

Maize silage makes the most of dairy effluent

A project in the Waikato is developing options for dairy farmers concerned about nutrient management.

Good results are emerging from the study, which in the first year has tested if maize silage can be used to strip nutrients from high-fertility soils treated for some years with dairy shed effluent.

Crop & Food Research scientist Paul Johnstone says the work has highlighted the opportunities farmers have to manage nutrient loading and at the same time improve profitability.

“This is because we have shown that no extra fertiliser needs to be added to a maize silage crop if it is grown in a paddock coming out of long-term pasture where dairy shed effluent was applied. In other words, we have proven that farmers can reap the benefits of a decent silage yield without any need for further fertiliser.”

Dr Johnstone says an average yielding silage crop of 20T DM/ha removes approximately 200kg nitrogen, 40kg phosphorus and 200kg potassium per hectare.

Research coordinator with FAR, Andrea Pearson, says she's delighted the project has provided proof that a maize crop grown on dairy land needs no extra fertiliser. “We're showing that environmental and economic benefits go hand in hand when it comes to proactive management of nutrients.”

Ms Pearson says in the second and third years of the project the researchers will also investigate taking the effluent off site and seeing how it can be applied as an alternative fertiliser to low-fertility soils, where long-term cropping has led to reduced levels of nitrogen.

“The researchers will be experimenting with quantities and working out whether dairy shed effluent is an effective alternative nutrient source for maize growing away from the dairy farm.

“ If it is, then we would expect maize growers to save production costs while allowing dairy farmers with high input systems to export excess nutrients from their farms.”

Gabriele Kaufler, Sustainable Agriculture Coordinator with Environment Waikato, says land application of dairy shed effluent is considered standard management practice but most farmers realise that repeated irrigation of the nutrient-rich effluent can overload the soil with nitrogen, potassium and phosphorus.

“That is why we initiated this project, a joint effort between the Foundation for Arable Research (FAR), the Sustainable Farming Fund, DairyNZ, Crop & Food Research and ourselves at Environment Waikato. It is crucial to find strategic ways to manage the effluent in a farm system context which will improve nutrient efficiency and reduce nutrient losses to the environment,” she says.

Ms Kaufler says that looking into practical ways of implementing these findings on farms now would be important to facilitate uptake. “Farmers have commented that they would like to see the economics done on this. Knowing the value on effluent depending on its nutrient content and also adding the carting costs would help farmers’ decision making.”

Already farmers are being provided with a number of opportunities to explore the results of the project via field days, workshops and dairy discussion groups. The next of these will be held in Hamilton on Thursday, July 24, at the ‘Gails of Tamahere’, Tamahere. The workshop will commence at 1pm, prior to the annual FAR maize winter road show.

Literature on farm dairy effluent management will also be collated in the form of FAR Arable Updates with project results also added to DairyNZ’s resources for dairy farmers.

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