

# FINAL REPORT

ORM00007

## Improving grower and industry adoption of new electronic technologies

### PROJECT DETAILS

PROJECT CODE: ORM00007

PROJECT TITLE: IMPROVING GROWER AND INDUSTRY ADOPTION OF NEW ELECTRONIC TECHNOLOGIES

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### Summary

The project aimed to equip participants (growers) with the knowledge and confidence to use new electronic technologies, including social media, to access grains Research, Development & Extension (R,D&E) information and implement improved on-farm management practices through targeted regional social media and technology training. Twenty-two workshops were delivered across all of Australia's grain growing states by four facilitators, supported by connectivity specialists. The project also developed an online support community 'Digital Ready Grain Growers' ([bit.ly/DigitalReadyGrainGrowers](http://bit.ly/DigitalReadyGrainGrowers)) and produced a series of six fact sheets and nine YouTube videos.

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## Conclusions

Strong adoption of smartphone and tablet devices was present across all regions prior to attending the workshop. These devices are already being used for a variety of business and personal purposes via programs, apps and general internet browsing, in addition to their function as communication devices. Participants predominately assessed their computer literacy as 'knowing their way around their device, but knowing they are not using it to its capacity'. Combined with information on participants' learning priorities, workshops were able to be regionally tailored to meet participants' needs. Participants were most interested in finding good apps, using social media for agricultural information, networking and problem solving and learning about cloud computing.

This project identified that internet connectivity in the field is currently a major limitation for many growers. A large opportunity exists to increase use and adoption of new digital technology, including social media as a business tool in agriculture, by further assisting growers improve their internet connectivity.

Attending the workshop increased participant confidence in using digital technology and devices. Workshop topics met participants' learning expectations and interests and were rated as highly useful across the majority of sessions. The majority of participants had prior exposure to using apps and social media for personal and sometimes business purposes. The workshop inspired them to use or increase usage of apps and social media for agricultural purposes such as Google+ and Twitter.

The workshop approach was considered 'just right' in the majority of cases. Participants are keen to embrace future learning opportunities, delivered in a variety of formats. More hands on workshops are requested as well as online options, such as YouTube tutorials and webinars.

Participants consider emerging technologies such as the ones demonstrated during the workshops as highly relevant, critical 'game changing' technologies. Further areas of interest in the digital space were identified, particularly in the area of farm automation technology. Significantly, 99% of participants are likely to implement three pieces of information learned in the workshop on their farm, with 61% of these 'extremely likely' to do so.

Internet connectivity remains a limiting factor in the adoption of social media and business tools for agricultural purposes in the field. A large opportunity exists to improve networking opportunities and agricultural business performance through addressing this need.

The next step changes that will have significant impact on farm business performance look likely to come from the field of engineering and relate to improving efficiency, reducing costs and improving business decision making. Industry stakeholders will need to be equipped to take advantage of these opportunities as they present themselves. GRDC needs to position itself to support the opportunities new technology will bring to its stakeholders.

The proposed activities in the business case will position GRDC to be equipped to lead strategic, tactical and operational

change in respect to the assessment, development and adoption of new technologies on-farm.

## Recommendations

1. That the GRDC recognises the rapid change in new technology and adopts an ongoing process to assist growers and industry stakeholders to assess and adopt practices that will lead to improvements in business performance.
2. That the GRDC establishes a New Technologies Reference Group to keep GRDC abreast of opportunities and issues that new technology presents for the grains industry; provide strategic input into the adoption of new technology as it becomes available and provide strategic oversight on activities and projects that support the adoption of new technology by the grains industry.
3. That the GRDC assists in the formation of On Farm Demonstration Sites in partnership with leading farming systems groups that can provide demonstrations of best practice and be used to evaluate the implementation of new technologies.
4. That, in particular, the GRDC continues to keep abreast of opportunities for improving on-farm connectivity and makes any new information available via the demonstration sites, GRDC Updates, workshops, fact sheets and social media channels.
5. The GRDC continues to promote the fact sheets and video resources over time to ensure the industry is aware of them and they can be used as an ongoing resource.
6. The GRDC monitors the release of apps that are of use to grain growers and the greater industry and provides relevant information for use by the industry as this market evolves.
7. The GRDC continues to research developing technologies that can be applied to improve on-farm connectivity. These include remote monitoring, online networking, automation, record keeping, applying precision agriculture (PA) techniques, improved on-farm monitoring and the collection of productivity and inventory data, improved on-farm interpersonal communications and improved communication with off-farm support services and input suppliers - all of which can be in real time, with the ability to share data, pictures and videos in communications.
8. The GRDC, state department stakeholders and farming systems groups' stakeholders use the Digital Ready Grain Growers G+ community as a means of keeping the industry abreast of opportunities with digital technology that can assist grain growers improve their business performance.
9. That improving on-farm connectivity is promoted to the GRDC Update steering committees as a topic and the developed resources are made available to potential presenters.
10. That the GRDC continues to evaluate changes in technology usage and accessibility by grain growers and makes the industry aware of the opportunity to adapt its information and training opportunities in online environments in line with the increasing accessibility and online tool development.

## Outcomes

Eighty three percent of participants see the emerging technologies covered in the workshops as very important with an average rating of 4.2 out of 5; 41% rated them as critical (game changes for the industry). Ninety nine percent of respondents stated they would use at least three pieces of information from the workshop on their farm. Participants had a high smartphone (90%) and tablet (69%) ownership. This will increase as mobile plans change over and by default increase smartphone use (all phones on offer are smartphones).

A recent survey by Deloitte (2014) showed a 21% increase in smartphone ownership in Australia to 81% and that 57% of Australians consider it their go to device. Fifty four percent check social media daily; up a significant 170% in 12 months.

A key finding of the evaluation is that the greatest challenge for participants is connectivity; only 36% of respondents rated connectivity in their home as good, dropping to 11% in the paddock. It can be assumed that internet connectivity remains a greatly limiting factor in the adoption of online business tools for agricultural purposes for many growers. A large opportunity exists to improve networking opportunities and agricultural business performance through addressing this need.

The connectivity specialists who supported the workshops showed participants options for improving connectivity and how

to implement these on-farm. Survey results showed some participants have already implemented on-farm networks and other strategies for improving connectivity as a result.

Prior to the workshops, 41% of participants identified with using agricultural apps, while post workshop, 88% are planning to increase their use of agricultural apps. Social media channels such as Google+ and Twitter were also identified as technologies where the majority of participants plan to increase their use. Business tools such as Evernote and Google drive were targeted for increased use by 46% of participants.

The ability to enhance communications, knowledge sharing and collaboration within and across enterprises and businesses, have questions asked and answered, information and knowledge sharing being faster, all lead to improved decision making and associated economic benefits.

Key social benefits include:

- Connecting quickly at any time when you are anywhere with sources of information and support.
- Ability to network with people of similar interests, needs, values or goals.
- Staying connected and feeling connected with people and organisations.
- Opportunity to be part of online 'communities'.
- Less isolation.
- Peer to peer connectivity.
- Opportunity to 'meet' peers and organisations online and use mentoring tools.

Environmental benefits include:

- Greater access to timely sources of information in respect to environmental issues.
- The ability to communicate and link information to growers at any time when they are anywhere is very valuable. It is now being used widely for emergency situations that have serious environmental consequences such as fire, floods, weed and pest outbreaks.
- Paperless information provides environmental benefits.

## Achievements/Benefits

In 2014, the project delivered twenty-two workshops across Australia (six Victoria (VIC), seven New South Wales (NSW), three Western Australia (WA), two South Australia (SA), three Queensland (QLD) and one Tasmania (TAS) ).

As part of the project, it developed facilitator and participant notes that are available online and can be adapted to suit any regional situation. It also trained and used four facilitators and four internet connectivity specialists to deliver the workshops.

There were 207 participants with 93% completing pre and post workshop surveys. Total farm area covered by respondents was 308,786ha, with a combined cropping area of 196,905ha. Average farm area was 3,217ha with an average cropping area of 2,030ha.

The project also developed an online support community 'Digital Ready Grain Growers' ([bit.ly/DigitalReadyGrainGrowers](http://bit.ly/DigitalReadyGrainGrowers)) and produced a series of six fact sheets:

- o Maximise performance of your 4G Mobile Broadband.
- o Internet Connection Options.
- o Frequencies for Communication and Antennas.
- o Getting the most from your Wi-Fi and Networking.
- o Maximising your Phone Signal in the Home/Office.
- o Improving your phone reception in vehicles.

It also developed a series of YouTube video resources that are available via the Digital Ready Grain Growers Community:

- o Signing up to Gmail tutorial.
- o How to access the G+ Community.
- o How to sign up to Twitter.
- o Why Twitter is useful in the grains industry.
- o Setting up a social media manager.
- o Social Media for Australian Grain Growers.



- o Improving Your Connectivity on Farm.
- o Understanding Cloud Computing for Grain Growers.
- o Apps for Australian Grain Growers.

The resources developed are at a standard that facilitators can be briefed and use the resources to deliver with comparatively little development time, compared to having to develop workshops from the beginning. These resources form a key legacy from this project.

Of significance is that 83% of workshop participant survey respondents see the emerging technologies covered in the workshops as very important with an average rating of 4.2 out of 5 for the question and with 41% rating them as critical (game changes for the industry). Ninety nine percent of respondents stated it was likely that they would use at least three pieces of information learnt from the workshop on their farm.

Workshop participants had a high degree of smartphone (90%) and tablet (69%) ownership. This will only increase as mobile phone plans change over and by default increase smartphone ownership, as all phones on offer are smartphones. A recent survey by Deloitte (2014) showed a 21% increase in smartphone ownership in Australia to 81% and that 57% of Australians consider it their go to device. Fifty four percent check social media daily; up a significant 170% in twelve months.

A key finding of the evaluation is that the greatest challenge for participants is connectivity, with only 36% of respondents rating the connectivity in their home as good, dropping to only 11% rating it as good in the paddock. It can be assumed that internet connectivity remains a greatly limiting factor in the adoption of online business tools and social media for agricultural purposes for many growers. A large opportunity exists to improve networking opportunities and agricultural business performance through addressing this need. The connectivity specialists who supported the workshops showed participants several options for improving connectivity and how to implement on-farm networks.

Connectivity is also a big issue in respect to delivering training and was the number one issue raised by deliverers in respect to assuring training was delivered effectively.

Participants are able to improve their understanding, assessment, use and adoption of new electronic technologies including social media:

- o Participants predominately assessed their computer literacy prior to their participation as 'knowing their way around their device, but knowing they are not using it to its capacity'. Importantly, 90% of respondents felt more confident with their devices post the workshop. Participants also left with aspirations to begin using or increasing their use of a number of technologies.
- o Prior to the workshops, 41% of participants identified with using agricultural apps; post the workshop 88% are planning to use or increase their use of agricultural apps. Social media channels such as Google+ and Twitter were also identified as technologies where the majority of participants aspired to increase their usage. Business tools such as Evernote and Google drive were targeted for increased usage by 46% of participants.
- o The workshop approach was considered 'just right' in the majority of cases. Participants are also keen to embrace future learning opportunities, delivered in a variety of formats. Ninety percent of participants indicated that they would appreciate further learning opportunities in this field. More hands on workshops are requested, as well as online options such as YouTube tutorials and webinars. Ten percent were comfortable to continue learning using, their own resources.
- o Further areas of interest in the digital space were identified, particularly in the area of farm automation technology, but also in the areas of trading, data collection and recording and being introduced to other apps. Agricultural apps were rated as having the most potential to improve business performance and were also the area that people wanted to learn more about, both pre and post workshop.