

Macalister Demonstration Farm

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NEWSLETTER 18

Monday, May 11th, 2009



Extension projects at the MDF are funded by Dairy Australia and the Gardiner Foundation with support from GippsDairy.

Farm Walk

Each week the Monday Farm Walk will take on a theme to highlight some of the activities at the farm as well as looking at the general performance of the farm.

Next Monday (May 18th 2009) we will focus on the recent soil tests results.

Watch for farm walk topics for the following Monday in the MDF report each week in the Gippsland Times.

Meet at 11am each Monday – call Frank first on 0409 940 782 to check in.

Second Tuesday Session @ MDF – June

IT'S BUDGET TIME – MDF BUDGET AS A BUSINESS HEALTH MONITORING TOOL

Tues 9th June 10.30am - 12.00pm

LUNCH PROVIDED RSVP: Neil 0400 806 246 or 51 411 712

Yellow Rag Bit

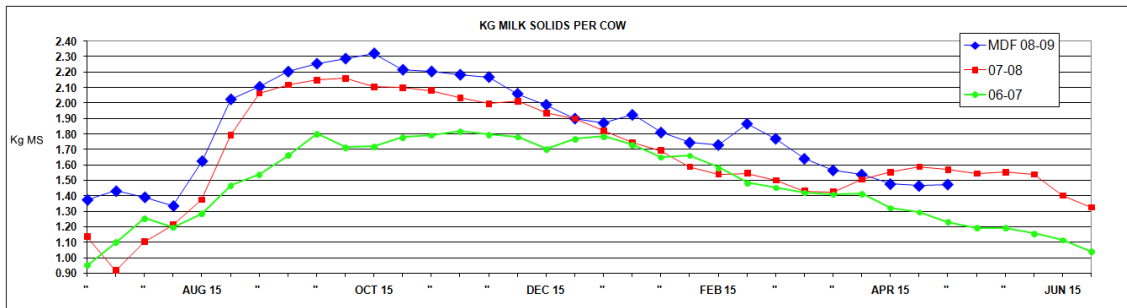
Jason McAinch Dairy Advisor DPI Maffra

Getting the maximum from your pastures should always be a target. So what things should you focus on as we enter the winter months?

1. The third leaf of a ryegrass plant grows quicker than any other leaf in the current conditions, so ensure you have a pasture wedge. Some of the farm area needs to be entering into the growth of the third leaf; this will ensure the fastest growth rate.
2. Ensure the rotation is right for the plant species to maximise growth and quality.
3. Nitrogen applied at this time of year can help the ryegrass plant tolerate frosts and other effects such as rust. But do the sums!
4. Closely monitor your pastures, if they are starting to fall over, graze them before the bottom of the plant gets shaded and affects the first leaf.
5. If rust is starting to affect the pasture, graze the paddock before the quality is affected.
6. Look after your newly sown paddocks, they are probably growing better than the rest of the farm. Assess their fertiliser needs to ensure the strong growth.
7. Post grazing height becomes even more critical. Maintain 4-6 cm, as the plant has limited daylight hours, therefore the growth/size of that first leaf is critical in capturing light for photosynthesis and hence the on-going growth.

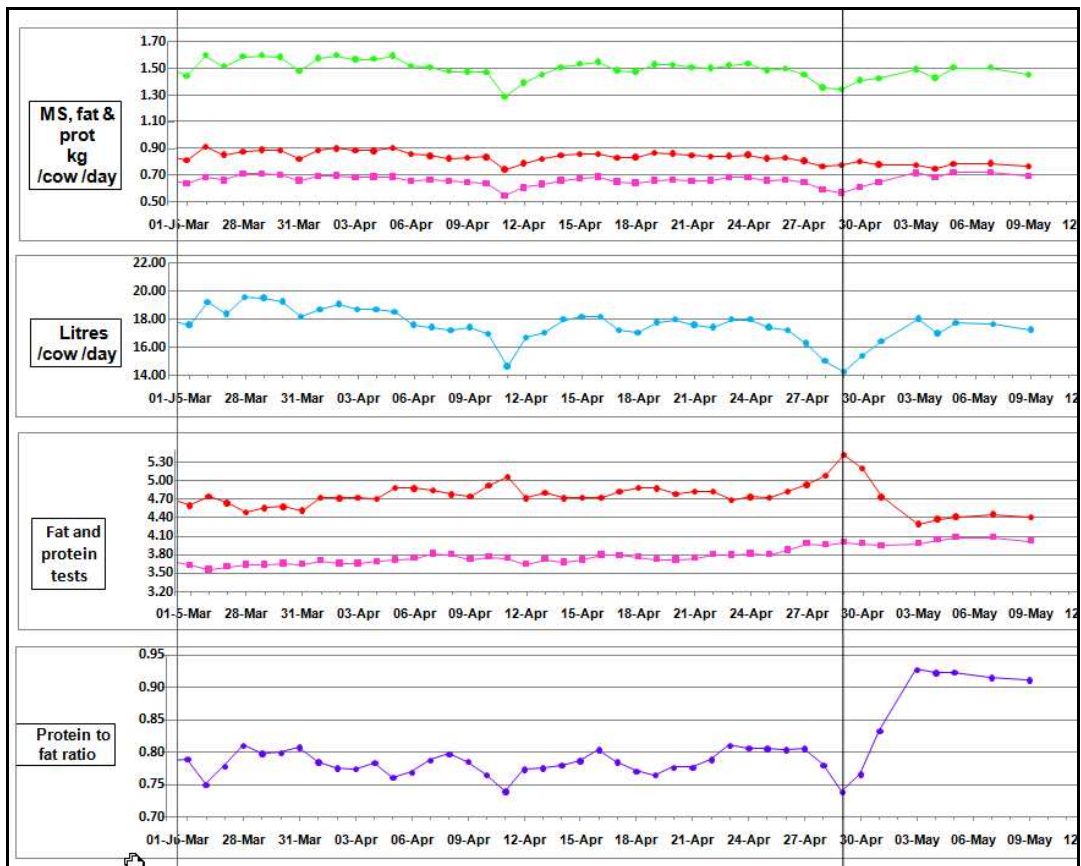
Assess the research behind products added to pastures during the winter. Some products can be very expensive for their extra growth, so you may be better off with a purchased forage supplement. Some products increase growth, but may not increase "milk production". Remember we are aiming for quality and quantity.

Macalister Demonstration Farm Production and Feeding Profitability



Above is the yearly per cow milk production graph - a dot for each ten day period. The cows are averaging just less than 1.5 kg MS/day, lower than the same time last year.

Below are the daily graphs from mid-March 09. There was quite a fall when the cows grazed the sub-surface drip area in late April. The paddock had a lot of very leafy grass, but we now think the nitrates were very high, due to the large amount of effluent applied prior to sowing (This is supported by the nitrate levels in soil tests below). Since then the fat test has fallen markedly while the protein test has climbed steadily, causing the protein to fat ratio to spike. Supplements have been very consistent over this time, but the cows have been grazing a lot of paddocks that were topped at the last grazing.



MDF Mating Report

The MDF has a seasonally calving herd of 272 cows. 65% of the cows are less than 6 years of age and 63% of the herd are crossbred. The calving pattern this season was good with no cows calving less than 20 days prior to mating start date. Synchronisation was used - 35 cows were identified as non-cycling cows and were treated and mated within 3 weeks of mating starting.

	All Cows	Holsteins	Crossbred
21 day Submission Rate	84%	80%	87%
2 nd round Submission Rate	78%	73%	81%
1 st service Conception Rate	26%	20%	30%
2 nd service Conception Rate	43%	43%	43%
50% of cows were in calf by day	33	40	26
6 Week In Calf Rate	55%	51%	60%
Not In Calf	10%	10%	10%

At this stage we plan to induce 43 cows to ensure that all cows calve 25 days before the mating start date.

MDF Soil Testing

Soil testing was recently carried out in seven paddocks at the MDF. The results, on the next page, are included with tests from 2007 and 2008. The results from this year's tests that need attention are in bold.

1. Soils are clay or clay loams.
2. Organic matter levels are OK, mostly 3 to 4 %.
3. Phosphorus is very high (lowest Olsen 27) and none will be applied, probably ever again.
4. Three paddocks are low in potassium (2, 9 and 18) with no apparent pattern to help understand why.
5. Got heaps of sulphur in the soil.
6. Nitrate is high in recently cultivated paddocks (12, 18, and 8). It is noticeably high in the sub-surface drip paddocks (12 and 18) where we thought we had nitrate problems with cows at the March grazing.
7. For the first time in this series of soil tests, two paddocks (1 and 12) are under pH 5.00. These are lighter red soils.
8. Salinity does not seem to be a problem, but it is a bit high in the bike-shift paddock (27) that is irrigated with bore water.
9. Calcium is a little low.
10. Magnesium seems mostly OK.
11. Sodium is a bit high, especially on the bore irrigation area (east end).
12. Potassium is a bit low, in three paddocks (2, 9, and 18).
13. Aluminium is high in the two paddocks that are registering low pH (1 and 12).
14. The sum of the cations (cation exchange capacity) is a bit low in some paddocks.
15. Calcium percentage of the cations is a bit low, particularly on the bore irrigation area (east end).
16. Magnesium percentage of the cations seems OK.
17. Sodium percentage of the cations is too high. We will consider applying gypsum, so the calcium pushes the sodium out.
18. Potassium percentage of the cations is mostly OK.
19. Aluminium percentage of the cations is high in the two paddocks that are registering low pH (1 and 12).
20. Calcium:Magnesium ratio is a bit low in some paddocks.
21. Magnesium:Potassium ratio is high enough.

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MACALISTER DEMONSTRATION FARM SOIL TESTS

	Fixed spray, west end of farm					Recently lasered, middle of farm			Old flood, middle of farm		Sub-surface drip		Lasered flood, east end				Bike shift, from bore, east end		Suggested desirable	
	Mar-07	Jun-08	Apr-09	Apr-09	Apr-09	Jun-08	Apr-09	Apr-09	Mar-07	Jun-08	Apr-09	Apr-09	Mar-07	Jun-08	Mar-07	Jun-08	Mar-07	Jun-08		
	Pdk 7	Pdk 8	Pdk 8	Pdk 1	Pdk 2	Pdk 15	Pdk 9	Pdk 13 (cut)	Pdk 16	Pdk 16	Pdk 12	Pdk 18	Pdk 23	Pdk 23	Pdk 34	Pdk 34	Pdk 27	Pdk 27		
1	Soil Texture	Clay loam	Clay loam	Clay loam	Clay	Clay	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	Clay	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	Clay loam	
2	Organic Carbon	4.6%	3.8%	3.9%	3.2%	4.1%	2.7%	3.5%	3.1%	4.1%	3.6%	2.8%	3.0%	4.6%	3.9%	3.4%	3.4%	4.8%	5.0%	1.95 to 2.9
3	Phosphorus (Olsen)	60	101	94	59	57	42	42	32	44	40	59	41	36	33	37	52	27	53	low to mid 20's
4	Potassium (Colwell)	192	190	320	280	120	350	120	360	267	180	220	170	178	170	201	230	179	210	200 to 350
5	Sulphur (KCl40)	16	27	21	12	23	16	16	38	24	20	27	39	28	23	27	19	21	25	10 to 25
6	Nitrate	29	25	46	37	34	23	19	15	23	17	85	66	32	21	24	14	8	18	
7	pH (1:5 water)	5.3	5.3	5.5	4.9	6.4	5.8	5.5	6.2	5.7	5.7	4.8	5.3	6.1	6.5	6.6	7.0	6.9	7.1	5.8 to 7.0
8	Salinity (EC)	0.14	0.13	0.19	0.13	0.20	0.14	0.11	0.24	0.15	0.13	0.26	0.25	0.23	0.26	0.25	0.25	0.27	0.32	< 0.3
9	Calcium (Exch)	6.62	6.00	7.00	5.00	10.00	4.50	4.60	5.00	7.67	6.00	3.50	5.00	7.09	5.00	8.81	7.50	8.19	6.00	8 to 18
10	Magnesium (Exch)	2.84	2.80	3.50	2.10	4.90	2.40	2.50	3.30	2.51	2.50	1.80	2.10	4.46	4.20	3.18	3.60	6.76	6.30	2 to 5
11	Sodium (Exch)	0.40	0.15	0.32	0.16	0.65	0.27	0.17	0.96	0.34	0.28	0.17	0.36	1.56	1.70	1.35	1.40	3.29	2.30	Less than 0.6 to 1.5
12	Potassium (Exch)	0.43	0.48	0.81	0.73	0.32	0.90	0.31	0.92	0.61	0.45	0.56	0.43	0.47	0.44	0.47	0.59	0.34	0.53	0.6 to 1.5
13	Aluminium (Exch)	0.07	0.18	0.10	0.59		0.10	0.14		0.04	0.11	0.38	0.13	0.01		0.01		0.01		Less than 0.01 is low
14	Sum of cations	10.36	9.61	11.73	8.58	15.87	8.17	7.72	10.18	11.17	9.34	6.41	8.02	13.59	11.34	13.82	13.09	18.59	15.13	Greater than 12
15	Calcium % of cations	64%	62%	60%	58%	63%	55%	60%	49%	69%	64%	55%	62%	52%	44%	64%	57%	44%	40%	65% to 80%
16	Magnesium % of cations	27%	29%	30%	24%	31%	29%	32%	32%	22%	27%	28%	26%	33%	37%	23%	28%	36%	42%	10% to 20%
17	Sodium % of cations	3.9%	1.6%	2.7%	1.9%	4.1%	3.3%	2.2%	9.4%	3.0%	3.0%	2.7%	4.5%	11.5%	15.0%	9.8%	10.7%	17.7%	15.2%	0 to 1%
18	Potassium % of cations	4.2%	5.0%	6.9%	8.5%	2.0%	11.0%	4.0%	9.0%	5.5%	4.8%	8.7%	5.4%	3.5%	3.9%	3.4%	4.5%	1.8%	3.5%	3% to 8%
19	Aluminium % of cations	0.7%	1.9%	0.9%	6.9%		1.2%	1.8%		0.4%	1.2%	5.9%	1.6%	0.1%		0.1%		0.1%		Less than 1.0%
20	Calcium/Magnes ratio	2.3	2.1	2.0	2.4	2.0	1.9	1.8	1.5	3.1	2.4	1.9	2.4	1.6	1.2	2.8	2.1	1.2	1.0	Greater than 2:1
21	Magnes/Potass ratio	6.6	5.8	4.3	2.9	15.3	2.7	8.1	3.6	4.1	5.6	3.2	4.9	9.5	9.5	6.8	6.1	19.9	11.9	Greater than 1.5

SUB-SURFACE DRIP IRRIGATION PROJECT UPDATE

The 2009 Season Update FieldDay was held on Tuesday may 12th. To mark the end of the first season we have produced an Update Information Sheet that outlines the performance of the project to date. Following is the first of three extracts from the update that will appear in the newsletter. If you would like a copy of the Update Information Sheet just give me a call or an email and I can send you a copy.

WHAT DID IT COST?

The system was prepared and installed by contractors with little farm labour input. This includes spraying, seedbed preparation and sowing. The result is that the costings reflect the full costs, however considerable cash savings could be made with the input of farm labour, mainly in the connection of the drip lines to the sub-mains. While this is time consuming and a little tedious, it is not highly technical.

Costings have been broken into capital items and installation costs for an irrigated area of 7ha.

A further section of MDF costs specific to this farm includes the cost of fencing, stock water supply, removal of willows and restoration of laneway. These costs include the input of some farm labour and will vary from farm to farm according to the location of the system and the circumstances of the farmer.

The pumping and filtration systems have been over built to allow for an expansion of the system in the future to an adjacent 7 ha. The extra cost is an MDF specific cost.

A DPI project in the north of the state in 2008 looked at the cost of a sub-surface drip irrigation system. For a system of just over 22 ha with emitters 0.4 m apart and drip lines 1 m apart (compared to 7 ha with emitters 0.5 m apart and drip lines 0.8 m apart at the MDF) they came up with some significantly different costings. In-pumphouse costs were similar for what will be a larger pump and filter system (\$36 114) but when applied to a larger area the cost per hectare is spread much further (\$1 430/ha). In field costs were very similar (\$5 811/ha) but installation costs were much lower (\$1 709/ha), with the greatest difference being in trenching (probably related to the distance from water supply) and in the cost of laying the drip line. The drip line is precision laid with a GPS and was quoted at approximately \$371/ha in comparison to \$1 051/ha at MDF. This is a very big difference but can be explained in part by the closer drip line spacing at MDF which means there will be 25% more lines over the width of the paddock in comparison. This cost will also be influenced by the length of run – there will be less downtime turning around etc, in long runs.

The DPI figure of \$ 8 951/ha is much less than the equivalent figure of \$13 090/ha at MDF and probably reflects the availability of expertise and equipment in a region where

there are many more systems in place for lucerne and vegetable crops.

You can see that the cost per hectare is something like the land value – that sounds expensive! But put it in perspective - when the fixed sprinkler system was installed at the MDF a few years ago at a value of \$4-5000/ha that was also about land value. Today, that looks pretty cheap.

Establishment Costs

CAPITAL COSTS		Total \$	\$/ha
<i>In the pumphed</i>		Note: All costs exclusive of GST	
	Pump shed & slab	\$ 1,000	\$ 143
	Pump and irrigation controller	\$ 4,118	\$ 588
	Valves and control system	\$ 7,545	\$1,078
	Filtration system	\$ 6,962	\$ 995
	Suction line and connections	\$ 1,354	\$ 193
	Power connection and cabling	\$ 6,545	\$ 935
	Sub-total (in pumphed)	\$ 27,524	\$3,932
<i>In field</i>	Discharge line, pipes & fittings	\$ 9,044	\$1,292
	Dripline and fittings	\$ 30,007	\$4,287
	Sub-total (in field)	\$ 39,051	\$5,579
Installation Costs			
	Trenching & installation	\$ 17,194	\$2,456
	Laying tape	\$ 7,360	\$1,051
	System commissioning	\$ 500	\$ 71
	Sub-total (installation)	\$ 25,054	\$ 3,579
TOTAL CAPITAL COSTS		\$ 91,629	\$ 13,090
SITE PREPARATION & RENOVATION COSTS			
<i>All farms</i>	Spraying & herbicide	\$ 2,091	\$ 299
	Cultivation	\$ 1,380	\$ 197
	Sub-total (Preparation)	\$ 3,471	\$ 496
	Seed & sowing	\$ 3,205	\$ 458
	Sub-total (Restoration)	\$ 3,205	\$ 458
	Total Preparation & Renovation Costs	\$ 6,676	\$ 954
TOTAL INSTALLATION COSTS		\$ 98,305	\$ 14,044
<i>MDF costs</i>	SRW Private Works Agreement	\$ 1,858	\$ 265
	Remove fences & troughs	\$ 630	\$ 90
	Restore fences, troughs, laneway	\$ 6,807	\$ 972
	System overbuild for expansion	\$ 11,890	\$ 1,699
	Sub-total (MDF costs)	\$ 21,185	\$ 3,026
TOTAL CAPITAL, SITE PREPARATION, INSTALLATION & RENOVATION COSTS		\$ 119,490	\$17,070

POSTAGE
PAID
AUSTRALIA

SENDER:
Macalister Demonstration Farm
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