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Strong production focus shown in kiwifruit causal mapping

Introduction

ARGOS is undertaking a long-term investigation of the sustainability of agriculture in NZ. As part of the social research objective, we have used a type of cognitive mapping called causal mapping to develop a better understanding of the management of farm systems, broadly defined to include economic, environmental and social factors, as seen by farmers. This method was first applied in 2005. In 2008, it was applied for a second time, with some modifications, to three panels of kiwifruit orchardists i.e., Green, Organic and Gold. The results are discussed here.

Method

The mapping method we used allowed orchardists to firstly identify and sort the factors important in the management of their orchard system (a Q-sort). Then they created a map by connecting the important factors that causally influence each other using arrows. A score from 1 to 10 was drawn on each arrow to show the strength of the causal connection between factors. Data from each individual's map was then combined to prepare an aggregated or group map for all ARGOS orchardists. The map showed the centrality score for each factor, which is a measure of its perceived importance within the farming system. Additional analyses then formed maps for each management system and for other groupings of orchardists.

Results

In the absence of space to show the full map, the top eight factors in the group causal map (Figure 1) show the central role of the orchardist as decision maker, with an emphasis on:

- Production factors such as vine health, fruit yield and quality, fertiliser and soil fertility
- ZESPRI (marketing organization)
- Financial factors i.e., orchard gate return and cash orchard surplus.

Panel differences

- There was a very close match between the Green panel and the overall average.
- Organic orchardists had the most distinctive group map, and emphasised cash orchard surplus, satisfaction, fertiliser and soil fertility, orchard environmental health, vine health and family needs.
- Distinctive Organic connections included stronger connections from fertiliser and soil fertility to vine health, fertiliser and soil fertility to fruit yield and quality, cash orchard surplus to satisfaction, and orchard environment as a place to live to family needs.
- Gold orchardists emphasised orchard gate return, packhouse, post harvest quality and family needs.
- Distinctive Gold connections included stronger connections from packhouse to post-harvest quality, packhouse to orchard gate returns, orchard gate returns to cash orchard surplus, and exchange

rate/macro-economy to orchard gate return.

Q-sort groups

From analysis of the preliminary sorting of factors, two groups were found with one emphasising a more business-like orientation with one emphasising family, and attributes to do with the orchard's location.

- Q-sort type 1 (kiwifruit business, n=20) emphasised post-harvest quality, and supermarket/customer satisfaction.
- Q-sort type 2 (kiwifruit lifestyle, n=9) emphasised water supply and quality, orchard environment as a place to live, orchard location, family needs, off-orchard activities and retirement.
- Distinctive Q-sort type 2 connections included stronger connections from decision maker to family needs, and from cash orchard surplus to off-orchard activities.

Differences between years

The top-rated factors in 2008 were similar to those in 2005. However, if we assume that these reflect orchardist changes rather than changes in method, then the 2008 results suggest that orchardists were paying more attention to orchard gate returns and less

attention to cash orchard expenditure. Family needs was more important in 2008, and regulation less important. We are not able to explain the increased emphasis on family needs but the reduced emphasis on regulation may be because orchardists have become used to the requirements of the GlobalGAP reporting process have become normalised among the orchardists.

Conclusion

Causal mapping undertaken by kiwifruit orchardists in 2008 shows they are focused on fruit yield and quality, influenced by decision maker and vine health, to provide financial outcomes. ZESPRI has an important effect on orchard gate returns and on decision maker.

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See the ARGOS website www.argos.org.nz for an overview of the project, and the full report, or contact:

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Figure 1: The eight key factors in the kiwifruit system

