

Lincoln University Dairy Farm - Farm Walk notes

Tuesday 3rd May 2016

LUDF – focus for 2015/16 Season: Nil-Infrastructure, low input, low N-loss, maximise profit.
 Farm system comprises 3.5 cows/ha (peak milked), Target 150kgN/ha, 300kgDM/cow imported supplement, plus winter most cows off farm. FWE of less than \$1.08 million and Target production of 500kgMS/cow (>100% liveweight in milk production).

Critical issues for the short term

1. Monitor average pasture cover on the milking platform as head towards planned cover at end of May.
2. Focus on grazing paddocks down through the last round of the season to set the farm up for winter.
3. Watch cow BCS and dry off targets to ensure all cows meet BCS targets at calving (min 5 for MA cows and 5.5 for R3yr's)
4. Supplement cows with Magnesium

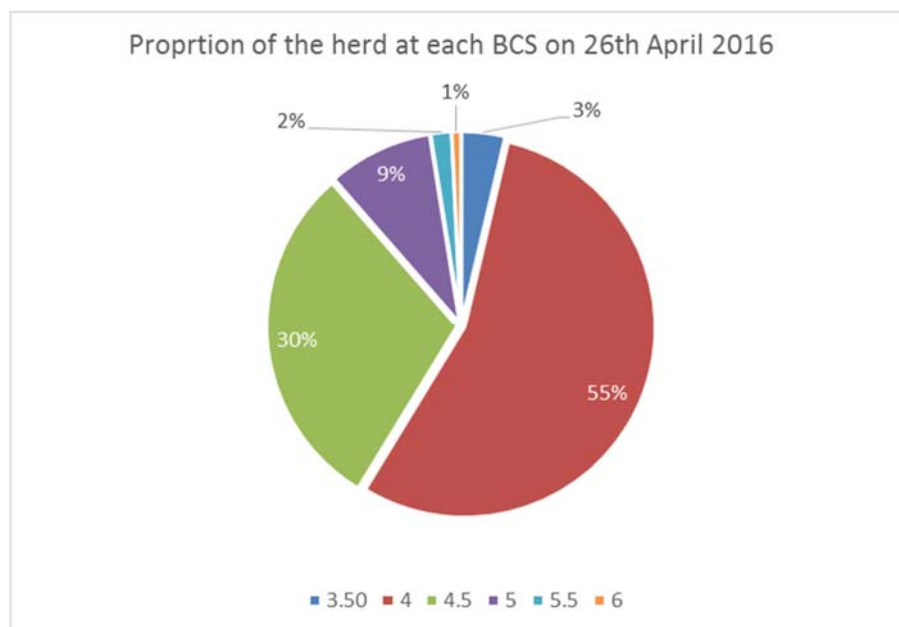
Key Numbers - week ending Tuesday 3rd May 2016

Ave Past Cover	2492 kgDM/ha	Past Growth Rate	39 kgDM/ha/day
Round length	38 days (for 160 ha)	Ave Supplement used (Total year to date*)	4.5 kgDM/cow/day (396.5kgDM/cow YTD)
No Cows on farm	520 (430 for the coming week)	Ave Soil Temp (week)	11.8 degrees
Ave Milk Production	1.77 kgMS/cow (cows milked into vat)	SCC	248,000

* includes silage made on farm and 114 kgDM/cow imported supplement used in early spring

Herd Management

1. There are currently 520 milkers on farm. 18 cows are on once-a-day milking (lames).
2. This week we had 3 new lame cows and 2 new cases of mastitis.
3. The whole herd was BCS on 26th April. The BCS average for the whole herd is 4.3. The spread of BCS is as follows:



4. The average BCS for heifers and MA cows is below the BCS of the same groups of animals at the same time last season by 0.2 and 0.3 BCS respectively.
5. The farm has continued to run two herds until now, however upon removal of all culls today and tomorrow, as well as starting drying low BCS cows and heifers from tomorrow, the herd will run as one herd from now onwards
6. The BCS from last week is being used in conjunction with the dry-off rules presented below. These are used on an individual cow basis and assumes the typical time required to get cows to appropriate calving BCS targets. As LUDF has secured high quality winter grazing that has historically resulted in good CS gain over the winter, the farm is comfortable with the later end of the date range for the small number of cows currently under BCS 4. Following these dry-off rules, there is 20 animals that have been identified for dry-off for this week.

Cows (4 years old and older)

Cow Condition	Dry off time (days before Calving)	Date cow need to be dried off (calving date 1-15 August)	Date cow need to be dried off (calving date 15-30 August)
3.5	100	20 April – 5 May	5-15 May
4	80	10-20 May	20 -30 May
4.5	60	NA	NA

Rising 3 year Old

Cow Condition	Dry off time (days before Calving)	Date cow need to be dried off (calving date 1-15 August)	Date cow need to be dried off (calving date 15-30 August)
3.5	120	1-15 April	15-30 April
4	100	20 April -5 May	5-15 May
4.5	80	10-20 May	20 -30 May
5	60	NA	NA

This strategy requires the feeding of appropriate quantities of good quality feed to the cows that are being dried off, i.e. - above maintenance levels.

7. The first 20 cull cows left the farm on Friday 22nd April. There is another 40 culls booked to leave the farm today, followed by a further 30 cows being culled on Wednesday. There is a further 20 cows to be dried off according to the above dry-off rules. This will bring cow numbers on farm from the current 520 down to 430 cows.
8. Magnesium is being supplemented to the milking herd as Mag Chloride in the stock water.
9. All 2015 born heifer replacements (total 155) are away grazing. They were vaccinated against BVD and Leptospira on Monday the 7th March. A booster vaccination of BVD-Lepto plus a drench of Selenium was given to them on Monday the 11th of April.
10. The East Block (15 ha) is now destocked to allow pasture cover to accumulate in time for calving.

Growing Conditions

11. The average 9 am soil temperature for the week dropped slightly from last week to reach 11.8°C. The cooler nights during the week have been counteracted by the high temperatures during the day (20 degrees and above).
12. There was no rain over the last week, and no rain is forecasted for the next 10 days.

Figure 1: Soil temperature history for the last 2 weeks

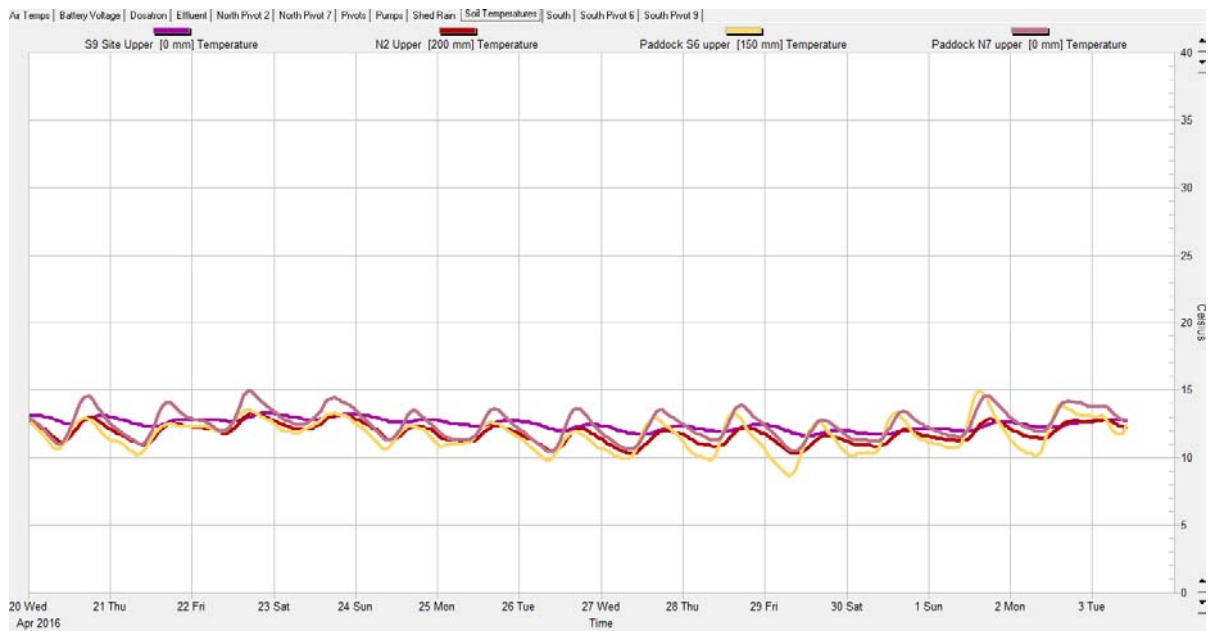
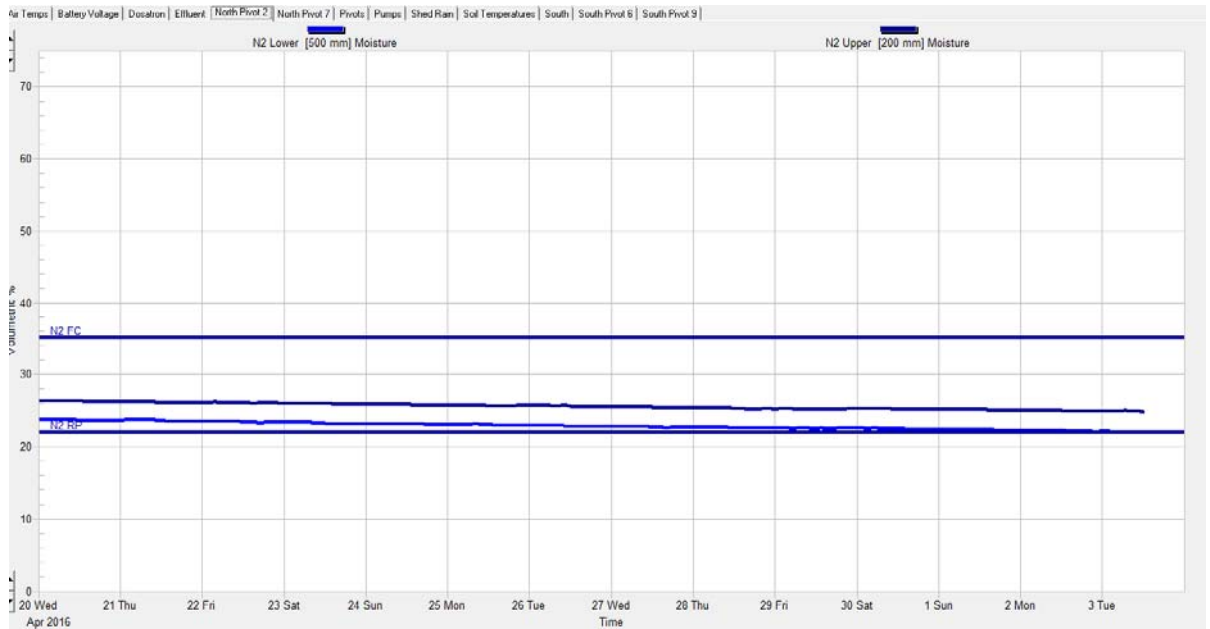


Figure 2: Soil moisture history for the last 2 weeks (Paddock N2).



- The deep Aquaflex probe reading has now touched the stress point in the graph, so the irrigation has been started again. The plan is to apply a couple of rounds to allow the reading to get back above the stress point, but not too high within the range. This will allow pastures not to be stressed for lack of water, but still have enough of a buffer zone in case there is any heavy rainfall happening. This is unusual for this time of the season but we are relying of having the best growths these temperatures and sunshine can give us to produce any further milk in May, as long as the BCS of the herd allows for it.

Nitrogen

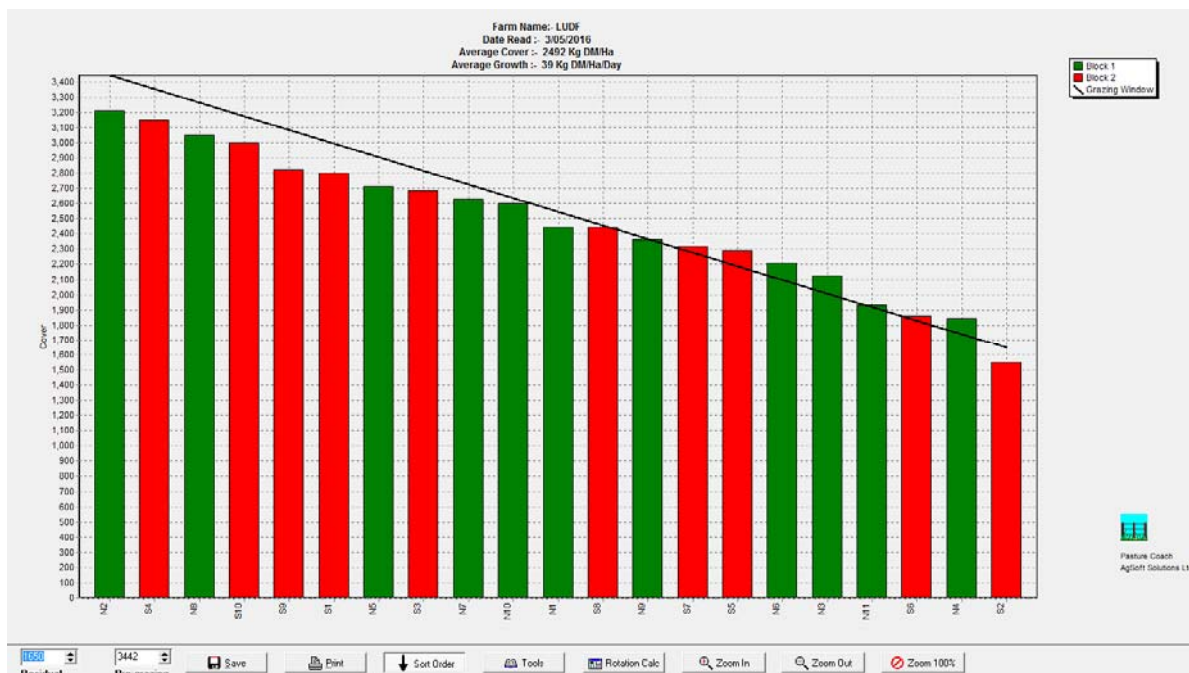
- Nitrogen fertiliser applications finished for this season with the last application of N on 29th March 2016. A total of 179 kgN/ha has been applied season-to-date. This level of nitrogen use has slightly

exceeded the target for this season (170 kgN/ha/season) as per the modelled farms N losses through Overseer. The total N-leached as per Overseer model for the season still remains below Baseline.

Pasture and Feed Management

15. Fertility patches have become a bit more obvious again, particularly in paddocks at the top of the wedge. Whereas further use of nitrogen would probably have reduced this following the last grazing (late March), the decision was made earlier in the season to use N mid-summer when responses are expected to be higher.
16. Estimated pasture growth rates have increased to 39kgDM/ha/day, compared to last week's growth of 31kgDM/ha/day. Growth rates for the same week last year were 36kgDM/ha/day.
17. Three weeks ago, taking into account weather conditions, growth rates and cow behaviour, it was decided to increase round length to around 39 days. This was achieved by feeding approximately 7 kg DM silage/cow/day for a week. The quantity of silage on offer was subsequently dropped to around 3-4 kgDM/cow/day for the last 2 weeks. This appears all that has been required to hold the round at around 38 days.

Figure 3: This week's feed wedge



18. Based on the full farm area of 160 ha in the grazing round, the target pregrazing cover and demand line in the feed wedge has been calculated using:

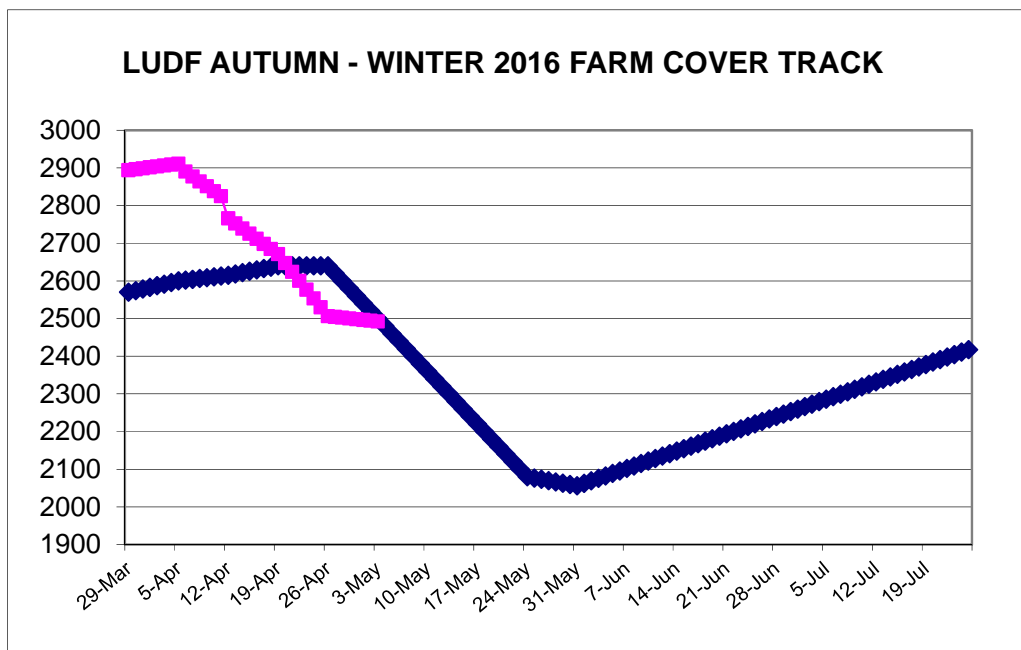
- A target rotation length of 39 days
- An average dry matter intake of 18.0 kgDM/cow/day
- 430 cows (for the week ahead, taking into account culls leaving the farm and dried off animals which will eat less than the 18 kgDM/cow/day)
- A post grazing residual of 1600 kgDM/ha.

Target pregrazing cover is therefore:

$$(\text{Stocking rate} \times \text{Intake from pasture} \times \text{Rotation}) + \text{Optimum residual} = \text{Pre-grazing Cover.}$$

$$(430 \text{ cows} / 160\text{ha} \times 18.0 \text{ kgDM/cow/day} \times 38 \text{ days}) + 1600 = 3438 \text{ kgDM/ha.}$$

19. In this week's feed wedge the feed deficit decreased to 11 tDM total (just over 1 days grazing) and the Average Pasture Cover remain almost at the same level, changing from 2501kgDM/ha (last week) to 2492 kgDM/ha.
20. At the current rate of silage (4 kgDM/cow/day for 520 cows), LUDF is feeding 2.1 tDM. At an average intake of 18 kgDM/cow/day, this amount silage is effectively feeding 115 cows. In reality the farms home grown silage is now finished and the economics of feeding purchased silage are not warranted at the current milk price. Instead there are 70 cull cows and 20 light CS cows that are lined up to leave the farm in the next 2 days. Technically there would be a requirement of reducing demand by another 20 animals to fit supply as the silage gets pull out of the diet, and this will be continuously monitored through the week.
21. Keeping the additional 20 cows may result in an earlier dry off for all cows if the growth rates and desired drop in APC don't meet demand. Growth rates will have a huge influence in these decisions through the next 20 days.
22. The plan for the remainder of May is as follows:
 - a. 442 kgDM/ha to be supplied by the mining of the current average pasture cover down to dry-off levels (2492 kgDM/ha – 2050 kgDM dry-off target = 442 kgDM/ha). On 160 ha, this is a total supply of 70.7 tDM.
 - b. An estimated growth rate of 30 kgDM/ha/day for the next 20 days would supply 96 tDM total from the 160 ha of the farm.
 - c. Total supply till approx. 24 May is therefore: 70.7 tDM + 96 tDM = 166.7 tDM total
 - d. At a requirement level of 18 kgDM/cow/day, this supply would allow us to feed 430 cows for a total of 21 days.
 - e. Some cows may be dried of on CS within this time, reducing demand a little.
23. Below is our autumn pasture cover tracker. The aim of the pasture tracker is to make sure we're on track to gradually drop average pasture cover down to our required target of 2050kgDM/ha at dry off in late May.
24. The pasture tracker indicates that the higher than budgeted average pasture covers on hand through March 2016 have helped hold the higher number of cows (including culls) currently still on farm through autumn. In addition, the lower cost home grown silage on hand and high milk production per cow has also allowed us to feed cull cows in a relatively cost effective manner. In contrast last season, during autumn cull cows were sold in early March.



25. As per last week's notes around the comparison Actuals vs Budget lines, the previous drop in Actual (pink on graph) average pasture cover to slightly below Target (blue on graph) was not of major concern to us at the time. Based on our calculations, once we drop the cull cows from the herd on 4th May, we would still have enough cover to see us through to around the 20th of May.
26. The availability of the home-grown silage has allowed the farm to carry all culls into this week of May, achieving 1.7 kgMS/cow/day average for the last couple of months. LUDF will have produced last season's production by tomorrow, which results in all additional milk produced through May helping to dilute costs to the end of the season. It is, however, very important to remember that whatever milk is produced through May must:
 - a. be produced from grass only (the home-grown silage is now finished and our calculations say feeding purchased silage is not profitable at this stage)
 - b. must not jeopardize next season's performance from the herd, hence why the dry-off rules on CS are followed no matter what the rest of the season brings.
27. It is important to repeat that carrying the high average pasture covers earlier this Autumn appeared feasible for LUDF on our high quality tetraploid ryegrass pastures. On average diploid paddocks are less able to successfully carry these higher average pasture covers.
28. In today's walk:
 - a. Fertility patches have become more obvious than in previous weeks, making the plating of those paddocks a challenge given the difference between patch and non-patch areas in terms of DM, patches were particularly notable in paddocks S1 and S2.
 - b. No signs of pasture quality losses anywhere else were observed.
29. We are now in the last round of grazing for the farm. We have some strategies available when it comes to ensure paddocks are well cleaned up before dry-off date. Also late calving good BCS cows could be used for this. Having these strategies allows us to ensure the farm is well set up to make the best of any winter growth.

Feeding Management for the coming week:

30. For the coming week our aims are to:
 - i. Keep the round to 39 days, silage is finished.
 - ii. Drop demand by having 70 cull leave the farm by tomorrow and drying off a further 20 cows based on BCS dry-off rules. Potentially add another 20 cows to be dried off if weather conditions turn bad and growth declines.
 - iii. Last season's average growth rate for the month of May was 36 kgDM/ha/day. If the same holds true for this season, the farm should be able to hold onto the 430 cows till the 24th May. However, growth rates and rainfall will be the key determining factors as to how long the season will go into May.
 - iv. Continue to monitor rate of drop off peak milk solids production (which continues to be remarkably stable over the last 3 weeks) as an important indicator of both feed intake as well as pasture quality.

LUDF Weekly report	5-Apr-16	12-Apr-16	19-Apr-16	26-Apr-16	3-May-16
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	0/0/0/0	0/0/0/0	0/0/0/0
Culls (Includes culls put down & empties)	2	2	0	0	40
Culls total to date	20	22	22	22	62
Deaths (Includes cows put down)	0	0	0	0	0
Deaths total to date	12	12	12	12	12
Calved Cows available (Peak Number 560)	543	541	541	520	520

Treatment / Sick mob total	2	3	0	0	2
Mastitis clinical treatment	0	1	0	0	2
Mastitis clinical YTD (tgt below 64 yr end)	91	92	92	92	94
Bulk milk SCC (tgt Avg below 150)	153	201	179	183	248
Lame new cases	6	5	3	2	3
Lame ytd	163	168	171	173	176
Lame days YTD (Tgt below 1000 yr end)	2949	3173	3294	3420	3497
Other/Colostrum	0	0	0	0	0
Milking twice a day into vat	519	506	522	502	507
Milking once a day into vat	22	32	18	18	13
Small herd	138	136	136	136	136
Main Herd	381	370	370	350	350
MS/cow/day (Actual kg / Cows into vat only)	1.65	1.71	1.70	1.72	1.77
MS/cow to date (total kgs / Peak Cows	458	468	478	491	501
MS/ha/day (total kgs / ha used)	5.57	5.78	5.76	5.82	5.73
Herd Average Cond'n Score	0.00	4.20			4.30
Monitor group LW kg WOW early MA calvers	504	500	500		507
Soil Temp Avg Aquaflex	14.5	13.7	12.5	11.8	11.8
Growth Rate (kgDM/ha/day)	73	46	52	31	39
Plate meter height - ave half-cms	17.2	16.2	15.5	14.3	14.2
Ave Pasture Cover (x140 + 500)	2911	2766	2671	2506	2492
Surplus/[deficit] on feed wedge- tonnes	27	4	[34]	[42]	[11.5]
Pre Grazing cover (ave for week)	3647	3861	3735	3186	3100
Post Grazing cover (ave for week)	1650	1650	1650	1650	1650
Highest pregrazing cover	3762	3937	3706	3400	3482
Area grazed / day (ave for week)	4.81	4.57	4.06	4.15	4.23
Grazing Interval	33	35	39	39	38
Milkers Offered/grazed kg DM pasture	12.5	14.1	11.3	14.8	14
Estimated intake pasture MJME					0
Milkers offered kg DM Grass silage	6	4.4	7.3	3.7	4.5
Silage MJME/cow offered					
Estimated intake Silage MJME					
Estimated total intake MJME	220	220	220	220	220
Target MJME Offered/eaten (includes 6% waste)					
Pasture ME (pre grazing sample)	12.2	12.2	12.3		0.0
Pasture % Protein	23.1	22.6	21.7		0.0
Pasture % DM - Concern below 16%	14.6	16.0	16.5		0.0
Pasture % NDF Concern < 33	36.6	37.4	36.6		0.0
Mowed pre or post grazing YTD	236.5	236.5	236.5	236.5	236.5
Total area mowed YTD	312.3	312.3	312.3	312.3	312.3
Supplements fed to date kg per cow (560 peak)	258.2	288.7	339.5	365.4	396.6
Supplements Made Kg DM / ha cumulative	964.35	964.35	964.35	964.35	964.35
Units N applied/ha and % of farm	0	0	0		0
Kgs N to Date (whole farm)	179	179	179	179	179
Rainfall (mm)	1.4	3.4	5	0	0
Aquaflex topsoil rel. to fill point target 60 - 80%	60-80	50-70	50-70		

We walk the farm every Tuesday 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.