Balancing phosphorous levels results in efficient use of fertiliser dollars

The DairySA Soil Nutrient project is designed to help farmers identify, map and monitor soil acidity and nutrient levels in individual paddocks, with the aim of maximising fertiliser efficiency and reducing nutrient loads into the environment.

Nick has only recently joined Oamaru and did not participate in the first round of soil testing conducted in 2010. He has used the experience and expertise of Elders Agronomist Jim Burford to review soil tests and changes in fertility since 2010 and provide guidance on future fertiliser applications required on the farm.

Farm facts
Herd Size: 450 cows.
Milk Production:
2008/09: 180,000kg/year milk solids from 410 cows.
Now: 201,000 kg/year milk solids.
Feeding System:
Pasture based with a small amount of grain feeding (3kg/day at present) in the shed.
Milking:
40 stand rotary dairy.
Labour:
Nick and his wife Jo, along with one full time staff member and a number of casual staff.
Water & Irrigation:
Perennial ryegrass and clover, some newly renovated:
- 70 Ha under centre pivot
- 20 Ha under hard hose travelling irrigator.

• Most farms have variable soils, so testing a large number of paddocks provides an overall view of the farm and its potential, allowing a focus on the application of the right type of fertiliser where it’s needed. This leads to a more efficient use of the farm fertiliser dollar.
Description of trial

- 2010 soil testing identified that there were high levels of Phosphorus (P) in most paddocks.
- Regional Olsen P targets are around 30mg/kg, however levels at Oamaru averaged more than 73mg/kg and ranged from 34 to 113.6mg/kg.
- This range meant that most paddocks at Oamaru could have significantly reduced P applications.

- 2012 soil testing has shown that some paddocks still have very high levels of P: over 60mg/kg, up to 112mg/kg.
- Other paddocks have fallen below critical levels and will need to be incorporated in this year’s fertiliser program.
- Average P levels dropped from 73mg/kg in 2012 to 47mg/kg in 2012.
- If using only average, or a smaller number of soil tests, it would have been difficult to identify those paddocks below target nutrient levels.
- Plant tissue testing effectively complemented the soil testing to help confirm where the soil tests were suggesting trace elements were needed.
- The three year DairySA soils project has highlighted the value of ongoing and intensive soil testing to better manage soil fertility through lower expenditure on fertiliser while still maintaining pasture growth. Participants have heightened their awareness of soil testing, fertility mapping and fertiliser planning.

More on the trial...

- The soil testing allowed Oamaru to take a more ‘prescription farming’ approach where closer attention was paid to the phosphorus, potassium, sulphur and trace element needs, confirmed by plant tissue tests.

Good soil and tissue testing information will ensure you are able to target your fertiliser spending where you really need it, getting the best productivity return.

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