Proofing Participatory Research

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Abstract

This paper describes an *integrated knowledge transfer framework* and gives an ABCD guide to support the application and use of this methodology. The framework is based on the use of participatory approaches to develop farming in isolated rural Maori communities, through a partnership between scientists from Plant and Food Research and Maori landholders. The approaches used in this example (and in several other case studies involving non-Maori communities) confirmed their value as a powerful tool to increase the relevance and effectiveness of agronomic research. Mutual trust and the relationship between scientists and the community were the key factors in the success of this research partnership, which delivered agronomic advice aiming to improve their ability to crop organically and profitably. The integrated knowledge transfer framework has four consecutive stages: (1) *Preparing the Field*; (2) *Learning Together*; (3) *Being Flexible*; and (4) *Outputs*. Central to the success of this methodological approach are intensive processes of *Evaluation* and *Relationship Building*. The process of evaluation is heavily dependent on the simultaneous process of relationship building. Relationships are centred on respect and trust. Securing such relationships required the communication and shared understanding of values, including integrity and humility.

Key Words

Sustainable land use, farmers' groups, role of science

Introduction

The need for participatory approaches to support research for technological change is now broadly accepted (see, e.g. Chambers 1994; Hall 1978; Park 1993; Rolling and Wagemakers 2001). Established linear models of technology transfer in which scientists identify and solve problems, and hand the solutions to a grateful public that rapidly adopts them have been replaced by accounts of "iterative processes" and emphasis on the need to involve "user groups" directly in the research process. Closer scrutiny, however, suggests that participatory approaches take multiple forms, cover variable levels of community involvement, and are designed to meet a wide range of different goals.

Method

Plant and Food Research initiated a 5-year research project in 2003, funded by the Foundation for Research, Science and Technology (FRST), titled Science for Community Change. The project included 5 case studies of farming communities in different regions of New Zealand. All the case studies had previously been supported by the Ministry of Agriculture's Sustainable Farming Fund, which is designed to promote sustainable technologies and requires an explicit community commitment to and involvement in the research. The aim of the FRST-funded project was to promote systems that are more resilient, profitable and environmentally benign. The use of these case studies allowed testing of the hypotheses that participatory approaches better ensure that research is directly relevant to the farmers concerned and that they offer an effective means to promote technological change.

The case studies each involved a participatory approach, an environmental component, different crops, different marketing structures and different geographical locations. Three case studies are discussed in this paper (Figure 1) to highlight the particular features of the Maori example. When the FRST project

started, research for each of the case studies was at a different stage in its evolution. Maori cropping was the only case study initiated in concert with the FRST project. Each study involved mainly biophysical scientists. The Maori case study also included social scientists who participated in the discussions, *hui* (meetings), seminars and other events throughout the project. This participation extended to monitoring project development and evaluation at the end of the project, which involved interviews of scientists, growers and other project participants. In the other case studies, social scientists were not active participants, but interviewed farmers and scientists as part of project evaluation. The case studies of wheat and walnuts are discussed first to provide some context for the examination of Maori cropping, and to highlight the key elements in the proposed framework.

Three examples

1. The wheat calculator was designed in response to the Canterbury Regional Council's concern at increased groundwater contamination by nitrates. A primary cause was identified as the inappropriate and excessive use of nitrogenous fertiliser. The calculator provided a potential means to regulate fertiliser inputs to meet weather conditions and plant needs. The farmers were largely dismissive of the Council's accusation that fertiliser misuse was to blame for pollution and some at least viewed the Council's plan to regulate fertiliser use as an automatic reaction by a council that "liked to introduce controls". Farmers viewed the potential benefits of the calculator with some scepticism but as a means to avoid legislation. However, at the completion of the project, the calculator was estimated to have given New Zealand wheat farmers' income a boost of $6 million in 2005 alone, and there were expected significant environmental benefits.

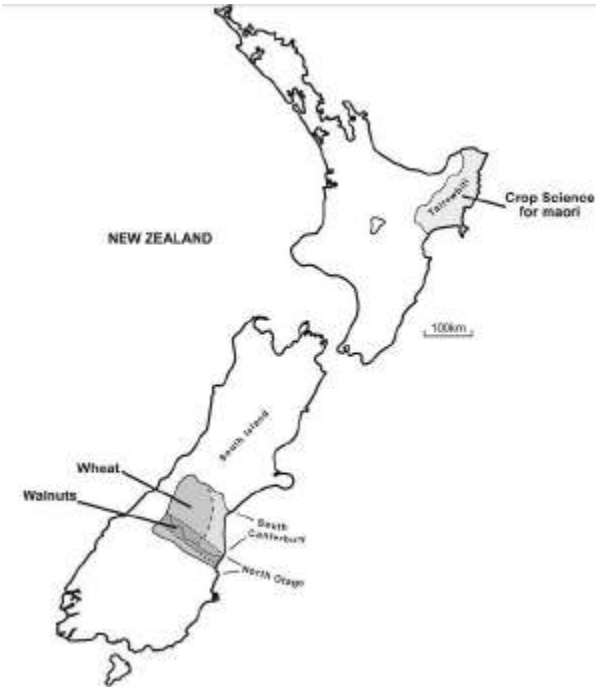

Figure 1. Key project sites.

2. In 2006 there were still no more than 500 hectares of walnut trees in New Zealand and the average holding was only 10.5 hectares with an average of 1,130 trees. Most holdings are in Canterbury, with some in Otago, Nelson and the North Island. Most growers are professionals who have established their orchards as a side-line, whether to provide an opportunity to live in the country or as a potential source of retirement income. Most orchards are run as partnerships between spouses. The project was developed in response to growers' needs and designed to better manage walnut blight. An evaluation of the potential of bacteriophages as a bio-control was an additional goal. At its conclusion, growers unanimously agreed

that the scientific findings had helped them better understand walnut blight and enabled them to make informed decisions as to how to manage their orchards. This satisfaction was despite the fact that the timing of spraying remained a concern and there are issues of long-term buy-in when, as the trees grow, spraying may require helicopter application. The identification of an effective organic spray remains unresolved.

3. The Maori cropping project was designed in cooperation with an association of local Maori organic growers, the East Coast Organic Producers (ECOP) Trust. Three specific objectives were established: to help the transition from extensive agriculture to intensive horticulture; to provide scientific and extension services for the development and implementation of best organic practices; and to design research methods to promote beneficial change in rural Maori communities. Most of the science team had limited experience or understanding of Maori culture or protocol, while the Maori community lacked capital resources including basic farm equipment and access to credit, and farmed under customary land titles. By its conclusion the scientists had learned much and achieved a degree of cultural sensitivity. In turn, community members had gained insight on the scientific process. Social capital had greatly increased. The total cropping area had also increased from approximately 50 hectares in 2003 to 100 hectares in 2008. The volume of produce sold had expanded and niche markets had been established for some crops.

Participatory approaches

An extensive literature substantiates the value of participatory approaches for extension-based scientific research (see Bentley 1994; Pain and Francis 2003). The three case studies described (and the others in the research programme) reinforce this view. The nature of the participatory approach adopted in each case study, however, varied widely.

Traditional models of technology transfer have been criticised for their assumption that the products of science are inherently useful, universally applicable and automatically adopted. Participatory approaches were designed to redress this by negotiating research agendas, methods, and outcomes relevant and meaningful to the communities concerned. Perhaps most importantly, advocates of participatory research believe that those involved (the “clients”) must determine the objectives of research - not scientists, research funding bodies, or governments (Stoecker 1999). Using a participatory approach, the research process is explicitly designed to deliver tangible, desirable outcomes for the participants rather than to generate data for scientists or to support the agenda of funding agencies. Mutual learning is also a central tenet of participatory approaches, even a key goal (Cary et al. 2002).

Results

Several points arise from the case studies, including (1) the value of working through an established farm organisation or group rather than with individual farmers and (2) the ethical challenge when a participatory approach, designed at least in part to empower communities, is applied to promote government policies for sustainable land use (see, Bruges and Smith 2007). What also stands out is the disparity between scientists and community members in their evaluation of the research process and its outcomes (Kelly et al., under review).

With respect to the Maori vegetable growers, the scientists were hesitant to claim any significant biophysical research results. Community members were generally enthusiastic in their support of the work done and of the knowledge they gained. The scientists too were generally positive at the level of cultural understanding they had achieved. The wheat calculator, on the other hand, was deemed by both scientists and farmers as a resounding success in both scientific and commercial terms. Those farmers involved, however, were critical that the scientists “didn’t listen”, “didn’t always respond to suggestions” and “didn’t meet with farmers as often as was wanted or required”. For the walnut growers, the research itself had mixed success, increasing scientific understanding but offering few practical tools. In this case, the growers were unanimously enthusiastic about the research and the participatory approach used.

As noted, participatory approaches commonly emphasise the importance of mutual learning. In the Maori case study, mutual learning was a pronounced feature identified by growers and scientists alike. This was equally the case with the walnut growers. Shared learning was much less identified by the wheat farmers who are more accustomed to a traditional scientist/user relationship, and the farmers viewed participation as time-consuming and not particularly productive. There was among these farmers a pre-existing trust in science (and scientists) and they had confidence in their own ability to use or reject any findings presented to them. These farmers never bought-in to the environmental objectives which underpinned the research. They adopted the findings to increase their incomes and to save expense rather than as an environmental management tool. In this respect, the contrast between the Maori and walnut growers was also informative. The walnut growers, primarily professionals and many with a background in science, strongly supported the research and valued its capacity to help their business. The Maori growers were unfamiliar with the culture of science - there were cultural and protocol issues that had to be overcome. The scientists were almost unanimous in their enthusiasm for the cultural experience and knowledge they gained. The Maori growers were enthusiastic that the scientists had gained cultural understanding.

The case studies, as discussed, support the value of a participatory approach to build social capital. But they also suggest the need for a more nuanced approach to the use of participatory approaches and for a fuller consideration of the relationship between scientist and farmer within such approaches.

'Proofing Participatory Research'

The integrated knowledge transfer framework has four main stages (see Figure 2): First, a preparation/planning phase ("Preparing the field"), Second, a co-learning phase ("Learning together"), Third, a selection/adaption phase ("Being flexible") and Fourth, an implementation/output phase ("Obtaining outputs"). Central to the success of this approach are the processes of evaluation and relationship building.

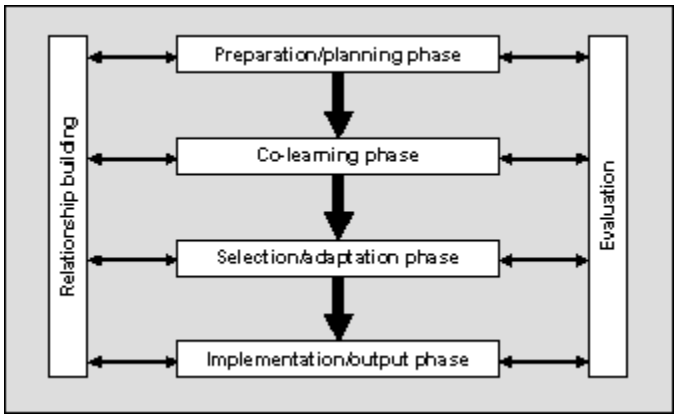

Figure 2. An integrated knowledge transfer framework.

The framework differs from conventional approaches by emphasising the centrality of evaluation to the ongoing technology-transfer process. Based on the lessons drawn from the Science for Community Change programme, rather than viewing evaluation as a final step, it is positioned as integral to the transfer process as a whole, allowing (and requiring) ongoing evaluation and revision as the project evolves. It also recognises that evaluation is itself an important outcome of the research, providing lessons for the technology transfer process. This, it is believed, is of particular significance when working with environmental technologies and in a cross-cultural context, where the criteria for evaluation are specific to the relationship between local people and their *whenua* (land). Effectively integrating evaluation provides a more robust and responsive methodological approach, and ensures the increased suitability and relevance of the project outcomes, thus increasing the likelihood of their uptake.

The A, B, C and D of Proofing Participatory Research is based solidly on the practical experience of the projects described. It offers on an integrated knowledge transfer framework which shifts the emphasis from conventional approaches to emphasise the centrality of evaluation in technology transfer. Evaluation is framed as central to a research project rather than as a final step. This allows the on-going refinement of the research to meet community and scientists' different needs. This in turn is based on prioritising open communication, trust and mutual respect within the research process.

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