

SCALING UP FARMSCAPE: A NATIONAL NETWORK DELIVERING SIMULATION TO SUPPORT FARM MANAGEMENT

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Introduction

The FARMSCAPE project employed Participatory Action Research (PAR) to investigate the value of simulation as an aid to farmers' planning under climate risk. In a project that commenced in 1991 we found that once we demonstrated the credibility of the simulator and our commitment to farmers' perceived problems, farmers became keen to explore a wide range of management issues. Participating farmers often attributed significant insights and management changes to their involvement in 'What-if' discussion sessions (Carberry et al. 2002). On the strength of this, we turned our attention to 'scaling up' the delivery of such interventions. This paper describes the efforts, frustrations, impacts and learning achieved through a number of approaches to scaling up FARMSCAPE.

Methodology

Snapp and Heong (2003) defined 'Scaling up' in four ways: 1. the scaling up of an intervention or technology to serve a wide geographic area, 2. extrapolating from a small field experiment to estimate the impact on a larger area such as a region, 3. the growth of a small-sized organization to a large-sized organization, and 4. expanding impact from a small to a large number of beneficiaries. While simulation is commonly utilised for spatial as well as temporal extrapolation of plot experiments (2nd way) this work was primarily concerned with expanding the number of beneficiaries and the geographic area covered (1st and 4th ways). Three scaling up efforts are described in this paper: 1. a training and accreditation project to enable consultants to incorporate the FARMSCAPE approach into their business, 2. Internet enabled 'What-if' discussions with remote farmer groups, 3. Yield Prophet® - an internet enabled support network providing farmers and consultants with direct access to simulation tools.

Training and Accreditation: Farm advisers were important participants in FARMSCAPE. It seemed logical that with the appropriate training they could replace researchers in the provision of crop and soil monitoring, simulation and facilitation of "what-if" discussions. We decided to establish a FARMSCAPE training and accreditation program. Two public sector advisers and 7 agronomists from 4 companies participated in the program.

Internet enabled 'What-if' discussions with remote farmer groups: In this investigation we explored the possibility of connecting farmers and their advisers with research scientists through Internet enabled online workshops. Workshops were mediated through low-cost, low bandwidth Internet video-conferencing. Fifteen online workshops featuring simulation aided discussions about alternative management practices were conducted with 6 groups of farmers in 4 states.

Yield Prophet®: Engagement with the Birchip Cropping Group (BCG) in the Internet enabled delivery program was a catalyst for the next step in scaling up FARMSCAPE. At one such meeting the group invited the researchers to re-evaluate prospects for the upcoming season on a monthly basis. From this invitation evolved Yield Prophet (www.yieldprophet.com.au), an Internet enabled user interface to the cropping system simulator APSIM. Yield Prophet consists of a network of farmers, consultants and researchers concerned with improved management of crops in Australia's climatically variable environment. This network is managed by BCG with the support of the Farming Systems Design 2007 Farm-regional scale design and improvement

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APSRU/CSIRO research group. Subscribers enter their actual management information such as

crop, variety, sowing date, nitrogen fertiliser rate and time of fertiliser application. They can then choose to generate a variety of reports that are made available to the individual farmer and their nominated agronomist. Reports provide information on the current status of the crop and of soil moisture and soil nitrate levels, as well as probabilistic forecasts of crop yields for current and alternative management scenarios.

Results

Training and Accreditation: A flexible, part time, and work based training program was designed and delivered. However, most participants experienced difficulties meeting the demands of training in competition with demands from their clients. Consequently, only four trainees including the two public sector trainees achieved full accreditation. The longer term impacts of the program on the two private sector companies that employed the accredited FARMSCAPE agronomists were evaluated. In July 2003 interviews of a sample of one company's clients revealed varying impacts ranging from one client who clearly attributed a AUD 0.5M benefit to a single decision to others who were unaware of the opportunity to participate. At the time of writing the second agronomic consulting company had adapted the use of these tools to suit their consulting style and was using simulation and monitoring as a regular part of their consulting business. The company has also absorbed much of their learning from simulation into new heuristics that are used by all company agronomists.

Internet enabled 'What-if' discussions with remote farmer groups: Effective Internet interactions required good local and remote facilitation, common understandings about interpretation and meaning of shared representations and reliable functioning of the underlying communication technology. Replacing face to face FARMSCAPE workshops with Internet enabled online workshops proved to be cost effective and time efficient while delivering comparable measurable impacts on farmers' management practice.

Yield Prophet®: In 2002 Yield Prophet started by reporting monthly on 3 paddocks to 500 BCG member families. It grew to 32 paddocks in 2003 when it was still a faxed sheet service. Expansion was enabled by providing an Internet based service in 2004. By 2006 there were >550 registered Yield Prophet paddocks in 5 states Australia-wide. The number of reports generated in 2006 exceeded 8300. Yield Prophet directly involved a networked community of grain growers supported by agronomic consultants State Government staff and 7 Farmer Groups. At the time of writing all