

Waikato Regional Council

Integrated Catchment Management

Newsletter

In this issue of the Integrated Catchment Management newsletter we look at:

- a low nitrogen leaching farm
- the emerging issue of cadmium
- the recent Effluent Expo
- hot tips on winter tree planting.

Over the fence

Francis and Sandra Kraakman's Little Waipa catchment farm is a very good example of the positive environmental work being carried out by farmers in the two ICM project catchments.



Francis and Sandra Kraakman

The Kraakmans have 374 Friesian/Jersey crossbreed cows on 142 hectares of flat to rolling country.

The numerous trees planted on the property have been of huge benefit through the hot summers and especially during this season's drought.

Heat stress can affect milk production but Francis and Sandra believe the tree shade has helped keep production up, as they are still on target to do 480 kilograms of milk solids per cow this season despite the dry spell.

It can be argued a negative consequence of shady areas is that they encourage cows to transfer soil fertility from dung and urine to the tree area. Francis acknowledges this may occur so he makes sure the fertiliser truck stays well away from these areas. As the deciduous honey locust trees are bare from May-October, pasture production is not compromised in winter. Also, the leaves are small so don't smother the grass in autumn.

The Kraakmans have also achieved a remarkable nitrogen (N) efficiency of 42 per cent (that's the scale of the nitrogen that comes on to the farm which ends up in milk and meat). The range of nitrogen efficiency on New Zealand dairy farms generally varies between 25 per cent and 40 per cent.

They have a very low estimated nitrogen leaching level of only 28 kg of N per hectare annually. Contributing factors to this high nitrogen efficiency and low leaching are:

- high milk production per cow on a relatively low supplementary feed input system (460 kg dry matter per cow)
- lower than average use of fertiliser nitrogen (56 kg N/ha)
- close attention to well grown replacements entering the herd

Two and three year olds are on once a day milking in the autumn and cow's condition score drives autumn stock management and feeding decisions.

Olsen phosphorus (P) levels vary between 28 and 33 for the allophanic soils on the farm. Phosphorus loss estimates are 0.7 kg P/ha. Estimated pasture production is 13,600 kg DM/ha

Overseer's® nutrient budget programme estimates that farm clovers are fixing 102 kg N/ha, in part a result of the lower fertiliser nitrogen being used. This fertiliser nitrogen is used in April, May and August, and only when soil temperatures are above 10 degrees C, to boost spring pasture growth.

The Kraakmans aim for a profitable but low cost input farming system. They are not tempted to compromise on this because of a high milk solid payout. They want healthy soils and stock, while "custodians" and "caretakers" are two words they use a lot when talking about their way of managing the land. They want a sustainable business they can hand on to the next generation.



The Kraakman property

Cadmium considered

Cadmium is slowly increasing in some soils in New Zealand. This naturally occurring heavy metal is also present in small amounts in phosphate fertiliser. It tends to accumulate in soils. The build up of soil cadmium is now being addressed internationally by agricultural nations.

That's because excessive levels of cadmium in food can have implications for human and stock health, and restrict land use flexibility. High levels in soils increases the risk of cadmium entering the human food chain and could compromise trade access and the environment, particularly groundwater.

Food safety officials estimate the amount of cadmium in the diet of the average New Zealander is far below that which will cause adverse health effects. However, some products at risk of having high levels of cadmium (eg kidneys from older animals) are not allowed to be sold.

Any future risk to primary produce exports is being minimised due to the development of the New Zealand Cadmium Strategy, a measured approach to prevent cadmium accumulation becoming an issue in the future.

Four different cadmium "tiers" have been established to help manage rising cadmium levels in farm soils.

Tier One: Cadmium exists at the naturally occurring baseline level of 0.6 micrograms per kilogram of soil. There is no limit on the application of phosphate fertiliser other than a five yearly screening soil test for cadmium.

Tier Two: Cadmium exists at the level of between 0.6 and 1.0. Application rates are restricted to a set of products and application rates to minimise accumulation, and landholders are required to test for cadmium every five years.

Tier Three: Cadmium exists at the level of between 1.0 and 1.4. Application rates are further restricted by use of a cadmium programme to ensure that cadmium does not exceed an acceptable threshold within the next 100 years.

Tier Four: Cadmium exists at the level of between 1.4 and 1.8. Farmers need to step up their management. No further cadmium to be applied to soils. Any further build-up of cadmium will lead to restrictions on land use.

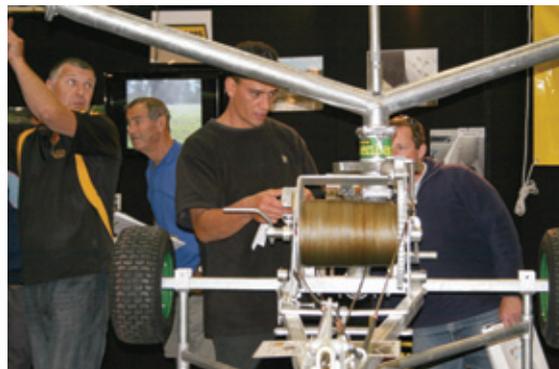
Fertiliser representatives will be advising farmers to test for cadmium on their highest Olsen P sample to establish the possible cadmium level on the farm. This test can be done after the soil test results are known, as the laboratory hold the soil samples for some time. This test is expected to cost around \$34.

Effluent Expo

More than 500 farmers from the Waikato and beyond recently attended a one day Effluent Expo hosted and organised at Mystery Creek by the Waikato Regional Council, and sponsored by DairyNZ. Farmers viewed equipment, talked to suppliers and questioned experts on various aspects of effluent storage and application. Seminars were held on effluent application and nutrient management.

Expo organiser Kate Ody said: "We arranged the event knowing farmers were reviewing their effluent systems and some were making changes at considerable expense in the absence of information or based on random advice."

She said very positive feedback from exhibitors and farmers meant consideration was being given to holding the expo again next year.



Farmers found plenty to interest them at the expo

Tips on winter planting

With the winter tree planting season almost here, it's important to spend some time getting planting sites ready.

Think about how much can be spent on planting in any one year. Factor in how much will be needed for labour and keeping trees free of pests and weeds especially in the first three years.

Fencing should keep stock out of all areas where planting will occur. Cattle make short work of tasty native seedlings.

Clear planting areas of invasive weeds such as broom, gorse and blackberry. Use herbicide or a spade to clear weeds and grasses in circles of about one metre round for each plant.

Waikato Regional Council, local nurseries and neighbours are sources of advice on what species grow well in particular areas. Ideally, plant four or five of the hardiest species to establish initial cover. Plants more susceptible to wind and frost may be more suitable for planting after one to two years.

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