

Managing land into the future

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Food production is the backbone of New Zealand's economy—and a computer modelling programme designed by a Victoria University of Wellington academic is helping ensure that farming practices here and overseas are as sustainable and environmentally friendly as possible.

Dr Bethanna Jackson from Victoria's School of Geography, Environment and Earth Sciences has developed a land management decision support framework and software package called [LUCI](#). It analyses impacts of changes in the way land is used across a range of ecosystems, and identifies where trade-offs or co-benefits might exist.

"LUCI looks at the way [land management](#) can affect a variety of things such as [water quality](#), flood risk, agricultural productivity, [greenhouse gas emissions](#), erosion, or sediment," says Dr Jackson. "It looks at everything in a holistic manner—the impact of all those cumulative changes in the way land is managed on a whole variety of different environmental, social and economic functions.

"It helps you plan the way you manage the landscape and can isolate areas where you might, for example, be able to plant trees to improve your environmental function while maintaining a reasonable level of production."

In New Zealand a number of regional councils are using LUCI, and it is also being used by the Welsh government to monitor the success of its agricultural subsidy programme. "They're paying farmers to make various interventions, so they're using LUCI to see whether the scheme is helping with things like reducing greenhouse gas emissions, improving water quality, or reducing flooding."

"We've got a bit of money from Victoria's University Research Fund to extend our work to Samoa and Australia, and we've previously worked in Greece and Ghana too," says Dr Jackson.

The potential scope of LUCI is vast, according to Dr Jackson. "Land management is a huge issue—we rely on it for food production and water quality. But to keep that sustainable and to keep waterways clean it needs to be managed properly, and that's what LUCI is about."

Provided by Victoria University

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