



ARGOS RESEARCH NOTE: NUMBER 16, MARCH, 2006

Understanding kiwifruit management using causal maps

Introduction

ARGOS is undertaking a long-term investigation of the sustainability of agriculture in NZ. For the kiwifruit sector, the three main management systems ('panels') are being compared i.e. Kiwigreen¹ Hort 16A ('Gold'), Kiwigreen Hayward ('Green') and Organic Hayward ('Organic'). The results from the first interview of each ARGOS orchardist by the social science team gave a detailed account of many aspects of orcharding, including management. Subsequently, we trialed a type of cognitive mapping called causal mapping to develop a better understanding of orchard management as it is important for the researchers to appreciate the way that orchardists deal with economic, environmental and social factors on a regular basis. We also wanted to see in what ways the three ARGOS panels were similar or different in their approach to management.

Method

The mapping method we used allows orchardists to identify the factors important in the management of their orchard system by connecting factors that causally influence each other. We used a generic map with 36 factors and then asked orchardists to connect the factors using a score from 1 to 10 to show how strong they were causally

linked. Each orchardist completed a map and data from each map was then used to prepare an aggregated or group map. Data from the group map were used to characterise the orchard system as a whole and each of the three panels.

Results

The group map is shown in Figure 1 over the page. It shows all 36 factors and only the moderate to strong causal linkages (scores of four or more). The less important factors have hatched lines around them, and linkages characteristic of particular panels are shown in hatched lines. Group map data provide a measure of the overall importance of each factor using the sum of the weights of linkages to and from the factors. The most important factors, shown with a hatched background include: the decision maker (orchardist), quality and quantity of production, financial aspects (represented by returns, expenditure and orchard surplus), ZESPRI (marketing company), contractors/packhouse and satisfaction.

Some features of the group map are:

- Fertiliser and soil fertility, and weed and pest management were the only production factors with a strong link to quality and quantity of production, not labour or machinery.
- Fertiliser and soil fertility, weed and pest management and contractors/packhouse

¹ KiwiGreen is an Integrated Pest Management system for producing kiwifruit in NZ.

