

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 25 October 2016

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

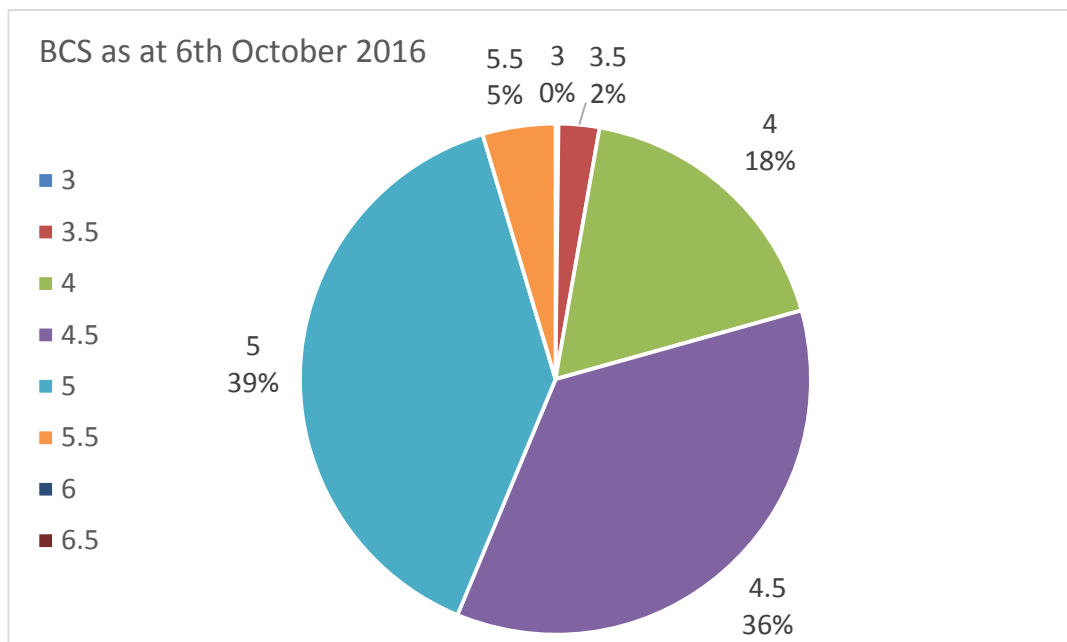
1. Monitor average pasture cover and pasture quality through the late spring period to ensure enough good quality grass is put in front of cows daily to ensure good production and reproductive results.
2. Monitor cow BCS changes through the first half of lactation.
3. Prepare stock and team for mating – *Planned Start of Mating (PSM) today - 25th October 2016*

Key Numbers – Average for the week ending Tuesday 25th October 2016

Ave Pasture Cover	2,647 kgDM/ha	(Plate meter estimated) Pasture Growth Rate	110 kgDM/ha/day
Round length	23 days (for 152 ha)	Ave Supplement used	1.5kgDM/cow/day (over 7 days)
No Cows on farm	556	Ave Soil Temp (week)	11.4°C
Kg MS/cow (531 cows)	2.33	SCC	154,000
Milk Protein : Fat ratio	0.77	Protein: 3.85%	Fat: 5.01%

Herd Management

4. A total of 556 calved cows are on farm as of today. There are 2 milking herds on farm, a small herd of 153 first calvers and low BCS cows and a large herd with 385 mixed age cows. Slight preferential grazing for the small herd has been established as per usual management for LUDF.
5. There are 554 cows going into the vat (540 - twice a day and 14 once a day).
6. There have been 2 new case of mastitis over the past week (30 clinical cases to date – a good improvement over the 62 cases reported at the same time, season to date last year). There have been 2 new lame cows over the last week, leaving us at 38 cases, season to date (compared with 15 cases season to date last year).
7. Trace minerals and magnesium chloride are running through the stock water to all cows on the milking platform.
8. 152 heifer replacements have been tagged, and all calves are now outside on East Block. 96 heifer calves were weaned off calf milk replacer this week, remaining on good quality pasture plus calf meal.
9. The 155, 2015 born R 2 heifers away grazing were weighed last week and are on average 67 kg above their target LW (breeding value). They have been bled for trace mineral status and have received a selenium/Vitamin B12 injection, additional copper as an oral copper bullet and an anthelmintic drench two weeks ago. They are receiving multi-mineral supplementation through the stock water (at half of the milking cows daily rate) as well as additional stock iodine after blood tests showed marginal iodine status.
10. The herd was condition scored on 6th October - the average BCS for the whole herd was 4.6 with 20% of the herd below BCS 4.5, 36% at 4.5 and 44% of the herd at BCS 5 or more. In mid-July (pre calving), the average of 500 cows condition scored was 5.3.



11. On average the herd lost 0.7 BCS between mid-July and early October. This trend is not unusual following calving. With around 80% of the herd at BCS of 4.5 and above, the cows in early October were looking good and are continuing to produce well.
12. Subjective assessment of cow condition at the past two weeks farm walks placed the cows at on average lower than BCS 4.6, with some suggestion that cow condition may have dropped slightly over the last week to 10 days. Cows will be individually condition scored again on 26th October with results reported in the following weeks farm walk notes.

Mating preparedness

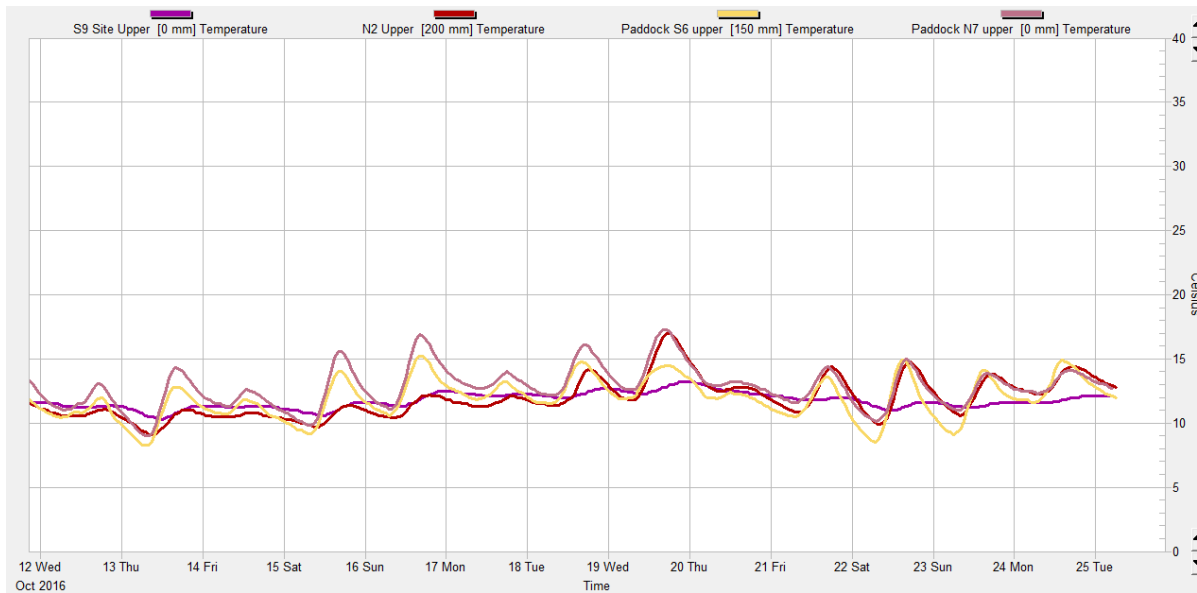
13. All cows are being Metrichchecked at 5 weeks post calving.
14. Breeding bulls were purchased a month ago and were blood tested for BVD. They have also been vaccinated with a 7 in 1 vaccine, a BVD booster, selenium and copper injections and a pour on drench, all in preparedness for mating.
15. Mating has started today (PSM: 25/10/2016) with 21 cows mated on day 1.
16. Most cows will be mated to Premier sires with cows of F9 or less to Friesian and F10 or greater to KiwiCross. A small number of low BW cows will be mated to Wagyu sires.
17. Cows that cycled in the past week (1 week prior to start of mating) will receive a prostaglandin injection to bring their next cycle into week 2 of mating. These cows will also be mated to Compact Calving sires to further assist earlier calving for these cows. Compact Calving sires provide a shorter average gestation length whilst not compromising the calf BW (ie calves can be kept as herd replacements).
18. The combination of a 'Why Wait' Programme for 1/3 of the herd and compact calving sires together is intended to assist with earlier calving for a greater portion of the herd and thus provide these cows with more days between calving and mating next season (a significant factor in assisting them to get back in calf).
19. The resulting tighter calving pattern will need to be managed next spring in relation to its impact on feed supply in late July / early August.
20. There are 78 cows that have not shown signs of heat by PSM. Therefore 85% of cows have shown heat behaviour at least once during the pre-mating heat period. However, over the past 3 weeks only 400 cows have shown heat (72% total cows).
21. AB mating started for R2 2015 born heifers on 11th October 2016. 60 heifers were AB mated daily on observed standing heats for the first 6 days. All heifers that had not shown heats within this period (by Sunday 16th October 2016) received a single prostaglandin injection and a further 84 have been mated

to standing heats over the next 4 days giving a total of 144 heifers mated to AI. Jersey bulls have gone out with them on 20th October 2016 and will remain out until 12th December 2016 to give us a total of 9 weeks mating for the heifers.

Growing Conditions

22. The average 9 am soil temperature for the past week was 11.4°C, 0.5°C above last week's temperature (and 0.3°C higher than this same week last year).

Figure 1: Soil temperature history for the last 2 weeks

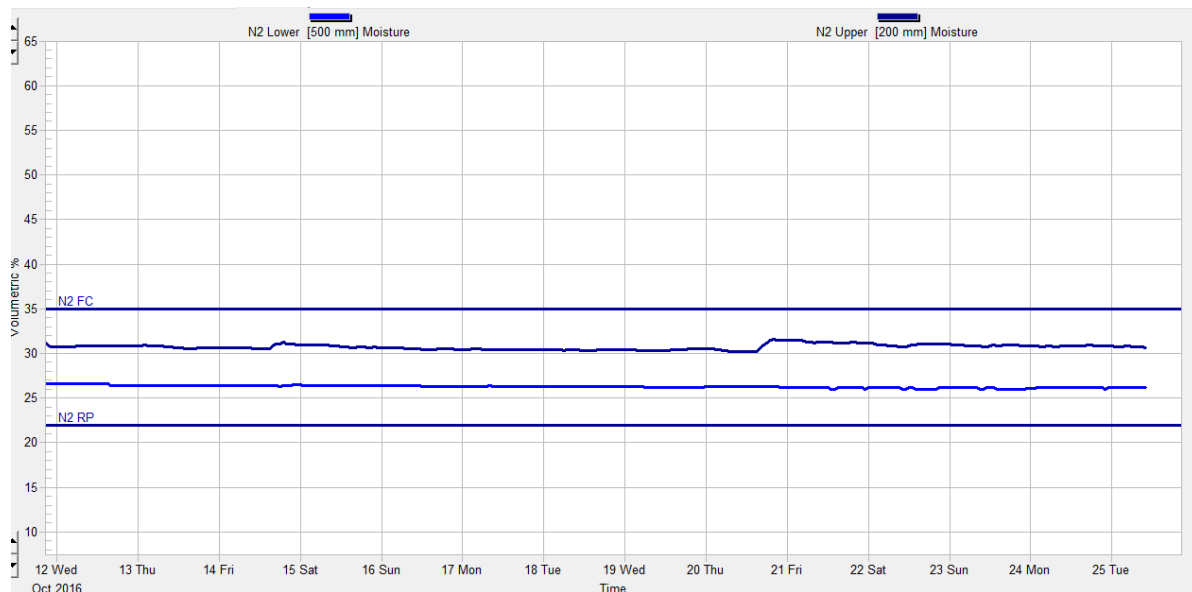


23. The farm received 9.4 ml of rain over the past week. Warmer conditions have seen our evapotranspiration (ET) rate increase, with 23.5 mm for the week (3.3 mm/day). This is similar to this time last year when the weekly average ET was 3.6 mm per day.

24. With the stop-start rainfall events over the last week, irrigation has started and stopped through the week. We irrigated a total of 2 days out of the 7 days of the week, starting again today.

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

(Note, half of paddock N2 is had been mown for silage when the rest of the farm was irrigated on Monday 17 October, therefore one less irrigation event has occurred on this paddock).

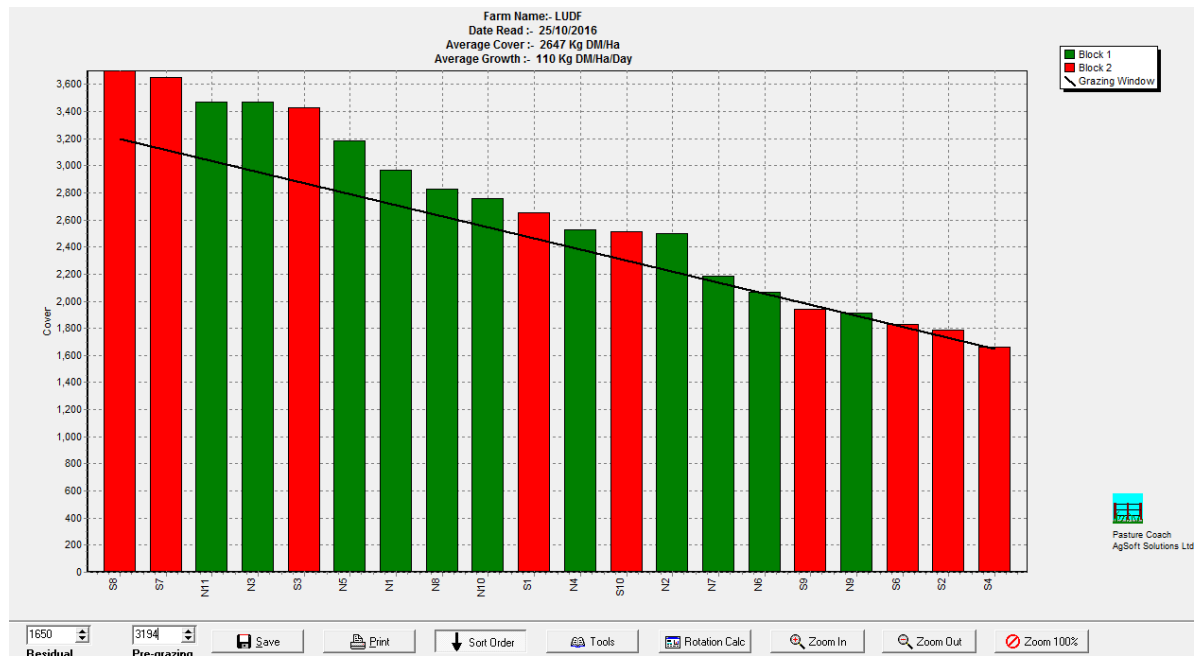


25. Fertilizer applications continue on the non-effluent areas of fully grazed paddocks:
 - a. 45.5 ha have received nitrogen at a rate of 25 kgN/ha over the past week.
 - b. Total N applied per hectare (averaged across all hectares) is now 50kgN/ha.

Pasture and Feed Management

26. Paddock S5 was sprayed out for regrassing on Tuesday 3rd October. The paddock has been cultivated and is awaiting releveling and more top work before hopefully being sown as soon as weather and contractor commitments allow. The recent weather patterns and occasional showers are keeping this paddock wetter than desired.
27. 3.8 ha of silage was harvested from paddock N2 last Tuesday – 18 October. As noted earlier the wet weather delayed harvest of this paddock for 10 days from when it was identified as surplus.
28. We are continuing to monitor pasture quality and pasture covers closely as ryegrass reproductive development is now underway.
29. Pre-graze mowing started last week on paddocks where there was a small surplus of pasture, cows were going into high pregraze covers with more than desirable stemmy bases and weather conditions allowed (dry weather). Rainfall events over the week, while not high in quantity were spread out restricting the use of this management tool. Pregraze mowing is used occasionally to help ensure low and consistent post grazing residuals and thus high quality feed at the next grazing round.
30. The targeted round length for the past week was a minimum of 21 days. In practice a small amount of silage was used to help lengthen the grazing round which averaged 22.7 days. (6.7ha/day or 47 ha for the week, out of 152 ha available).
31. A total of 6 tonne of silage was fed over 5 days to both herds (average of 1.5kgDM/cow/day (for the week)).
32. The last couple of weeks have been challenging in terms of pasture management with the plate meter routinely estimating more feed than cows have subsequently found at grazing. Growth rates have also been overestimated and similarly the calculated 'surpluses' have not occurred in practice.
33. Management decisions have attempted to balance the desire for paddocks to be at 'low and consistent' post grazing residuals, while also achieving total intake of approximately 240MJME per day. This has been confounded by low DM%, uncertainty in the estimated growth rates and 'pasture surpluses' and increasing stem content in the base of the plants – reducing palatability of the base of the pasture sward.
34. Pasture quality from samples collected on 12 and 19th October showed steady increases in DM%, from an average of 11.6% DM on 5th October to 13.3% DM on 12th October and 15.1% on 19th October.

Figure 3: This week's feed wedge



35. The demand line on the pasture wedge graph is calculated as follows:
- We will have all 556 cows calved for next week and calculations will be based on 152 ha as paddock S5 is now out of the round for regassing.
 - Planned round length for the coming week is a minimum of 21-22 days over 152 ha or no more than 7.2 ha/day
 - The dry matter intake for the current level of milksolids production is around 20 kgDM/cow/day
 - Total demand: 20 kgDM/cow/day x 556 average cows for the week = 11,120 kgDM/day (73kgDM/ha/day over the 152ha milking platform)
 - Demand of 11,120 kgDM/day from 7.2 ha /day requires 1,544 kgDM/ha available.
 - As the target residual is 1650kgDM/ha, target pregraze covers are as follows - 1,650 kgDM/ha + 1,544 kgDM/ha = 3,194 kgDM/ha pregraze covers required on 21 day rotation.
36. Feed wedge information:
- Average pasture cover this week is 2,647 kgDM/ha, similar to last week. Given demand is 73kgDM/ha/day yet our apparent growth rates were 110kgDM/ha/day APC should have increased markedly if growth rates were as estimated. On top of this, a small amount of silage was also fed, reducing demand a little.
 - This supports our current observation that cows aren't finding the feed in the paddock that the rising plate meter tells us should be there. On that basis, it could be that we are not actually be growing as much feed as has been calculated over the last week.
 - The feed wedge above shows a theoretical surplus of 35 tonnes DM total based on the recorded pasture covers. Given the likely over estimation of pasture cover, its unlikely the real surplus is this large.
37. Visually, the pasture this week appears to continue to be of moderate to high quality, however last week's feeling that quality was starting to change is reinforced. Stemmier post grazing residuals are more apparent, and as mentioned previously, stem elongation is occurring on a small number of ryegrass tillers within fertility patches. Cow dung consistency has firmed up slightly over the last two weeks suggesting that the quality of pasture is starting to change.

38. Mating has now started, so this grazing round's post grazing residual management and subsequent quality of regrowth may affect cow performance during weeks 3-6 of mating, which is when our in-calf results deviated from target last season.
39. Based on this week's feed wedge, apparent pasture growth rates and daily demand of the herd, theoretically the farm could take one paddock out for silage. This will be monitored closely over the week in regard to actual round length and if cows take longer than anticipated (ie a slower round) its likely the farm may have a genuine surplus.

Feeding Management for the coming week:

40. For the coming week our aim is:
- a. Grazing management: Our focus moving forward remains making sure we put enough of the highest quality grass possible in front of cows for harvest. To achieve this we will:
 - i. Target a minimum 21 day grazing round for the coming week on 152 ha.
 - ii. S5 to be sown as weather conditions allow.
 - iii. Watch for the possibility of harvesting silage rather than pregraze mowing if a genuine surplus occurs. N5 is sown down to a hybrid ryegrass that has not been pre-graze mown due to weather conditions. With the base of this paddock particularly stemmy, this could do with a tidy up, and not being at the top of the wedge, it would not drop APC dramatically (12 tDM available for silage today)
 - iv. Pre-graze mowing remains an option when weather permits to help ensure low and consistent residuals are achieved in a timely manner.
 - b. The key target for the coming week remains to feed cows as much pasture as they can effectively eat, every day, to minimise loss of cow condition whilst ensuring postgrazing residuals and per cow and per ha MS production targets are achieved.
 - c. We will be watching pasture quality closely over the coming days. In theory, much of the LUDF milking platform is sown to later heading ryegrass cultivars that should normally show ryegrass flowering in November, not October. That said, some tillers starting to elongate shows that we must watch this and consider as many ideas as we can to maintain pasture quality despite these changes in the ryegrass plant.
Strategies include pre-graze mowing (and/or taking true surpluses as silage), and avoiding periods of pasture water stress (via close Aquaflex monitoring) and continuing with N fertiliser as urea to encourage as much leaf regrowth and as little stem/seedhead as we can.
41. Continue to apply fertilizer as enough area becomes available. Application rates will be as follows:
- a. Apply Urea at 25kgN/ha (except in the effluent area) to paddocks already grazed.

LUDF Weekly report	27-Sep-16	4-Oct-16	11-Oct-16	18-Oct-16	25-Oct-16
Farm grazing ha (available to milkers)	160	160	160	152	152
Dry Cows on farm / East blk / Jackies / other	34/0/0/0	17/0/0/0	5/0/0/0	0/0/0	0/0/0
Culls (Includes culls put down & empties)	1	0	3	5	5
Culls total to date	7	7	10	15	15
Deaths (Includes cows put down)	1	0	0	0	0
Deaths total to date	9	9	9	9	9
Calved Cows available (Peak Number 560..)	528	543	556	556	556
Treatment / Sick mob total	1	2	4	3	2
Mastitis clinical treatment	1	2	4	2	2
Mastitis clinical YTD (tgt below 64 yr end)	20	22	26	28	30
Bulk milk SCC (tgt Avg below 150)	156	125	142	151	154
Lame new cases	6	6	4	0	2
Lame ytd	26	32	36	36	38

Lame days YTD (Tgt below 1000 yr end)	455	567	693	798	906
Other/Colostrum	9	7	9	0	0
Milking twice a day into vat	490	515	522	539	540
Milking once a day into vat	12	16	21	15	14
Small herd	155	155	153	154	153
Main Herd	335	362	369	385	385
MS/cow/day (Actual kg / Cows into vat only)	2.42	2.45	2.39	2.37	2.33
Milk Protein/Fat ratio	0.77	0.77	0.77	0.76	0.77
Milk Fat %	5.09	5.15	5.02	5.06	5.01
Milk Protein %	3.93	3.95	3.86	3.85	3.85
MS/cow to date (total kgs / Peak Cows 560)	75	91	107	124	140
MS/ha/day (total kgs / ha used)	7.58	7.99	8.02	8.07	8.06
Herd Average Cond'n Score	4.90	0.00	4.60	0.00	0.00
Monitor group LW kg WOW 281 early calvers	472	473	474	473	475
Soil Temp Avg Aquaflex	10.3	11.7	11.0	10.9	11.4
Growth Rate (kgDM/ha/day)	74	92	88	92	110
Plate meter height - ave half-cms	15.4	16.2	16.6	15.2	15.3
Ave Pasture Cover (x140 + 500)	2656	2770	2820	2629	2647
Surplus/[deficit] on feed wedge- tonnes	0	0	0	0	0
Pre Grazing cover (ave for week)	3439	3619	3623	3473	3466
Post Grazing cover (ave for week)	1550	1550	1550	1550	1550
Highest pregrazing cover	3596	3790	4145	3636	3608
Area grazed / day (ave for week)	5.50	5.86	6.38	7.50	6.70
Grazing Interval	29	27	25	20	23
Milkers Offered/grazed kg DM pasture	0.0	20.1	20.1	20.1	19.1
Estimated intake pasture MJME	0	241	241	241	229
Milkers offered kg DM Grass silage	0	0	0	0	2
Silage MJME/cow offered	0	0	0	0	12
Estimated intake Silage MJME	0	0	0	0	18
Estimated total intake MJME	0	241	241	241	246
Target total MJME Offered/eaten (includes 6% waste)	240	240	240	240	240
Pasture ME (pre grazing sample)	12.0	11.9	11.9	11.8	11.8
Pasture % Protein	20.6	25.0	23.8	22.9	22.3
Pasture % DM - Concern below 16%	15.2	14.0	11.6	13.3	15.1
Pasture % NDF Concern < 33	38.5	37.9	39.4	41.8	39.4
Mowed pre or post grazing YTD	0.0	0.0	0.0	3.5	30.9
Total area mowed YTD	0.0	0.0	0.0	7.3	38.2
Supplements fed to date kg per cow (555peak)	0.0	0.0	0.0	0.0	10.8
Supplements Made Kg DM / ha cumulative	0	0	0	0	66.12
Units N applied/ha and % of farm	25units/20 .5%	25units/ 21%	25units/17 .6%	25units/21 .5%	25units/21.5 %
Kgs N to Date (whole farm)	23	29	35	41	50
Rainfall (mm)	1.8	2.6	16.6	10.4	9.4
Aquaflex topsoil relative to fill point target 60 - 80%	50-70	50-70	70-80	60-70	60-70

Next farm walk: Tuesday 1st November 2016 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.