Online Learning Networks for Rural Extension

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Abstract: Compelling evidence of the value of online learning networks, in the rapidly changing Australian grains extension environment, has been found. One hundred and twenty-four experts formed two Communities of Practice, in crop nutrition and field crop diseases, for the Australian Grains Industry. They used the principles, practices and platforms of eXtension.org from the United States; further developed to suit Australian conditions. The Communities are made up of a range of experts, who are willing to formally network together, to share knowledge and information between themselves and end users. They developed a Website, Twitter accounts, YouTube Channels and a Facebook page and used a suite approach to collaborate, publish and link to information. The aim being to reach end users. The approach, blended with traditional extension techniques, has proved to be both innovative and effective. It can be proactive and reactive and it provides timely, relevant, peer reviewed information on any internet device, at any time. End users can also interact with experts. 40 experts completed an evaluation workshop and online survey and a range of stakeholders participated in semi-structured interviews. The qualitative and quantitative evaluation showed the most valuable aspects were: Expanded professional networks; learning to work in new ways online; learning new technical information and increasing reach to clients. Contributor agreements are a critical element; they grant experts permission to operate and ensure the legal requirements of working collaboratively and providing information are met. In a short 16-month pilot period, there were over 11,000 users of the Communities. From July 2014 to April 2017 there have been 18,050 individual users.

Key words: Communities of Practice, Learning Networks, Social Media, Suite Approach

INTRODUCTION

Findings from the Australian Grains Research and Development Corporation's (GRDC), eXtensionAUS project; which commenced with a pilot of two Communities of Practice (one on Crop Nutrition led by New South Wales Department of Primary Industries and one on Field Crop Diseases, led by Agriculture Victoria) in 2013; has found compelling evidence for the applicability of the United States eXtension approach (extension.org) to the Australian grains industry.

It established proof of concept that net benefits are being derived from the operation of the two Communities of Practice (CoPs).

With an increasingly connected Australian agricultural community, that is embracing new IT technologies as infrastructure and bandwidth improve, prospects for harnessing online systems improve daily. In that context, the opportunity for real time information exchange between advisers, farmers, researchers and the industry is extremely important.

In 2013 GRDC conducted an Information Products and Services Needs Survey and found that 93% of Australian grain growers and 100% of their advisers are gathering research information to aid farm and crop management using electronic devices such as computers, smartphones or tablet devices; 81% of growers and 98% of advisers use websites for gathering farm and crop management information and 81% of growers and 84% of advisers use mobile technologies.

In the same survey 41% of growers and 70% of advisers said they would be fairly or very interested in participating in an online forum where farm or crop management questions could be put to researchers and other experts. Numbers were highest among younger growers and those in a business expansion phase.

Saravanan Raj and Suchiradipta Bhattacharjee in their blog article (http://aesa-gfras.net/Resources/file/Saravanan%20Final%20blog%2042.pdf) argue "*Though Social Media applications can be effectively used by extension and advisory services, lack of awareness and skill about its use currently constrain its widespread use. Moreover, the organisational culture within extension organisations, also restricts exploitation of its full potential by extension professionals.*"

"The increasing pluralism in extension funding and delivery, demands new relationships, knowledge flows and partnerships among the wide range of Extension and Advisory service providers and other actors in the Agricultural Innovations Systems" (Davis and Heemskerk, 2012).

The face of extension, information exchange and decision support service is rapidly changing and the GRDC have recognised the following:

"A fascinating transformation has taken place in Australian agriculture, particularly the grains industry, in research extension over the past few years. Growers are increasingly seeking expert, specialist agronomy advice and are willing to pay for this service. At the same time, due to budgetary pressure, state-department-supported extension services have been reduced.

A small army of highly skilled, professional farm advisers have emerged in place of government-supported extension services. There are 85 state government extension personnel across the country. By comparison, non-government advisers now total almost 2200.

Some advisers are individual consultants and some work for larger organisations as part of the broader engagement with growers by agribusiness. All are performing an essential service in being the conduit for research outcomes, including new products, crop varieties and systems, and they have become an increasingly visible part of the economic fabric of regional communities.

The GRDC values the role of agribusiness advisers in understanding the complexities of research and development and translating this information for growers.

Whilst demand for the services of expert advisers is strong, advisers also face their own challenges: burnout from long hours and travel; availability of suitably qualified staff; ability to source good quality information; increasing operating costs; and low profitability of grain growers." (Keogh and Julian, 2014)

Through the project, CoP members and the project managers have gained an understanding and experience with the processes, people and technological aspects of an eXtension system. Additionally, they have learned what is involved in establishing and operating CoP and learning networks and the tasks of collating and sharing knowledge about extension processes (especially in online settings).

This project was initiated by the Grain Research and Development Corporation (GRDC) and the Victorian Department of Environment and Primary Industries (DEPI) who, with the support of the National Grains Research and Development Strategy Implementation Committee; formed a tri-partite partnership with the eXtension Foundation in the United States to trial the eXtension model developed in the United States in the Australian grains industry.

Key Features of eXtensionAUS CoP Approach are:

1. It provides access to a wide pool of expertise and research;
2. it has contributor agreements that enables quick internal peer review for any information or advice that is provided;
3. it is provided nationally and is convenient, fast, free and independent;
4. it is not content specific, but is driven by current issues and end user requirements;
5. information can be customised to suit individuals and they can engage to and fro with the CoP members.

The project achieved a "proof of concept" with it's key stakeholders in March 2015 and each CoP has continued as a three year GRDC project since July 2015.

The CoP are now hosted on an Australian developed and managed platform provided by the Rural Research and Development Corporation (RIRDC).

Objectives of the Project: The main objective of the project was to test the applicability of the eXtension USA model for the Australian grains industry.

The through the Learning Networks the objectives have been:

1. Provide an opportunity for stakeholders to gain understanding and experience with the processes, people and technological aspects of an eXtension system and what is involved in establishing and operating learning networks.
2. Collate and pool knowledge about extension processes (especially in online settings).
3. Develop the capabilities of those involved in the learning network pilots to assist them work in new ways and support collaboration across regional, State, business, organisation and industry boundaries using an eXtension model
4. Provide an opportunity to strengthen knowledge exchange and the efficient delivery of grains extension, information and decision support services using web-based platforms.

METHODOLOGY

A Community of Practice (CoP) is a broad range of subject matter experts/content providers (from a range of agencies) who are willing to formally network and collaborate together to share knowledge and information with users.

Communities of Interest (CoI) are people with common interests and issues that use "Communities of Practice" as a resource. They are information and knowledge consumers. They may have no other connection other than their shared interest.

A Learning Network is what CoP and CoI form as they engage and interact between each other, to share information and expertise for the mutual benefit of all parties.

There are approximately 120 experts involved across the two CoP. The member's organisations and themselves as individuals, have agreed to contributor agreements which grants them the license to operate together and use a peer review process as a community; without the need to seek publishing approval through their individual organisations. This makes the CoP responsive, flexible and agile in respect to gather and disseminating research and development information to the CoI.

The contributor agreements had to be adapted from the American versions to suit Australian laws and the specific requirements of Australian research, development and extension organisations.

The processes used to develop information, review it and publish it followed the American workflow process; but were modified to suit the compliance requirements set out in the Australian contributor agreements.

Each CoP meets monthly to discuss issues and identify a scope of collaborative work for the coming month. Topics are identified and relevant research and development information sourced. Information is not republished, but rather curated and linked to. Posts are placed on a website (www.extensionaus.com.au) for each CoP in an article style, that links to the sources of research and development information. The topics are promoted and the website posts linked to via Tweets and Facebook posts.

For topics that require more detailed information, YouTube clips are produced and linked to in the posts on the Website and also in the Twitter and Facebook accounts. These are taken by CoP members, who are trained in how to take short video clips using their smart phones. These clips are then edited and published by the CoP support staff.

The CoP support staff comprises a Project Manager at approximately 0.6 of their time and an IT adminstrative person to assist manage, edit and post information at approximately 0.3 of their time.

The project describes the interplay they use across the different online tools as "The Suite Approach". Using this approach, all the online tools are used in a coordinated fashion:

- To engage people in eXtensionAUS a direct email, text or personal engagement via an event is important. This then gets them involved with the different media channels.
- To keep people aware, the suite approach is particularly useful; with key posts being placed across all media channels.
- For explaining more technical or complex information, YouTube clips are an important tool. Links to them are then imbedded in the other communication channels.
- It is also very important the CoP imbed links to their stakeholder's information. For example, if a State organisation publishes some information on their website, rather than republish it is important that eXtensionAUS directs its members and end users to that source. Vice versa, having other organisations link to eXtensionAUS is an important source of traffic to the channels.
- End users can engage with the experts in the CoP through Ask and Expert, which is a tool on the website where questions can be posted. They can also engage via Twitter, Facebook and commenting on posts.

On inception of the CoP, the members participated in a two-day induction and training workshop that included some introduction and training in the use of online tools. Since that time, the members have been supported by a project management and leadership team that has led a continuous improvement process in the application of online tools.

eXtensionAUS focusses on being an evolving, virtual, customer-centered on-line learning environment that provides the most current, objective, research-based information for anyone, at any time, on any device, and in any location in respect to the chosen topics.

Key points of difference between eXtensionAUS and other existing networks are:

1. It provides access to a wider pool of expertise and research
2. It has contributor agreements that enable automatic peer review before any information or advice is provided
3. It is provided nationally and is convenient, fast, free and independent
4. It is not content specific but is driven by current issues and end user requirements

5. Information can be customised to suit individuals

The project was enabled by the formation of a partnership between GRDC, Agriculture Victoria and eXtension from the United States (www.extension.org). The two CoP used the principles, practices and platforms of eXtension from the USA (www.extension.org) to test the concept in Australia.

The project achieved a "proof of concept" with it's key stakeholders in March 2015 and each CoP has continued as a three year GRDC project. The CoP are now hosted on an Australian developed and managed platform provided by the Rural Research and Development Corporation; who have a project that is offering a CoP hosting service to any interested Australian organisations.

Monitoring and Evaluation

The following monitoring and evaluation activities have been used:

- Online survey of CoP members – 40 respondents,
- Focus Group Meetings – 40 CoP members, project management personnel and partner organisation members participated in a two day evaluation workshop. A range of whole of group and individual CoP group evaluation activities were undertaken as well as activities with the Project Steering Committee and CoP leadership groups,
- Analytics – each tool has been monitored (Website, Twitter, YouTube, Ask an Expert),
- Semi Structured Interviews with 20 Community of Practice members, project partner members and the project national steering committee have been conducted.

RESULTS AND DISCUSSION

Use of Online Tools by CoP Members

Table one shows the change in the use of online tools by CoP members as a result of their experience in the project.

Table 1. Change in use of online tools by CoP Members

The PRIOR and AFTER being involved with eXtensionAUS response on CoP Member use of tools in their work						
Answer Options	**Prior% After%**	**Daily**	**Weekly**	**Monthly**	**Every few months**	**Never**
Twitter	**Prior**	17.5%	20%	7.5%	2.5%	52.5%
	After	42%	24%	5%	8%	21%
YouTube	**Prior**	15.3%	15.3%	28%	26%	15.3%
	After	16%	37%	21%	13%	8%
Industry websites	**Prior**	30%	37.5%	22.5%	10%	0%
	After	32%	42%	16%	10%	0%
Video meetings (e.g. Google hangout or skype)	**Prior**	2.5%	12.5%	20%	35%	30%
	After	5%	24%	39%	29%	2.5%
Webinars	**Prior**	2.5%	2.5%	27.5%	47.5%	20%
	After	2.5%	13%	50%	24%	10%
Google plus and it's tools (e.g. Google docs, google communities etc)	**Prior**	7.5%	5%	5%	5%	77.5%
	After	24%	8%	21%	26%	21%

The use of YouTube, Twitter, video conferencing and the google+ tools were all found as being useful and the majority of CoP members are now networking more frequently with their peers and 82% have expanded their professional networks.

Table two shows how CoP member respondents use of online tools has changed over the life of the project thus far. The project has accelerated the experimentation, adoption and frequency of use of online tools.

Table 2. What activities pilot CoP participants undertook and how useful they found them

Activity	% Occurred for	Not useful	Somewhat useful	Useful	Very useful	Extremely useful (It is now integral to my work)
Learnt some new technical information	75.00%	2.78%	27.78%	33.33%	27.78%	11.11%
I am better kept up to date with what is happening Australia wide in respect to field crop diseases or crop nutrition	72.22%	2.78%	30.56%	30.56%	27.78%	8.33%
I have expanded my professional networks	71.79%	2.56%	23.08%	15.38%	51.28%	7.69%
I have watched eXtensionAUS YouTube videos	65.63%	6.25%	25.00%	46.88%	6.25%	15.63%
I now interact more frequently with my professional networks	61.29%	9.68%	29.03%	19.35%	32.26%	9.68%
I used some online tools eg Twitter, google plus etc for the first time by being involved	62.07%	6.90%	10.34%	37.93%	34.48%	10.34%
I have used content from the posts to the website	45.00%	15.00%	30.00%	20.00%	30.00%	5.00%
I have followed and used the twitter feeds	64.71%	17.65%	32.35%	17.65%	11.76%	17.65%
I have recommended eXtensionAUS resources to others	63.64%	9.09%	15.15%	39.39%	18.18%	15.15%
I have used google hangouts	62.07%	13.79%	17.24%	24.14%	17.24%	27.59%
I have used google docs	65.52%	3.45%	34.48%	17.24%	27.59%	17.24%
I have used g+ communities	60.00%	16.00%	32.00%	20.00%	16.00%	16.00%
I have learned how to work in new ways in online environments	69.70%	3.03%	21.21%	24.24%	33.33%	18.18%
I have increased my reach to my own community of interest (grain growers, service providers etc)	54.17%	16.67%	29.17%	16.67%	25.00%	12.50%
I have taken information and customised it for my needs	47.83%	21.74%	13.04%	21.74%	34.78%	8.70%

Online Tools

Website

The website, www.extensionaus.com.au, that the CoP publish to has had 18,050 individual users from July 1st 2014 to April 30th 2017. Table three shows how they have come to access the site. It shows the equal importance of the four key means users are discovering the site: Direct, Organic Search, from a Social Network and via Referral.

Table 3 – Users and How They Access the Website

Access	% of Total Sessions	% of New Users
Direct (Type in the URL or use a bookmark)	25.29%	27.05%
Organic Search (via a search on a search engine)	25.77%	24.41%
Social (from a social network)*	25.14%	16.72%
Referral (via another website by clicking link)	23.08%	31.46%
Email (by clicking a link in an email)	0.63%	0.9%
Other	0.09%	0.08%

Twitter Accounts

Each Community of Practice established a Twitter account in January 2014. As of April 30th 2017 @AusCropDiseases had 2,168 followers and had tweeted 2,179 times and @AuCropNutrition had 2,663 followers and had tweeted 3,402 times.

- 81.33% of Social Network referrals to the website have been from Twitter.
- 20.44% of all sessions on the website originating from users clicking a link in a tweet.
- 14.6% of new users to the site come via clicking a link in a tweet.

Cross promotion/cross linking is a key strategy. A typical example being; Twitter was used to promote a webinar. This resulted in 247 pages views on the website post that contained the webinar details and then 53 people attended the webinar.

YouTube

Each CoP established a YouTube Channel in January 2014. They have trained a number of CoP members in how to make short videos using their smart phones. As of end of March 2017 the Field Crop Diseases CoP had published 30 videos and Crop Nutrition 43.

Field Crop Diseases have had a total of 1,980 views, with a range of 7 views to 247 views per video and an average view of 66. Crop Nutrition have had a total of 5,422 views, with a range of 27 views (only posted for one day) and 424 views per video. With an average of 126 views per video.

Facebook

Field Crop Diseases Facebook page was created in July 2015 and has 509 page likes.

Crop Nutrition established March 29th 2017 and as of 30th of April 2017 has 84 page likes. Facebook is the most recently implemented online tool, but even so uptake of this tool by the CoI has been slow compared with the uptake of the Website, Twitter and YouTube channels.

Table four shows how relevant the online survey respondents believed the information provided by eXtensionAUS is to the CoP and CoI members.

Table 4. How relevant is the information provided by your CoP to it's members and CoI?					
Not all all	**Somewhat relevant**	**Relevant**	**Very relevant**	**Extremely relevant**	**Response Count**
0% 0	**10.5%** 4	**47.5%** 18	**31.5%** 12	**10.5%** 4	**100%** 38

Table five shows how timely the online survey respondents believed the information provision was.

Table 5. How timely is the information provided by the CoP					
Not all all	**Somewhat timely**	**Timely**	**Very timely**	**Extremely timely**	**Total**
0.00% 0	**22%** 8	**47%** 17	**20%** 7	**11%** 4	**100%** 36

Table six shows how the support of CoP participant managers has changed over time and highlights that management support does not appear to be a critical factor, at least so far in the project, for the online survey respondents.

Table 6. Has the support of your manager changed over time?				
I don't have a manager	**Decreased**	**Unchanged**	**Increased**	**Total**
2.5% 1	**0%** 0	**82%** 32	**15%** 6	**100%** 39

Table seven looks at the interest from organisations as a whole and shows that ongoing interest in the project by the organisations of the online survey respondents has increased and is likely to be there into the future, at least in the short term.

Table 7. Has the interest in ExtensionAUS of your organisation changed during the life of the project?				
I am not a member of an organisation	**Decreased**	**Unchanged**	**Increased**	**Total**
2.50% 1	**0%** 0	**42.5%** 17	**55%** 22	**100%** 40

Beet Western Yellow Virus Outbreak Experience

The Beet Western Yellows Virus (BWYV) is an aphid-borne virus that causes yield and quality losses in canola. It also infects other crop and pasture species including mustard, chickpea, faba bean, field pea, lucerne, medic and subterranean clover. While BWYV is usually found at low levels each season, a serious outbreak of this virus damaged crops during the Australian winter period in 2014.

With the outbreak of beet western yellow virus the CoP commenced to provide key information on the disease and it's spread on their Website and through their social media channels. Visitor numbers per day then doubled to peak at 523 page views on July 23rd 2014. Outside of the project landing page, the most popular page for the year 2014 was "Spread of Beet western yellows virus" which had 1,456 page views.

The outbreak showed how the eXtensionAUS approach can engage nationally, but then be of particular benefit for regionally specific issues.

Key Stakeholder Statements on eXtensionAUS

Chris Sounness CEO, Birchip Cropping Group (BCG) – *"Since the launch of the eXtensionAUS initiative, BCG research and extension staff have come to appreciate its value as a reliable and timely source of information for growers and advisors. As issues or opportunities arise during the busy growing season, the eXtensionAUS website is emerging as the first port of call to seek reliable information, expertise and advice. The high calibre of Community of Practice (CoP) experts gives the users confidence when making decisions based on the information provided on the website."*

Mark Stanley, Executive Officer, Ag Excellence Alliance – "*Ag Ex have embraced new e-communication technologies, and has been a leader in the use of YouTube, Facebook, Twitter and the development of an interactive web site to communicate with and support its fifteen grower group affiliates across South Australia. Ag Ex has supported the eXtensionAus project and sees this initiative as the next logical step for the grains industry to embrace e-communications technologies and is excited by the prospect of working with grower groups from across South Australia in the delivery of this project."*

Craig Wood, Associate Director, eXtension USA – *"The eXtension Foundation benefits from this project through learning how to scale our technology and increase the scope of our applications. Our existing partnership with eXtensionAUS has resulted in increased enhancement of our tools with improved interfaces and designs for our domestic users. US eXtension has also used many of the lessons learned or best practices identified in working with the Australian learning networks and applied them to improve eXtension's ability to work virtually with our domestic learning networks. The knowledge gained has improved our business operations."*

Rob Norton (International Plant Nutrition Institute) – *"It has been my pleasure to be involved in eXtensionAUS for the grains industry, supported by the Grains Research and Development Corporation, the Victorian Department of Environment and Primary Industries and the New South Wales Department of Primary Industries. I have been involved through the community of practice, acted as a topic expert, served as Chair of the nutrition group and participated in the workshops that have supported the development of the project to this point. The organisation I represent – the International Plant Nutrition Institute – is a global organisation with initiatives addressing the world's growing need for food, fuel, fibre and feed. Our network stretches across 52 countries with staff in 15 across the globe. We work with research and extension groups to develop and promote nutrient best management practices (BMPs) for nutrient stewardship and encourage the concept of applying the right product (source), at the right rate, at the right time and in the right place. We have been closely involved in adoption of social media to reach out to our stakeholders and see that in the time it has been running, the eXtensionAUS project here in Australia has become a reliable, timely and effective communication channel for growers and advisors. We have provided technical information and our own extension materials to support the project and will continue to do so."*

Steve Marcroft, Marcroft Grains Pathology (MGP) – *"The challenge for MGP is to get information out to industry in a timely manner. We do not have a team of agronomists who can inform individual groups so electronic distribution is our preferred technology transfer method. Agronomists and growers also now prefer our recommendations electronically as they can simply log on to their tablet and know that they are accessing the latest information. The eXtensionAUS initiative is the way of the future for agricultural small businesses to ensure that the message can be quickly distributed and adopted by the entire Australian grains industry. It means my business can concentrate on collecting data, determining the industry recommendations and we can then use the eXtensionAUS system to enable industry to access our recommendations. The eXtension program also has the added benefit that canola growers and industry can contact us when they see unusual levels of disease in their growing region. Currently we are sent samples and photos on a very ad hoc basis. The platforms within eXtension such as "Ask an Expert" and sharing of answers has the potential to create a strong two way information flow. This will greatly improve the knowledge flow within the canola community and it will greatly increase the probability that issues will be identified as they occur. Marcroft Grains Pathology has been involved with the project since it's inception and is keen to continue and build on the current collaboration."*

Charlie Walker, Technical and Development Manager, Incitec Pivot Fertilisers – *"While participating in the eXtensionAUS project, IPF staff have recognized the platform as an agile means for conveying timely, relevant information to farmers and advisors with the assurance that information is from credible sources. The balanced mix of an established on line platform supported by a panel of industry experts has proven successful in highlighting emerging issues as they arise along with provision of possible management solutions. As plant nutrition is often considered the poor cousin to crop protection and genetics in the advisory world, it is vital that clear, concise and vetted information is freely available regarding this significant farm investment. In addition the eXtensionAUS platform provides a rapid feedback loop for researchers and policy makers to capture emerging issues, problems and trends in the industry that would have previously been aggregated by conventional survey methods. As an industry partner, IPF recognizes the ability of eXtensionAUS to fill the gap left by the withdrawal of many state government extension services and as such is prepared to continue in kind contribution to the initiative including product and lab information and research data."*

Conclusion

The eXtension model developed in the USA has shown great applicability to the Australian grains sector. This has resulted in the GRDC continuing each CoP and RIRDC building a platform to support the development and implementation of CoP in Australia across all rural industries. Key stakeholders have shown strong support for the project and all CoP members have indicated they wish to stay engaged.

All stakeholders have gained an understanding and experience with the processes, people and technological aspects of an eXtension system and what is involved in establishing and operating learning networks.

The model has not proved to not be a turnkey solution for Australian stakeholders, but has required adaptation in respect to developing contributor agreements to suit Australian circumstances and some changes to how content is developed, reviewed and published.

The project has been developing the capabilities of those involved in the learning networks and is assisting them to work in new ways. It is supporting collaboration across regional, State, business, organisation and industry boundaries using the eXtension model.

Particular improvement in capability has been demonstrated by:

- A significant change in the frequency and competency of using online tools;
- improved networking and more frequent interactions;
- improved collaboration;
- improved access and use of technical information;
- the use of online tools in a coordinated, suite approach.

Knowledge about extension processes (especially in online settings) has been collated and pooled. Of particular significance is the evolution of the suite approach that uses the online tools in a coordinated fashion.

The result that CoI discover the website almost equally between an online search for relevant information, typing in the URL, clicking through from a tweet and via clicking a link to eXtensionAUS from another website; was also an important discovery.

Increased CoP member use of YouTube, Twitter, video conferencing and the google+ tools proved to be particularly significant.

The project has discovered that the Website is the most important tool, as its reach is by far the greatest with 18,050 individual users from July 1st 2014 to April 30th 2017.

Twitter is the next most important, with each CoP account having over 2,000 followers and this tool assisting nearly 25% of the new users discover the Website.

YouTube is important for conveying detailed information; the Field Crop Diseases CoP YouTube channel has had 1,980 views, and the Crop Nutrition CoP have had a total of 5,422 views.

Facebook has been the most recently implemented tool, but rates of adoption and engagement via this medium do lag behind the other tools.

All CoP members have remained engaged with the project and they state that the key benefits are:

- Improved networking,
- learning to work in news ways in online environments,
- being able to respond quickly to industry issues as they arise in a collaborative fashion and,
- providing access to good quality technical information that can be customised to suit different needs and circumstances.

This result shows the ability of the project to strengthen knowledge exchange and the efficient delivery of grains extension, information and decision support services using web-based platforms.

The interest research, development and extension organisations have of the project has increased and there is strong support for the project to continue.

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