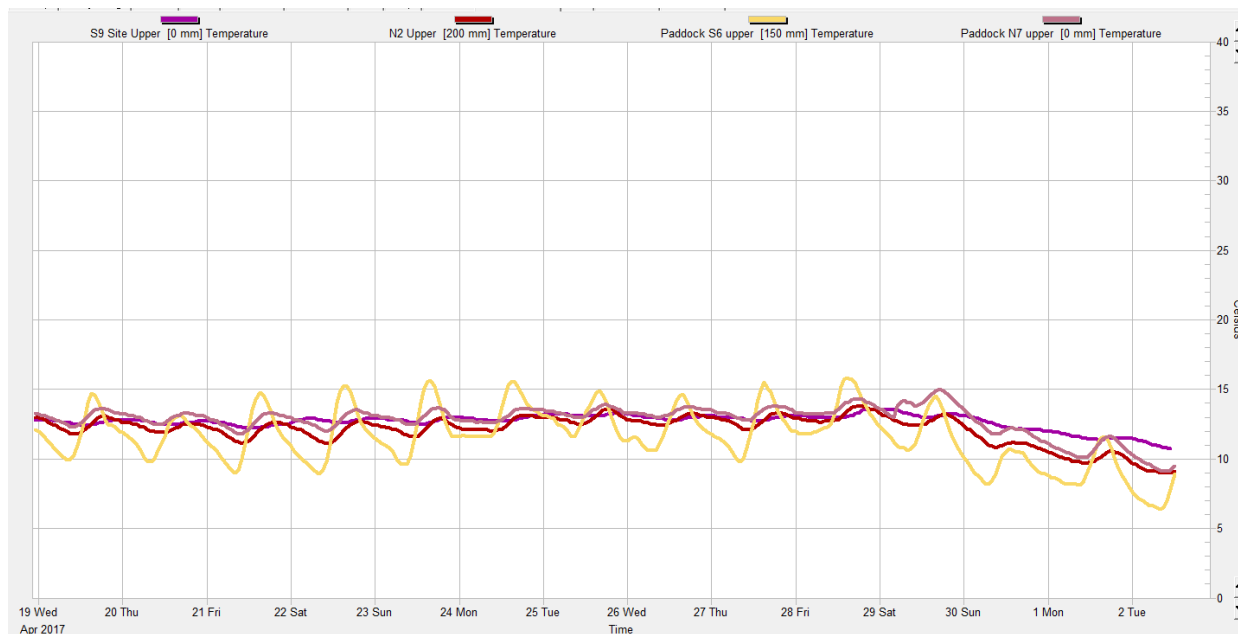


16. 11 cows have been dried off: 5 low BCS early calving cows and 6 lame cows. They have remained on the platform and are still receiving fodderbeet daily.
17. Calves have been weighed and drenched and have received the Lepto booster vaccination and a copper bullet in readiness to be moved to the young stock rearing facilities in Silverwood where they'll be wintered on fodder beet.
18. R2 heifers will be weighed and receive the Lepto vaccine, copper bullet and drench on the 27th April in readiness to go into the fodder beet for winter.

Growing Conditions

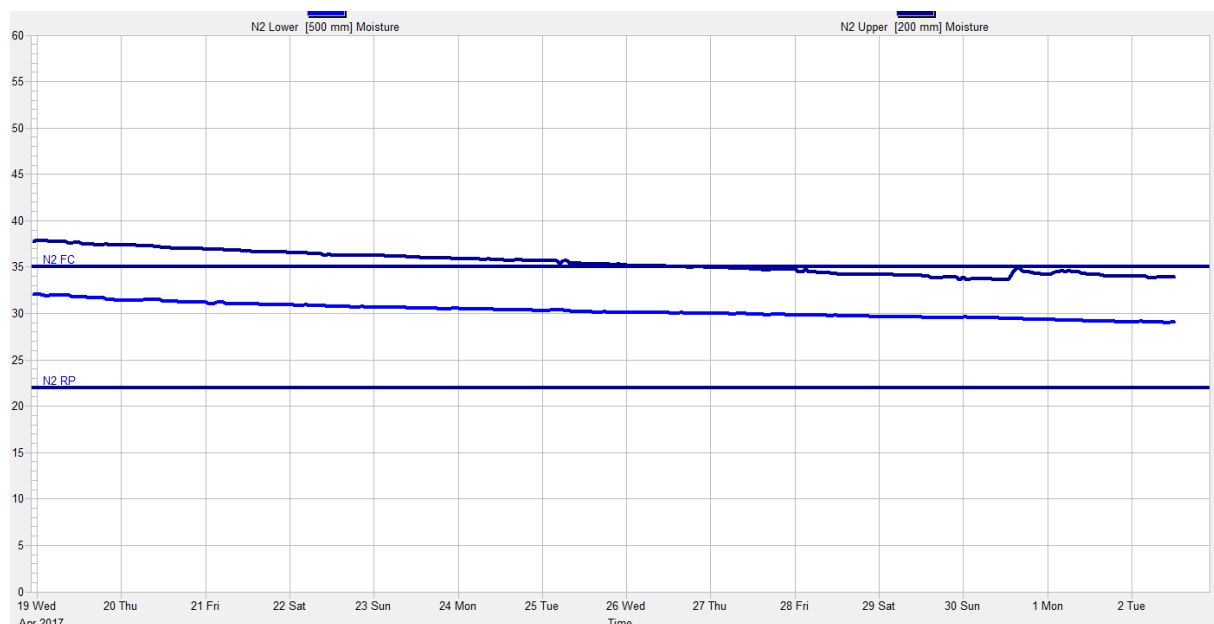
19. The average 9 am soil temperature for the past week has decreased 0.4°C to 11.2°C. Soil temperatures are slightly below this same time last year (11.8°C).

Figure 1: Soil temperature history for the last 2 weeks



20. The farm received 15.6 ml of rain on Sunday. This contributed to the new spike in lameness. Soil condition remain wet although not as bad as a few weeks ago.

Figure 2: Soil moisture history for the last 2 weeks (Paddock N2)



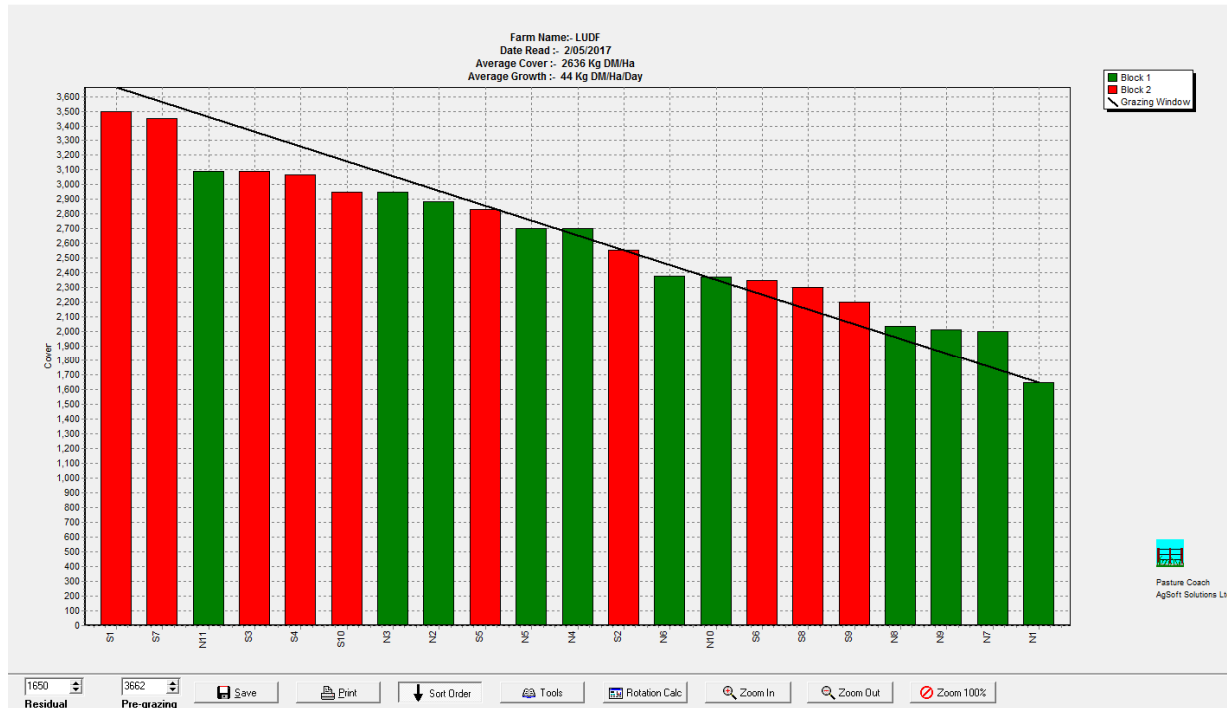
21. A total of 173kgN/ha has been applied to the platform for the season. The N application finished in early April.

Pasture and Feed Management

22. Cows have managed a 43.4 day round this week using 6.0 Kg DM/cow/day silage fed and 2.07 Kg DM fodder beet/cow/day average for the week (a 0.5 kgDM/cow/day of fodder beet increase from the last week).
23. Over the past two weeks, to assist with getting the whole herd eating fodderbeet, cows have been back fenced in their night grazing area after morning milking and then fed fodder beet before the silage and additional pasture. This process sought to stimulate fodder beet uptake by removing additional pasture / silage at this time of the day.
24. There have been no more animal health issues related to fodder beet feeding, however there are still approximately 20% of the herd that are not consuming fodder beet. At present it appears as though the remainder of the herd may be unlikely to take up eating fodder beet while milking this autumn.
25. Over the next 2 weeks, the plan is to gradually increase the fodder beet offered to an average of 3 kg DM/cow/day. As only 80% of the herd is eating the crop, this means about 5 kgDM/cow/day for those animals that are eating it.
26. Cows will be re-transitioned when they get to the wintering block to ensure that the remaining 20% of the herd does go onto the crop and consumes it through winter. There is a limited amount of grass and grass silage in place for a small number of cows if they don't take to the fodder beet over the winter.
27. In general, there is no visually evident loss of pasture quality. Half of paddock S5 (our newest regressed paddock) has some decay at the bottom of the sward as cows were prematurely taken out of the paddock at the last grazing when the wet weather hit (to avoid pugging damage). Paddock S6 also has areas where there is decay at the bottom of the sward, this paddock is particularly hard to graze down well due the dock infestation there.
28. Rising Plate Meter data collected on the farm walk continues as an average of 2-3 plate meters and some discussion on the likely available feed that the herd will consume. This change in approach (since early February 2017) has provided a more realistic data set, including APC. Pasture growth however remains a challenge to explain.
29. Pasture quality from samples collected on 18th April showed:
 - a. Average of 13.2% DM (after 2 consecutive weeks at 10%).
 - b. Energy content of 12MJME/kgDM

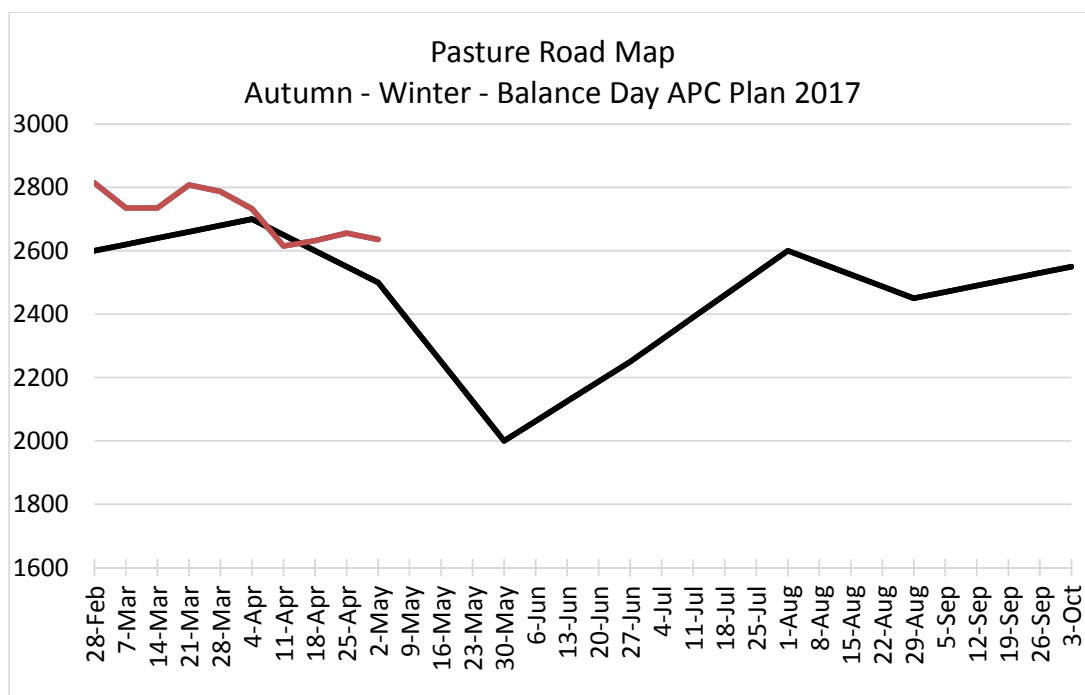
- c. Protein levels at 19.5 %
- d. Average NDF% of 39%

Figure 3: This week's feed wedge



30. The demand line on the pasture wedge graph is calculated as follows:
 - a. 541 cows (dry stock remains on platform) on 160 ha: 3.4 cows/ha.
 - b. In terms of round length, we plan to shorten the round length for the coming weeks, and start eating into the (excess) available cover rather than continue to use silage to support average pasture covers.
 - c. The target is to run a 35 day round. Over 160 ha this equates to 4.57 ha/day
 - d. The dry matter intake for the current level of milksolids production (and a little weight gain) is around 17 kgDM/cow/day
 - e. Total demand: 17 kgDM/cow/day x 541 average cows for the week = 9,197 kgDM/day (57 kgDM/ha/day)
 - f. Demand (if supplied solely from pasture) of 9,197 kgDM/day from 4.57 ha/day requires 2,012 kgDM/ha available.
 - g. Assuming the target residual is 1,650kgDM/ha (paddocks are being tidied up as this is the last round of the season), target pregraze covers are 3,662 kgDM/ha. (1,650 kgDM/ha + 2,012 kgDM/ha = 3,662 kgDM/ha pregraze cover).
 - h. Target APC would therefore be $(3,662+1650)/2 = 2,656$ kgDM/ha
31. The feed wedge above is calculated as if cows were being fully fed on grass (17 kgDM/cow/day) and it estimates a feed deficit of around 6 tDM total.
32. Average pasture cover this week, has virtually remained the same as last week (2,632 kgDM/ha vs 2636 kgDM/ha).
33. Demand is 57 kgDM/ha/day and growth according to Pasture Coach was estimated at 44 kgDM/ha. This means cows would have required 13 kgDM/ha/day of supplements for the average pasture cover not to change if growth was as stated.
34. In practice feeding 8kgDM/cow/day at 3.4 cows /ha is 27.2 kgDM/ha/day, implying the growth rate was more likely 30kgDM/ha/day.

35. Whether the growth is being overestimated or the covers are being overestimated is not clear, what is evident is it is only by adding in supplement that the farm has been able to hold onto the average pasture cover at the current level through April.



Feeding Management for the coming week:

36. Animals in each herd have been redrafted and the small herd (fat and cull cows) will start being used to ensure residual postgrazing targets are achieved in all paddocks grazed (1650 kgDM/ha).
37. Considering the BCS data, weather forecast and the availability and costs of supplements, the following strategy is being followed:
- Keep as many animals in milk as possible for the longest period possible (final dry-off date for this farm is usually around the 25-28th May). We have a higher than targeted average pasture cover that we are hoping will allow us to achieve this (plus cover our us for wet weather spells)
 - Only drop culls if the average pasture cover starts dropping too quickly
 - Continue drying cows off on autumn dry-off rules for BCS gains.
38. Quick calculations say that it is still profitable to feed this level of supplements to empty cows (17 kgDM/cow/day x 0.30\$/kgDM supplement = \$5.1/cow. At 1.5 kgMS/cow/day production, on average each cows is returning \$9/cow/day)
39. In connection to the fodder beet transition, the current system of feeding the beet after morning milking before the silage will continue – including -
- Ongoing observation of cows. Careful observation of the herds will be made moving forward, watching for signs of acidosis including rumen fill, cud chewing, dung consistency, evidence of a secondary milk fever and amount of milk being produced by each cow.
 - Cows that are suspected of showing signs of ruminal acidosis will treated and moved into the OAD mob
40. Feeding nearly 200 kgDM/cow silage and fodderbeet over the last 4-5 weeks has allowed the farm to accumulate 140 kgDM/ha above the target pasture cover, however this will now be used to replace the silage that is being brought in.
41. Feeding:
- The aim is to hold to a 35 day round (which could end of being faster depending on weather conditions).
 - Both herds will continue to get fodder beet in their diet.

- c. The large herd will also get some silage in the diet, with the view to reduce the amount gradually over the next 3 weeks to allow the herd to harvest the excess cover through the farm.
 - d. The small herd will be pushed to achieve 1650 kgDM/ha residuals n all paddocks.
 - e. The above will ensure the appropriate set up of the farm for drying off at the end of the month.
42. Grazing decisions will continue to be influenced by cow behaviour and pasture growing conditions, taking particular note of area grazed per day.

LUDF Weekly report	4-Apr-17	11-Apr-17	18-Apr-17	25-Apr-17	2-May-17
Farm grazing ha (available to milkers)	160	160	160	160	160
Dry Cows on farm / East blk /Jackies/other	1/0/0/0	0/0/0/0	0/0/0/0	9/0/0/0	10/0/0/0
Culls (Includes culls put down & empties)	0	0	0	0	0
Culls total to date	22	22	22	22	22
Deaths (Includes cows put down)	0	1	1	0	0
Deaths total to date	15	16	17	17	17
Calved Cows available (Peak Number 560...)	542	542	541	532	532
Treatment / Sick mob total	1	1	1	0	2
Mastitis clinical treatment	1	1	1	0	2
Mastitis clinical YTD (tgt below 64 yr end)	68	69	70	70	72
Bulk milk SCC (tgt Avg below 150)	146	149	173	157	169
Lame new cases	16	10	30	5	7
Lame ytd	140	150	180	185	192
Lame days YTD (Tgt below 1000 yr end)	3962	3962	4627	4837	5082
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	501	502	483	497	492
Milking once a day into vat	40	38	57	35	38
Small herd	150	154	148	150	147
Main Herd	351	349	335	347	345
MS/cow/day (Actual kg / Cows into vat only)	1.64	1.53	1.50	1.50	1.49
Milk Protein/Fat ratio	0.79	0.76	0.79	0.77	0.79
Milk Fat %	5.76	5.92	5.95	6.08	5.95
Milk Protein %	4.56	4.57	4.70	4.70	4.69
MS/cow to date (total kgs / Peak Cows 560)	445	454	466	475	486
MS/ha/day (total kgs / ha used)	5.53	5.19	5.07	5.06	4.96
Herd Average Cond'n Score	0.00	0.00	4.30	0.00	0.00
Monitor group LW kg WOW 281 early calvers	495	495	499	502	504
Soil Temp Avg Aquaflex	15.5	12.9	13.2	11.8	11.2
Growth Rate (kgDM/ha/day)	59	46	60	56	44
Plate meter height - ave half-cms	16.0	15.1	15.2	15.4	15.3
Ave Pasture Cover (x140 + 500)	2733	2615	2632	2656	2636
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3559	3524	3545	3616	3611
Post Grazing cover (ave for week)	1800	1800	1800	1800	1800
Highest pregrazing cover	3850	3750	3600	3950	3600
Area grazed / day (ave for week)	5.23	5.07	4.45	3.92	3.68
Grazing Interval	31	32	36	41	43
Milkers Offered/grazed kg DM pasture	0.0	0.0	0.0	0.0	0.0
Estimated intake pasture MJME	0	0	0	0	0
Milkers offered kg DM Grass silage	0	0	0	0	0
Silage MJME/cow offered	0	0	0	0	0
Estimated intake Silage MJME	0	0	0	0	0
Estimated total intake MJME	0	0	0	0	0
Target total MJME Offered/eaten (includes 6% waste)	0	0	0	0	0
Pasture ME (pre grazing sample)	11.6	0.0	0.0	12.0	0.0

Pasture % Protein	19.0	0.0	0.0	19.5	0.0
Pasture % DM - Concern below 16%	13.7	0.0	0.0	13.2	0.0
Pasture % NDF Concern < 33	45.5	0.0	0.0	39.0	0.0
Mowed pre or post grazing YTD	277.2	277.2	277.2	277.2	277.2
Total area mowed YTD	310.4	310.4	310.4	310.4	310.4
Supplements fed to date kg per cow (555peak)	195.3	251.6	302.8	356.9	411.0
Supplements Made Kg DM / ha cumulative	361.47	361.47	361.47	361.47	361.47
Units N applied/ha and % of farm	25units/15.4 %	25units/33.7%	0	0	0
Kgs N to Date (whole farm)	165	173	173	173	173
Rainfall (mm)	9.8	57.2	77.6	0	15.6
Aquaflex topsoil relative to fill point target 60 - 80%	70-90	100-100	100-100	90-100	90-100

Next farm walk: Tuesday 9th May 2017 at 9am. Farmers or their managers and staff are always welcome to walk with us. Please call to notify us of your intention and bring your plate meter and gumboots. Phone SIDDC – 03 423 0022.

Peter Hancox, Farm Manager, Natalia Benquet, Charlotte Westwood.

Note also – LUDF Focus Day – Thursday 4th May 2017.