

A new innovation or successful implementation?

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Abstract

“Tell me and I forget, show me and I may remember, involve me and I will understand”

The Birchip Cropping Group (BCG) was founded on this ethos in 1992 when a small number of innovative farmers brought a new meaning to participatory research by conducting their own research.

This paper will outline a number of initiatives which demonstrate the power of farmers questioning issues, discerning the relevance of solutions, and becoming the initiator of research investigating how to grow crops and pastures more profitably and sustainably. These have led to many large scale initiatives, ultimately supported and driven through the R & D investment organisations.

Initiatives include:

- Identification of subsoil constraints after farmer members asked “Why can’t we grow 6 tonnes of wheat per hectare in the Mallee”? A question which ultimately ‘un-earthed’ subsoil constraints.
- Development and delivery of herbicide, spray technology and fungicide diagnostic schools, with farmers being involved in the training program. These schools have now been conducted across Australia.
- Crazy farmer ideas, such as using glad wrap to increase moisture retention in dryland cropping, resulting in a new collaborative research program with the CRC for Polymers.

The innovative agronomic extension has not been limited to the in-paddock experience but has also extended to growers engaging with researches through other mediums such as Expos and Fax Bulletins.

Key Words

Farmer groups, research, extension, innovation

Introduction

In 1992, a small group of Birchip farmers feeling isolated from agricultural research and extension activities decided there was no reason that they themselves could not conduct research. Through the observation of what was being achieved by the Hart Field Day group in South Australia, the Birchip group decided to run a series of variety and herbicide demonstrations in their own backyard in the southern Mallee region of Victoria. With over 500 people attending the BCG’s first field day in September 1993, the BCG began - perhaps not a revolution - but certainly an evolution in the area of applied research and agronomic extension.

The uniqueness of the BCG situation was that the farmers themselves were the drivers of participatory research and extension of agronomy. The impact of this approach has been dramatic, so much so that BCG was described in ‘The Sunday Age’ as “one of the most innovative outfits in the bush” (The Age, 2002).

King (2003) introduced the concept of ‘social learning’ as important to manage change in complex environments. Social learning involves people with different values developing an understanding of the system and working together for a shared purpose related to the change needed at the scale(s) required.

While in 1992 the concept of participatory research or social learning was not new in the world of agriculture, the BCG's approach to it was definitely unique. The BCG's approach to implementing participatory research changed the traditional process of researchers trying to engage growers. Instead, the growers identified their issues, realised they could initiate research and then engaged the "expert" researchers in order to find answers together. This recipe, combined with the dissemination of results initially happening through farmer to farmer exchange at field days, has resulted in BCG becoming a leader, not in the invention of participatory research and extension, but simply successfully implementing it.

Six Tonne Crop

In BCG's short history of 13 years, a number of significant questions have been asked by farmers and as a result some instrumental discoveries have been unearthed. None more significant than in 1996, when the BCG committee of farmers asked the question, "Why can't we grow six tonnes of wheat per hectare in the Mallee?" The idea began after what had been a period of 10 'good years' from late 1980 to early 1990. It was a period of time when farmers across the Wimmera Mallee were thinking about maximising yield through a trend of higher input farming. During 1995 one of the BCG committee members decided he wanted to grow a '30 bag' barley crop, which he nearly did. Discussion arising from the yield result of this crop prompted the BCG to ask the question and rise to the challenge of trying to grow a six tonne crop at their trial site. With rainfall at that time not seeming to be a limiting factor, four demonstrations were established in order to determine the critical factors in achieving a high yielding crop.

The main three areas of interest were root disease, nutrition and foliar disease. The cost of production was not the issue, as the focus was on yield. Treatments included biofumigation, optimal nutrition and fungicides (van Rees, 1997). Analysis of trial results showed that based on water use efficiency, the yield should have been 7.1t/ha given that the Birchip growing season rainfall (April-Oct) was 340mm plus 125mm of stored water. However, the treatment with which no expense or nutrient was spared, only achieved 5.4t/ha. The question was then asked, "Why didn't the crop go 7.1t/ha"?

In the quest to find out why, the BCG joined forces with 'experts' John Angus CSIRO and Harm van Rees, a BCG consultant. Soil samples were taken and it was found there was still moisture left in the profile. This raised the question, why wasn't all the moisture used? Further investigations revealed that there were very high levels of boron and sodium in the subsoil. These results agreed with results from South Australia which had already established that toxic levels of boron and sodium would negatively effect root growth and ultimately moisture uptake (Graham et al. 1992, Holloway and Alston 1992). The finding was that there were subsoil limitations across the southern Mallee and it wasn't just a problem restricted to South Australia (pers. comm. Harm van Rees).

While there had been much work on high boron levels and their impact on crop production completed by scientists in South Australia, the BCG trial results focused researchers' and farmers' attention on the issue (pers comm. Ian McClelland).

The questioning did not end there. The BCG farmer committee wanted to solve the problem of subsoil constraints or at least learn how to farm better by understanding the issue better. 'Expert' researchers were re-engaged to work closely with farmers. With farmers demanding information and being a receptive audience, research investors and research providers focussed on the issue. Major investments into root zone constraints were made in the region and more broadly across the cropping zone by the Grains Research and Development Corporation (GRDC), Victorian Department of Primary Industries and others.

In this case, the solution came from understanding the problem of subsoil limitations with the help of the local farmers. While the grains industry has not yet been able to solve the problem of subsoil constraints, BCG farmers have learnt to grow appropriate crops with appropriate inputs for a given season, and have become very pragmatic about farming certain soil types, due to a farmer driven extension program.

Diagnostic Schools

A second example of successful implementation of extension in agronomy was the development of "Diagnostic Schools". The first Diagnostic School focused on herbicides and was delivered in 2000. The aim of Diagnostic Schools is to take the classroom into the paddock, where trials are specifically designed for the event and are used as a unique tool to aid learning. Participants are encouraged to get on their hands and knees to inspect the practical side of the 'theory'. The in-paddock 'classroom' was set up to demonstrate in-crop the impact of chemical groups across weeds and crop types as well as the effect of different water quality on herbicide efficacy. The days also included looking at different nozzle types and spray technology. Demonstrating herbicide effects in the paddock, getting farmers to see differences and involving them in the training is a successful recipe, based on diagnostic schools held in Edmonton, Canada.

Anecdotal evidence from one of the farmers who participated in the very first herbicide diagnostic school said "The breakthrough for me was to be really able to understand the chemical groups and the way they worked and then be able to recognise cause and effect. The diagnostic school was set up so that we learned the theory in the paddock and were immediately able to see the effect in a cropping situation. Before being involved in this type of diagnostic school, I knew that there were different chemical groups but they meant absolutely nothing to me". It fits with the BCG ethos of 'Tell me and I forget, show me and I may remember, involve me and I will understand'.

Rapt in Wrap

A crazy idea or question can be turned into a process to develop new knowledge, new partnerships and new opportunities.

BCG is currently trialling the use of polymers to increase moisture retention in dryland cropping. This came about after an idea to lay kitchen grade gladwrap over crops and between rows (a labour intensive job which involved staff, committee and Chairman!). BCG is now a formal partner in a new collaborative research program. The program involves the CRC for Polymers and is investigating the use of polymers in cropping systems, with the BCG involved in designing an innovative and applied research and extension program.

Grains Research Expo

Brown (2003) highlights five constructions of knowledge as important in decision making:

- Individual knowledge – personal experience, lifestyle choices, learning style and personality
- Local knowledge – shared experience of individuals, families, businesses, communities
- Specialist or professional knowledge – mono, multi and transdisciplinary knowledge
- Strategic or organisational knowledge – administration, governance systems, legislation
- Holistic knowledge – essence or core of the matter, vision for the future, a common purpose

The first two are farmer knowledge, the first and third are scientist or specialist knowledge, the fourth sets the context for both of them and the fifth is the necessary understanding of their shared purpose (Ridley, 2003). The Grains Research Expo, and the broader BCG program, aim to integrate all of the knowledge constructions in order to achieve better decision making.

The Grains Research Expo is designed to bring 'experts' from the research community and industry to the same location as farmers. It aims to encourage one-on-one discussions together with group discussion forums on topics of relevance to farmers. New technologies and practices being developed by researchers and industry are also presented. Feedback can be provided to researchers on how their concepts could be applied in the paddock, and farmers can learn about and have input into new developments.

The initial Expos were so successful that GRDC supported a series of regional Expos across south eastern Australia over a five year period, creating a new platform for interaction between farmers, researchers and industry.

Fax Bulletins

Highly valued by BCG farmer members is the BCG's fortnightly Fax Bulletin. A selected group of farmers from across the region identify the issues to be covered in this one page fax, which is compiled by consultant Harm van Rees with input from a group of farmers across the region, and based on trial and demonstration work undertaken by BCG.

This approach of involving farmers in the content of the fax ensures that the critical issues being faced in the paddock are the issues that consultants and staff focus on delivering. Over 500 farming businesses receive the fax bulletin.

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"Participation has become the new orthodoxy in agricultural research and extension. Farmers and agribusiness rightly expect not to have research done for them, but rather that they participate in some manner" (Carberry, 2001).

The intimate relationships established between farmers, researchers, extension professionals and investment organisations has themselves given rise to true collaborative and participatory partnerships. Respecting the knowledge and skills of each partner and being open to viewing issues from a fresh perspective has resulted in BCG delivering community driven research and extension.

If we are going to involve different people, with different knowledge bases and values, in a true participative sense, we must do it as a team. Genuine participation has enormous power and can lead to huge benefits, for the individual, the community, the region and the industry.

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