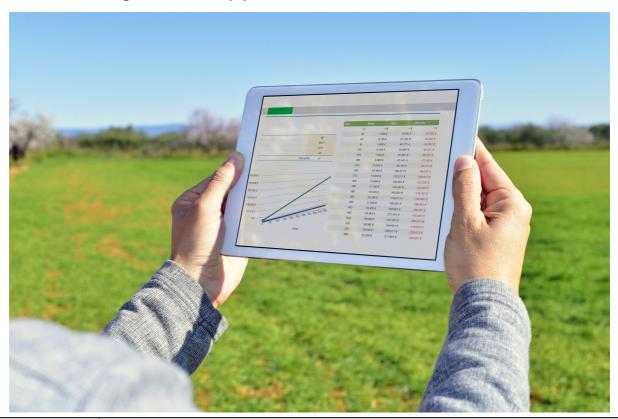# The use of data mining to assist crop protection decisions on kiwifruit in New Zealand

Title	The use of data mining to assist crop protection decisions on kiwifruit in New Zealand
Title (native language)	
Category	• Farm Management Information System
Short summary for practitioners (Practice abstract) in English)	This study has demonstrated the potential usefulness of machine learning algorithms for extracting information from industry spray diary and pest monitoring data, enabling kiwifruit growers to predict the outcome of leafroller pest monitoring in summer. With monitoring costs at $50–60 a hectare, growers will save time and money using this method, even if it only predicts no-spray decisions.
Short summary for practitioners	
Website	
Audiovisual material	
Links to other websites	
Additional comments	
Keywords	Farming practice	Plant production and horticulture	Biodiversity and nature management
Additional keywords	Machine learning; Data mining; Pest management; Decision support
Geographical location (NUTS)	EU
Other geographical location	Global
Cropping systems	Tree crops

Field operations	Pesticide application | Crop protection
SFT users	Farmer | Contractor
Education level of users	All
Farm size (ha)	0-2 | 2-10 | 10-50 | 50-100 | 100-200 | 200-500 | >500

Scientific article

Title	The use of data mining to assist crop protection decisions on kiwifruit in New Zealand
Full citation	Hill, M.G.; Connolly, P.G.; Reutemann, P.; Fletcher, D. (2014). Computers and Electronics in Agriculture, DOI:10.1016/j.compag.2014.08.011

Effects of this SFT

Productivity (crop yield per ha)	No effect
Quality of product	Some increase
Revenue profit farm income	Some increase
Soil biodiversity	Some increase
Biodiversity (other than soil)	Some increase
Input costs	Some decrease
Variable costs	Some decrease
Post-harvest crop wastage	No effect
Energy use	No effect
CH4 (methane) emission	No effect
CO2 (carbon dioxide) emission	No effect
N2O (nitrous oxide) emission	No effect
NH3 (ammonia) emission	No effect
NO3 (nitrate) leaching	No effect
Fertilizer use	No effect
Pesticide use	Large decrease
Irrigation water use	No effect
Labor time	No effect
Stress or fatigue for farmer	No effect
Amount of heavy physical labour	No effect
Number and/or severity of personal injury accidents	No effect
Number and/or severity of accidents resulting in spills property damage incorrect application of fertiliser/pesticides etc.	No effect
Pesticide residue on product	Some decrease
Weed pressure	No effect
Pest pressure (insects etc.)	Some decrease
Disease pressure (bacterial fungal viral etc.)	No effect

Information related to how easy it is to start using the SFT

This SFT replaces a tool or technology that is currently used. The SFT is better than the current tool	agree
The SFT can be used without making major changes to the existing system	no opinion
The SFT does not require significant learning before the farmer can use it	agree
The SFT can be used in other useful ways than intended by the inventor	no opinion
The SFT has effects that can be directly observed by the farmer	no opinion
Using the SFT requires a large time investment by farmer	disagree
The SFT produces information that can be interpreted directly	no opinion

[View this technology on the Smart-AKIS platform.](#)

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