

Macalister Demonstration Farm

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NEWSLETTER 46

Monday February 20th 2011



Extension projects at the MDF are funded by Dairy Australia, Sustainability Victoria and Department of Agriculture, Fisheries and Forestry, with support from GippsDairy.

All paddocks are not the same:

Treat every paddock individually to maximise performance

Join a discussion and farm walk with Frank Tyndall to identify factors that limit paddock production to then set up paddock action plans to get the best out of your key asset

Date: Tuesday 8th March 2011 Time: 10am – 12pm

Venue: Macalister Demonstration Farm, Boggy Creek Rd, Riverslea

BBQ lunch will be provided

DRAINWATCH -a new water quality monitoring program

Improved water quality is important to the health of local waterways and is an on-farm asset for irrigators.

The Drainwatch project will provide landholders with information to help understand what is being transported into irrigation drains through runoff. Data collected will give landholders information to help maximise water quality for re-use, reduce nutrient waste through run-off for return to productive use.

Landholder and community volunteers will be trained to conduct monthly water sampling and testing, and provided with equipment to test for salinity, turbidity and nutrients.

Date: Wednesday 16th March Time: 11am – 1pm

Venue: Macalister Demonstration Farm, Boggy Creek Rd, Riverslea

RSVP: Friday 11th March for catering purposes - Nicole Russell [Tel:1300 094 262](tel:1300094262) or 0408 355 541

BBQ lunch will be provided

Yellow Rag Bit

Bree Walshe, Dairy Advisor DPI Maffra

Pasture Renovation

It's that time of year when you are looking at your pastures and deciding whether there is any renovating to do. Before you undergo any renovation there are some key questions you need to ask yourself:

Look at your pastures and assess whether they are:

- Damaged from wet weather
- Full of undesirable species
- Not performing well
- Patchy – is there a whole lot of bare ground

Then ask yourself why this has or is occurring:

- Is it due to the season we are having – summer rainfall and humidity (unlike most summers we are not in control of our moisture and therefore seeing the predominance of many species that normally wouldn't be so pronounced).
- Soils – do you have any underlying structural, chemical, fertility or drainage issues

- Species – do you have a large percentage of undesirable species for your needs.
- Grazing management – how is both your rotation and stock density affecting your pasture performance.

If you have established that there is a need for renovating this autumn you need to decide what course of action would result in the best strike / improvement for your dairy system:

- Spray out and direct drill – useful for eradicating some weed species from your soil or if you are changing perennial species. Avoid smearing by drilling at correct soil moisture
- Oversow – if you have damaged pastures from either pugging or root pull & not too much competition for sown species
- Cultivation – generally more reliable, it can be used when changes to soil to level pugged paddock, improve soil structure or incorporate lime. More susceptible to pugging.

If you are contemplating renovating this season undertake soil tests to assess the fertility and structural status of the soil and to determine what the fertiliser, gypsum or lime requirements are, as this may influence the type of renovation process you undertake.

Finally, crop selection is important. Decide what you're trying to achieve, the cost of the seed and when you require the feed, keeping in mind both your experience and the risks associated with growing crops. Are you embarking in a cropping rotation or are you simply renovating your perennial pastures?

For more information and to discuss your renovation / cropping plans please contact your trusted agronomist, seed and fertiliser representative, field officer, consultant or your dairy officer at DPI Maffra on 5147 0800.

Macalister Demonstration Farm Profitability Project

A session on weeds was held recently at the MDF. Sometimes the only way weeds can be controlled is by using a herbicide, so various herbicide methods of control were discussed. Quite often a particular weed is present in the pasture because some management issue, some condition, has allowed it to germinate and remain there. A matrix of various weeds, matched with the conditions that support it, was created (below).

Another way of looking at the situation is that **the reverse of these conditions**, will encourage ryegrass to be present and grow so strongly that weeds cannot compete and survive.

There is tendency to think of a farm as a whole, and that the grass growth is due to major conditions such as the season and the weather, things out of our control. Sometimes there is a period of cloudy, cold or humid weather that may cause problems. And paddock soil types do vary. However, usually the main variation in paddock performance, the state that any paddock is in, and the management needed to get a particular paddock performing, is due to that paddock's individual past management of soil moisture, fertility and grazing. Just as cows are considered as individuals, and treated individually if they have health problems, each paddock requires individualised monitoring and treatment. At the MDF a tick sheet (see below) is used to monitor and think about what is needed for each paddock.

Eleven paddocks were soil tested recently. Right now, paddocks with clean spinner cuts seem to have less scalding, caused by a shallow layer of water present on a hot afternoon. Recently (Jan 17th), the MDF applied potash to whole farm but laid out two sheets of plastic so that a couple of squares got no potash. It's a bit early to judge properly but already, outside the squares the grass seems to be growing better, with bigger leaves. At the MDF we use a long grazing rotation, convinced that it grows more grass. But some paddocks seem to fall over earlier, and need to be grazed earlier, and some need the residue controlled by mowing more often.

Assessing why weeds are present in any paddock shows up what the paddocks need for better performance. Monitoring paddocks individually, and then applying individualised management of soil moisture, fertiliser, and grazing should pay dividends,

WEED MATRIX

PASTURE CONDITION/ WEED	Distichum	Paspalum	Tussock	Kikuyu	Kylinga	Fat hen	Summer grass	Sweet vernal	Dock	Goose grass	Fog grass	Tall Poa	Short Poa	Meadow foxtail	Marshmallow	Nettles	Hog weed	Chick weed	Thistles	Umbrella sedge	Catsear	Buttercup	Plantain	Couch	Barnyard Grass	Crowsfoot	Pigweed	Dandelion	Capeweed	White daisies
Water logged	✓	✓	✓		✓				✓											✓		✓								
Too wet, then too dry				✓										✓																
Too dry too often								✓																						
Pugged									✓																					
Open sward, in early autumn						✓							✓		✓	✓		✓	✓							✓			✓	
Open sward, in early summer							✓			✓							✓								✓		✓			
No grazing No topping						✓									✓	✓			✓											
Grazed too late											✓																			
Grazed too early																														
Graze residue too short													✓					✓												
Graze residue too high											✓																			
Not enough fertiliser								✓				✓		✓							✓		✓	✓				✓		✓

INDIVIDUAL Paddock MANAGEMENT

PDK	FERTILISER							GRAZING				IRRIGATION						COMPOSITION			
	Nitrogen	Potash	Phosph	Sulphur	Moly	Lime	Gypsum	Graze earlier	Graze later	Top	Cut Silage	Irrigate more often	Irrigate less often	Irrigate more uniformly	Irrigate faster	New spinner cuts	Clean spinner cuts	Spray dock	Over-sow	Spray then over-sow	Cultivate then re-sow
1	√	√			√	X						x		x							
2	√	√			√	X						x		x							
3	√	√			√	X						x		x							
4	√	√			√	X		X				x		x							
7	√	√			√	X						x		x				X			
8	√	√			√	X						x		x							
9	√	√	X		√										X						
11	√	√			√										X			X			
12	√	√			√	X															
20	√	√			√		X										√				
21	√	√			√		X	X									√				
22	√	√			√		X	X									√				
23	√	√			√		X										X				
24	√	√			√																
26	√	√			√																
27	√	√			√																
28	√	√			√																
30	√	√			√										√						
31	√	√			√			X							√						
32	√	√			√										√	√					
33	√	√			√										√	√					

Carbon Ready Dairy Demonstration Project – Carbon Emissions at the MDF

BACKGROUND

In May 2009 the MDF made a successful application for a project to undertake a carbon emissions audit of the farm as a case study. The project will identify the source and size of carbon emissions generated by normal operations. This information will then be used to develop a Carbon Emissions Reduction Plan that includes strategies to minimise and offset carbon emissions and an analysis of the financial impact of the plan on the farm business. In the absence of Government policy on a carbon emission reduction framework this is an extract from an interim report.

In the last issue of the Newsletter we looked at energy saving strategies in the dairy. In this issue let's have a look at strategies to reduce energy use for pumping to reduce emissions.

Energy for Pumping

Apart from improving the efficiency of irrigation pumps, that is, making sure that the right pump is installed to do the job at hand, solar electricity may also be worth considering as long as the premium feed-in tariff can be accessed and where most of the pumping at night. Consider the options for overnight pumping for the fixed spray system in Table 1 & Fig. 1.

Fig. 1 demonstrates that a 4.59kW solar electricity system installed at the fixed spray metering point will drop the power cost as soon as it is installed from just

over \$3,000/year to a credit of just under \$1,000/year. With the anticipated rise in prices as a result of a carbon emissions scheme, it is not until eight years later that any payment would be made for power and even twenty years after installation the price paid is well short of the current power cost. If a smaller system is installed it is important that it is linked to the purchase of renewable energy from the electricity retailer to cap the price.

This analysis forces us to look at the future of the old diesel motor at the re-use dam. It may be worthwhile bringing the power from the road and converting to an electric motor with a solar array attached. As long as the pump is operated largely at night, and taking into account the high maintenance costs of the diesel motor, there might be quite a saving in the medium term even with the cost of power poles and transformers. This is something that will be investigated further.

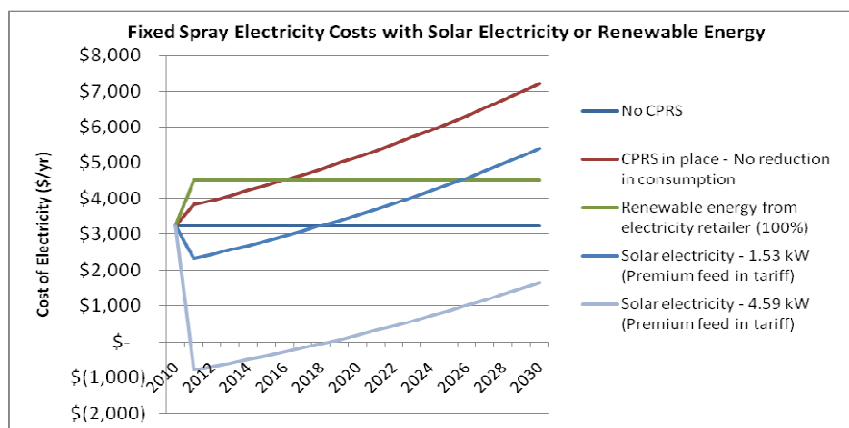
One concern is the security of the solar system. It may not be wise to install it at a remote site close to a road unless the structure can be installed in such a way that it cannot be moved. This practical element will be part of the consideration.

The reduction of costs is worth pursuing whether there is an emissions trading scheme or not.

Table 1: Investment in alternative energy for irrigation pumps

Alternatives for Pumping – Fixed Sprays	Adjusted capital cost \$ (excl. GST)	Payback period (Yrs)	% of farm emissions saved
Renewable power purchased from electricity retailer (Begin when price difference makes it viable)	0	Immediate	1.5
Solar power fed back to the grid at premium tariff (Assume 75% of power fed back into the grid)			
Solar electricity - 1.53 kW	\$ 9,820	6.6	0.2
Solar electricity - 3 kW	\$ 20,292	6.4	0.3
Solar electricity – 4.59 kW	\$ 32,130	6.2	0.5

Fig. 1: Projected Electricity Costs 2010 – 2030: Alternative Energy for Irrigation Pump



SuperHeater



Commercial Heat Recovery unit

The MDF has been able to secure funding to install a SuperHeater heat recovery unit for installation on the refrigeration compressor. This will remove heat from the refrigeration gas and lower the temperature of milk entering the vat by 2-3°C as well as generating hot water that will be fed into the hot water system to reduce heating costs.

We'll be doing a series of trials on the efficiency of this system and will run a field day in May to tell you all about it.

This project is supported by funding from the Australian Government Department of Agriculture Fisheries and Forestry under its Australia's Farming Future initiative.

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SENDER:



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