

Achieving practice change: findings of DAFWA's Wheat Agronomy project 2011- 2015 (DAW00218).

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Key messages

- The process undertaken in communicating the key messages from project work included a multi-levelled approach which aimed to provide information to growers, consultants and researchers in the detail that they require and in a variety of different formats.
- Techniques used to measure practice change include surveys, google analytics of web pages (and twitter) plus an enquiry log. Accurate recording of activities is the role of the whole project staff.
- Achievements of the project include 1. 65% of growers surveyed had used the wheat variety guide for decision making, 2. over 6700 people accessed Flower Power, 3. key messages were delivered at over 90 field days and seminars and 4. MyCrop wheat was downloaded by over 1300 users.

Aims

The aim of this paper is to explain the key findings of the final monitoring and evaluation report as well as the techniques used to communicate key messages from project work.

The Department of Food and Agriculture, Western Australia's (DAFWA) wheat agronomy – building systems profitability in the western region project has the overall outcome of ensuring that by 2015, WA grain growers have access to and the skills to use the wheat variety guide, variety selector and Flower Power tools for wheat variety selection and management decisions.

To reach this overall outcome the project had four key performance indicators which included;

- Research and development underpinning the variety selector and *Flower Power* tools for wheat variety selection and management conducted
- Broad-scale awareness of the existence and benefits of variety selector and *Flower Power* tools is created within the grains industry/community by 2014.
- By 2015 200 growers and 80 advisers with skills to use the variety selector and *Flower Power* tools.
- By 2015, 25% of the targeted 200 growers have used the variety selector and *Flower Power* tools in wheat variety selection and management decisions.

The success of the project will be measured by the number of growers who utilise and have access to decision support tools, and the level of improvement in their knowledge and skills.

Method

Communicating key messages

During the early stages of the wheat agronomy project it was decided that a new approach was required to effectively deliver key messages to the target audience (growers and consultants). The reason for this new approach in communication was due to direction from the Regional Cropping Solutions Network (RCSN) which outlined a greater need for a targeted communications approach. To aide this idea, consultant Peter Newman from PlanFarm was contracted to help plan new ways to communicate and carry out extension activities. Peter is an experienced communicator and was brought into the project to assist with the demanding extension requirements of the project and the subsequent monitoring and evaluation of these extension activities.

At the start of the project in 2012, a communications plan was developed for the project. A communications plan acts as a road guide, explaining the ways that key messages will be shared with the target audience and gives the project a timeline to work against. When creating the communications plan, it is important to decide firstly; which key messages need to be shared to meet the funder's demands, secondly what the target audience needs to know to increase their productivity and finally, how these key messages can be shared with the target audience. Implementing a well-designed communications plan in this context is vital when measuring the success of the project in meeting outcomes. With this in mind, the project's communications plan was updated in 2014 to include a new

communications model and ground rules for all communication and extension activities (Figure 1). The ground rules included;

- All written and oral information should be aimed at bringing more customers to the 'on-demand' information that is housed on the DAFWA website.
- Information will be layered. Layer one is brief, entertaining and written in very plain English. Layer two is slightly more technical and includes pictures / graphs. The information style of layer one is often found in newsletters/social media/media, while the style of layer two is often found on web sites.
- Web pages should have minimal text, and include visual information such as infographics, pictures and graphs
- Information is written using the SUCCES formula: Simple, Unexpected, Concrete, Credible, Emotional, Stories.
- Twitter is a valuable social media tool. Twitter will be used to bring more people to our online information and to engage in dialogue with our clients.
- A greater social media profile, improved layering of information and AgMemo/AgTactics presence increased our media profile by making it easier for journalists to find our information.
- The wheat variety guide will be improved by making it available on-line, creating a focus on the top 5 or 6 current varieties plus 3 or 4 emerging varieties, and improving the visual representation of data (for example, variety performance graphs by AgZone by years).

These ground rules provided a new direction for the project's communication and were simple to follow. Layered communication techniques outlined in Figure 1 were implemented, particularly on DAFWA's webpage. The first layer of information was intended for growers and would provide a basic explanation of findings and how they applied to the farming system and was usually housed on the DAFWA webpage. The first level of information was usually written in a simple style of language which could be understood quickly and easily. The next level of information was aimed at the consultants and agribusiness advisors. This information was kept on the DAFWA website but was either linked to the page or required that they read further on to find out the required information. Second level information provides the reader with the key message and how they apply to a farming system as well as how the project came to these conclusions. The third level of information has not been provided as regularly due to levels one and two being the main target audiences for this project. However, the third level of information has been provided in the form of crop update papers, trial and field day reports. The advantage of the layered communication technique is that one webpage can house information to suit the requirements of all target audiences.

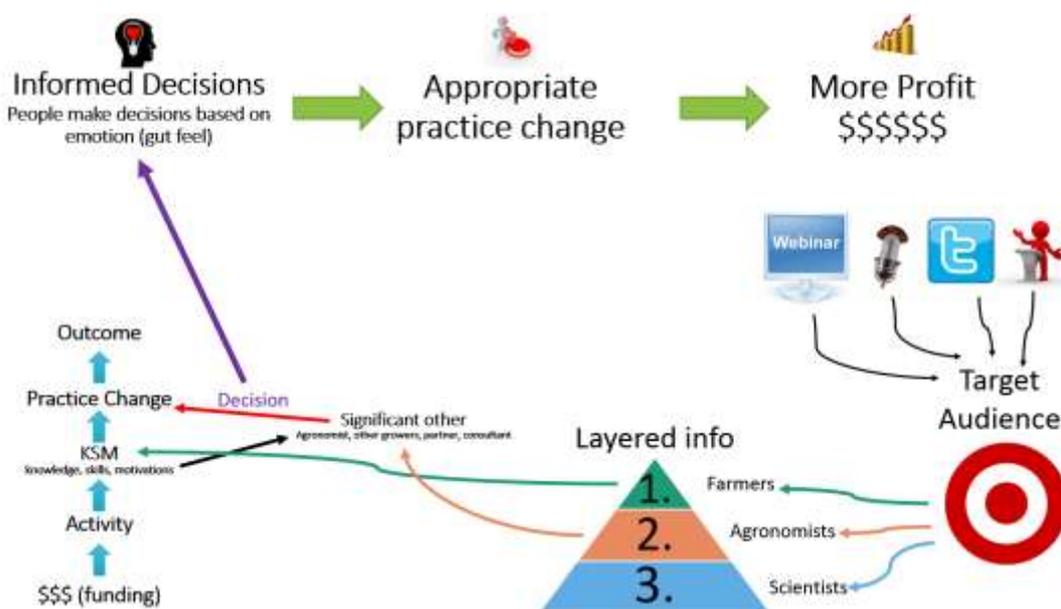


Figure 1: Layered communication plan leading to practice change (developed by Peter Newman, PlanFarm.)

Once the ground rules and techniques for communicating the key messages were established, project staff began communicating key messages from the research and recording the outcomes. The work that was carried out was based on three outputs, these outputs included;

- Output 1: Research and development underpinning tools - Regionally focussed research and analysis undertaken that provides growers with greater confidence in variety selection and management to meet market demand and manage risks to production.
- Output 2: Broad-scale awareness tools - Develop, evaluate and improve 1) 'Flower Power' tool that predicts the effect of management and environment on the phenology of new varieties and risk of frost and terminal drought and 2) My variety selector - a lucid based tool to support growers with accessing information on variety characteristics and performance to facilitate decision making on variety choice and adoption.
- Output 3: Evaluation of tools - Annual extension of output 1 and 2 information to support grower decisions on variety selection and management using web based and/or paper based delivery and oral presentations in collaboration with existing grower group activities (including field presentations, workshops and Crop Updates). Evaluation will measure effectiveness of the communication and extension activities and focus method of delivery.

The work carried out by the wheat agronomy team was recorded into spreadsheets designed to capture the project's achievements against these three outputs. The spreadsheet included details on the type of activity carried out, the target audience, the project member's name and if the activity involved presenting to a group of people, how engaged these people were. Throughout the life of the project the spreadsheet and ways of recording data were revised to best suit the direction of project activities. The recorded information was then used to give examples of how the project's team members were working to ensure that the outputs and the monitoring and evaluation outcomes were being met. Data from the DAFWA webpage including page visits were also recorded as well as the time spent on each page. Analytics from tweets sent out by project staff and the DAFWA twitter accounts were recorded in separate sheets. The number of tweets and webpages were used to show the different formats that the project was using to extend the key messages and findings to its target audience. Analytics from both twitter and the DAFWA website were used to show the popularity and reach of different topics amongst the target audience.

Information recorded about the activities of the project staff and outputs were used to report to the external funders of the project, The Grains Research and Development Corporation (GRDC). The project's activities were reported on annually and then again in the final report.

Results

The following results will be addressed by looking at the three outputs of the project and ways in which project staff worked to fulfil the requirements of these outputs.

Output 1: Research and development underpinning tools

Output 1 provides a framework for the research trials that should be conducted throughout the project. A research program was developed and managed between 2012 and 2014. The research priorities were developed through consultation with grower groups and RCSN (WA). The research aimed to improve grower confidence in variety selection and management to improve wheat yield and profitability. Between 2012 and 2014, over sixty research trials were initiated across the Wheatbelt of Western Australia. The overarching themes of this research included falling number index trials, long season wheat- response to time of sowing, long season wheat- other management factors, long season wheat- time of sowing grazing management, flower power – flowering response to sowing time, characterisation of the development wheat varieties (namely flowering), variety responses to seeding depth in dry environments, response to sowing time and seeding rate, large scale seed rates trials at Lake Grace, managing wheat and barley varieties – response to nitrogen, Predicting the best wheat varieties for low pH and high Aluminium soils in W.A. and agronomy on non-wetting sands.

A research summary report that outlines research themes, what we did and what we found was included as an attachment in the final report of this project. The report provided detail on the key research areas, themes and knowledge extended from the findings of this research.

Output 2: Development of broad scale awareness tools

Output 2 focused on the development of the Flower Power tool, the Wheat variety guides and the variety selector app which were used to assist growers to make the best variety choice depending on their circumstances.

Flower Power - monitoring

The Flower Power tool (Figure 2) was designed to help growers make better variety and sowing time decision to reduce the risk of frost and heat stress in flowering wheat crops. The tool was set up as an interface on the DAFWA webpage. The initial version was released in 2012 to assist growers with decisions on variety, sowing time and heat or

frost risk. Users are able to choose: (1) a location close to their farm (choice of up to 25), (2) up to three varieties (choice of 30) and (3) a range of sowing times from late April. The predicted outputs on flowering time are based on a statistical model developed by DAFWA and GRDC to predict flowering date of wheat varieties (Sharma *et al.*). Experimentation continued throughout the project to update variety results and potential locations.

To ensure the successful extension of this tool a communication plan for the Flower Power tool was developed and implemented. This included: the release of the tool at Corrigin Farm Improvement Group field day and demonstrations at various spring field days across the grainbelt, feature articles in DAFWA's AgMemos, AgTactics, the Wheat variety guide and GRDC's GroundCover magazine and surveys to gauge knowledge and awareness of the tool.



Figure 2 Screen shot of the output of the Flower Power tool (agric.wa.gov.au/flower-power). This example shows the predicted flowering times of three different wheat varieties if they were sown on the first of May. Flower Power also provides information about heat and frost risk.

Wheat variety guide – Monitoring

The Wheat Variety Guide was released each year during the project (4 editions). The Variety Guide was distributed in hard copy along with the GRDC's GroundCover magazine to approximately 7000 subscribers annually. The Wheat Variety Guide was also made available as an electronic version on the DAFWA and GRDC websites. The value of the wheat variety guide was measured through surveys which were carried out at field days. The guide was promoted at field days, through media releases, on the DAFWA website and through social media.

Variety selector app (MyCrop) – Monitoring

The MyCrop Wheat App was released at the end of July 2015. Originally MyCrop was released as one app for all crop types. However, last year separate apps were developed for four crop types (MyCrop Wheat, Barley, Lupins and Pulses). The variety selector was based on the wheat variety guide. The variety selector enables growers to select a variety which is most suited to their environment based on disease resistance and yield predictions. The user also has the option of scrolling through all of the variety descriptions. The wheat and barley variety selector modules are very similar in their layout so that growers can easily use both without confusion. MyCrop Wheat was extended to growers and consultants at 12 spring field days across Western Australia. The App was also broadcast across Twitter and via several media releases.

Output 3: Evaluation of tools

Output 3 looks at the effect of the tools and research from the project on the level of practice change on wheat growers farms in Western Australia. For practice change to occur, growers need to see the benefit or potential benefit of taking the steps to make a change. The wheat agronomy project has worked to provide growers, consultants and industry with the knowledge and skills required to adopt new technologies. Since 2011, project staff have: spoken at 94 field days and meetings; delivered 26 Crop Update presentations; and written 37 Crop Update papers, 30 factsheets and 20 press releases. Collectively, these communication activities extended recommendations from the project's research, highlighted the advantages of adopting new technologies and provided information to guide decision on practice change.

Flower Power – Evaluation

Throughout the project, staff have attended 94 Meetings, field days and seminars. These events played a critical part in raising awareness of the tool and provided growers with an opportunity to trial the App.

The Flower Power tool was hosted on the DAFWA website. It proved to be a popular and useful tool with 6781 people viewing the tool's webpage between January 2012 and June 2015, and 271 people viewing the Flower Power YouTube tutorial. This result was aided by promotion of the tool on social media as well as through media releases. In 2014, surveys were carried out at spring field days across the state with both growers and consultants. Most of the individuals surveyed (69.4%) knew about Flower Power and 40.5% of those surveyed found the tool to be very useful in their business decisions. The surveys also proved to be a useful extension tool, as growers and advisors who did not know about the Flower Power tool were given the opportunity to find out about the tool and how to use it. This highlights the value of employing a diverse and integrated approach when seeking to influence practice change.

Wheat variety guide – Evaluation

The wheat variety guides are designed as a one-stop-shop for growers to find variety information and provided a foundation for most of the project's extension work. In 2014, a survey completed during the spring field day season, found that 65% of growers had used the variety guide to make wheat variety decisions. In the same survey, growers rated all sections of the variety guide as useful to extremely useful. Again, the variety guide was provided in a number of formats including: a hard copy, a web version and webpages created using information from the variety guide on specific subject areas (for example, wheat diseases). Information from the wheat variety guide was also used to create the MyCrop wheat variety selector. Providing the guide in different formats increased the potential number of users. Our survey asked growers to select the ways that they accessed the variety guide; it was found that 76% of growers utilised the hardcover version (mailed out to over 7000 subscribers to the groundcover magazine) and a large portion of the survey group also used electronic versions available on both the GRDC and DAFWA websites.

Variety selector app (MyCrop) – Monitoring

As agriculture becomes more reliant on technology, DAFWA's MyCrop app has increased its functionality and along with this its popularity. The wheat variety selector module on the MyCrop Wheat app was created using information from the wheat variety guide. The variety selector gives growers the opportunity to find a variety best suited to their environment by asking them to consider the AgZone that they are growing the variety in, resistance to diseases and certain quality and agronomic traits that are important to their system.

As this is the first season that the app has been released, there was heavy promotion at spring field days across the state. The app was also mentioned at all of the field day presentations made by the wheat project staff. Uptake of the app has been strong with the app being downloaded over 600 times. Initial anecdotal feedback from field days on the MyCrop Wheat app has been positive and growers have been receptive to the new tool.

In the later part of 2015, instructional YouTube videos were released explaining how to use the app and its main uses for growers.

Conclusion

The monitoring and evaluation report was presented to the external funders of this project, the GRDC, in the project's final report. The information was accepted by the panel reviewing the report as satisfying all of the necessary requirements. The advantage of collating the monitoring and evaluation information in one report is to review areas that we have either excelled or fallen down short with the view to improving communications for practice change.

The implementation of the multileveled approach for communicating information to growers has helped to improve the project staff's ability in extending findings from their research. In turn, this new approach has made information more readily accessible to the target audience (growers and consultants). This is shown through google analytics from webpages and twitter as well as surveys undertaken over the course of the project. The findings from this report have been adopted where possible in DAFWA's current tactical wheat agronomy project which began in July 2015.

Key words

Monitoring and Evaluation, Communication, Practice change, Survey

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