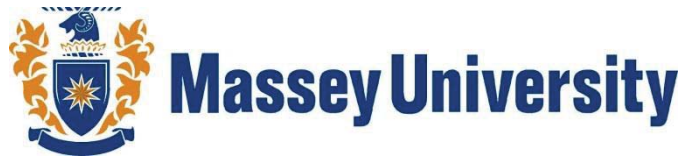


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**Agricultural software – A case study of feed and animal  
information systems in the New Zealand dairy industry**

**A thesis presented in partial fulfilment of the requirements of a  
Masters of AgriCommerce  
at Massey University, Palmerston North, New Zealand**



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**2017**

## **Abstract**

Every farmer utilises agricultural software, either directly or indirectly, as part of feed and animal information systems (IS) used for decision making and compliance on New Zealand (NZ) dairy farms. With continued development and availability of advanced information and communication technologies (ICT), more farmers are using software in their IS. This study investigates: how NZ dairy farmers use agricultural software in their feed and animal IS; the software attributes that influence the use and impact of these software; and, the drivers and inhibitors of software use and impact. A case study research approach was used to investigate these questions. Evidence was collected using semi-structured interviews with six NZ dairy farmers with farms of different scale and ownership structure, and with five commercial agricultural software providers. Results show that feed and animal IS are particularly useful for farmer decision making and compliance at the operational and tactical management levels, but also produce data and information critical for strategic management. The number of software products used and the degree of data and information collation in animal IS compared to feed IS are considerably different. Animal IS were streamlined, with data and information collected and collated together in a limited number of software with only one or two 'focal' software as the centrepiece of the IS. In contrast, feed IS were less streamlined, with data and information flowing into a number of different software. Six important software attributes that influence use and impact of software were identified by farmers and providers, with 'simplicity' and, 'integration with software and hardware', the most highly recognised attributes. The delivery of software with these attributes was achieved by providers in a number of instances, however, other software failed to fully meet farmer needs. Organisational and people drivers/inhibitors had a greater effect on software use and impact than technological drivers/inhibitors indicating that these IS dimensions should be the focus of future improvements.

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## List of Abbreviations

Abbreviation	Meaning
DSS	Decision-support systems
ERP	Enterprise resource planning
GIS	Geographical information systems
ICT	Information and communication technologies
IoT	Internet of Things
IS	Information systems
MIS	Management information systems
MS	Milksolids
NAIT	National Animal Identification and Tracing
NZ	New Zealand
PA	Precision agriculture
SME	Small to medium sized enterprises

## Key definitions

**Information systems** - A system that uses formal and informal components (and procedures) to provide farm management at all levels, in all functions, with appropriate information, based on data from both internal (inside the farm) and external (outside the farm) sources. IS enable timely and effective decision making for planning, implementing and controlling the farming activities.

**Agricultural software (also called ‘software’)** - Computer or smartphone based programs, or applications, that are used for the management of agricultural business. It includes both computer-based software packages and smartphone applications as core components of individual solutions, and will consider other ICT (precision agriculture and ICT infrastructure) as part of a farmer’s information systems.