



Test nitrogen strips a cheap solution for soil testing

A simple test that farmers can conduct themselves is a cost-effective way to manage nitrogen levels in their soil, a three-year project has shown.

The Foundation for Arable Research (FAR), backed by the Ministry for Primary Industry's (MPI's) Sustainable Farming Fund and other collaborators, has spent the past three years testing the use of Quick Test nitrogen strips to see how they work in New Zealand soils and farming systems. The strips were originally used in the United States for the vegetable industry.

Diana Mathers, FAR's research manager in farm systems, says the research confirms the product provides a useful gauge of nitrogen levels in New Zealand soils involved in farming.

"In 14 of the 18 trials farmers were able to reduce the amount of fertiliser they applied without a loss in yield," she says.

"To manage nitrogen without great losses to the environment farmers need to know how much nitrogen is in the soil. The way to do this in the past was mineral N tests in a laboratory which are quite expensive and we found that some farmers weren't doing them. We hope that this much cheaper solution will encourage more soil testing."

A \$200 kitset includes tubes, a rack, calcium chloride and 100 strips – meaning each test costs just \$2, compared to \$50 in a laboratory.

The testing process involves collecting and mixing soil samples, and adding a small sub-sample to a calcium chloride solution – which can be done in farmers' kitchens. After shaking and allowing the soil to settle, the test strip is dipped in. A colour change on the strip shows the current nitrate level in the soil. The

farmer then consults the Quick Test Tool, a chart on an Excel spreadsheet that helps determine how much nitrate is needed for their particular crop – or whether they need to apply nitrogen at all.

"The nitrogen strips are an economical way to test every paddock at the start of the season. While costs may seem daunting at first the savings on fertiliser costs far outweigh this," says Ms Mathers.

Steve Penno, Director Investment Programmes at MPI, says the results of the research inspire confidence for farmers. "Responsible nutrient management is essential to protect the health of our waterways. MPI is delighted to support this research, which shows that these nitrogen strips are effective in New Zealand soils. This is a practical and cost effective tool for farmers that will help them with nutrient management."

The next step in the project will be to develop an online version of the tool and add more crop types, including forage crops.

Collaborating partners

MPI's Sustainable Farming Fund is the main funder for the three year programme of work, with co-funding and in-kind support from the collaborating partners: FAR, Horticulture New Zealand's Vegetable Research & Innovation Board, Waikato Regional Council, Ravensdown, Ballance Agri-Nutrients and Hawke's Bay Regional Council, and research expertise from Plant & Food Research.

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MPI's Sustainable Farming Fund and Primary Growth Partnership have now been replaced by Sustainable Food and Fibre Futures (SFF Futures). SFF Futures supports problem-solving and innovation by co-investing in initiatives that make a positive and lasting difference to New Zealand's food and fibre sectors. www.sff-futures.mpi.govt.nz