

GRDC Final Report

Southern Pulse Extension

AUGUST 2017 – MARCH 2021

Building capacity, skills and knowledge for the pulse industry in the Southern Region: Supporting expansion of high value pulses into new areas and ensuring sustained profitability of all key pulse crops in existing areas.

Report prepared by BCG and ENFAC Consulting for project BWD1709-002SAX
BIRCHIP CROPPING GROUP |

Contents

Project Summary.....	3
Activities & Outputs	4
Outcomes.....	7
Discussion and Findings	18
Recommendations	21
Monitoring & Evaluation.....	20

Project Summary

Pulse crop expansion in the southern region relied heavily on targeted extension methodologies and agronomy trials. Advisors, facilitators, and project personnel played a key role in making this happen during the project from October 2017 to March 2021.

The GRDC investment 'Building capacity, skills and knowledge for the pulse industry in the Southern Region: Supporting expansion of high value pulses into new areas and ensuring sustained profitability of all key pulse crops in existing areas' aimed to deliver information to growers around the farming system and financial benefits of pulse crops. This was done in existing and new areas to pulse production.

Throughout this project, the Birchip Cropping Group (BCG) worked with a consortium of grower groups, consultants and state agencies to deliver against the objectives. These groups included, Agriculture Victoria, SARDI, Ag Consulting Co, EPARF, AIR EP, Upper North Farming Systems (UNFS), Pinion Advisory, Mackillop Farm Management Group (MFMG), Mallee Sustainable Farming (MSF), Riverine Plains, ENFAC Consulting, Astute Ag, POD Media. In addition to project personnel, a project steering committee made up of researchers and advisors was formed to provide guidance to the project team. This included Ag Consulting Co, AGRIVision Consultants, Sparke Agricultural and Associates, SARDI, Agriculture Victoria, Pulse Australia and Pinion Advisory.

The project confirmed that growers have a high need to look, touch and talk at physical trials. In addition to this the peer-to-peer learning, which included paddock-based learning, was crucial to the success of the project. This was done through the establishment and facilitation of 12 pulse Check groups, which enabled peer-to-peer learning, major industry events (field days and crop walks), webinars and targeted workshops.

As a result of this project, the target of 24 advisors and an additional 96 growers now have an improved understanding of pulses and the benefit they provide to the farming system. For existing pulse areas, growers further developed their skills through major events and experiencing the benefit of agronomy trials in local areas.

Profitability of pulse rotations was further explored through the development of a gross margin rotational tool by Pinion Advisory. Grower feedback was very positive about this tool at the Pulse Check meetings and the ease of use has meant many growers have subsequently asked for copies of it.

Growers in new areas were given the confidence to try new pulses, due to the 12 discussion groups which took place across South Australia and Victoria. This small group methodology, where groups met four times/year (equalling a total of 130 meetings over the life of the project) for a mixture of presentations, facilitated group discussion and trial site tours was the key to success in growers gaining confidence. Group facilitators reported small face to face groups were the key to the success as it promotes knowledge transfer and has a large ripple effect. Advisors contribute in playing a part to this ripple effect, which is a direct consequence of the Southern Pulse agronomy trials and access to high quality speakers/researchers. It was reported that growers are more likely to ask questions in a small group setting where they feel comfortable.

This project provided a huge benefit to advisors as they were exposed to training opportunities at Pulse Check meetings, crop walks and field days. The project reached 418 advisors and 1831 growers through Pulse Check meetings and workshops attendance (includes all grower engagements).

Final project participant evaluation reported an average score of 5.5 out of 7, when surveying whether growers had increased their knowledge about pulse cropping due to the project activities.

Furthermore, growers indicated that they had an increased confidence to introduce/advice/invest in pulses cropping because of the project activities which returned a score of 5.4 out of 7 in the final project survey.

Activities & Outputs

OUTPUT 101: PROJECT STEERING COMMITTEE

The project steering committee (PSC) was formed in 2017 and comprised of Bill Long (Chairman), Kate Wilson, Matthew Sparke, Jason Brand, Jenny Davidson, Penny Roberts and Phil Bowden. The PSC provided guidance to the overall project to ensure all activities were relevant, informed key in season activities and approved the annual operating plan each year. The PSC met twice/year except during 2020 when they met once face to face and subsequently on Zoom. Minutes of each meeting were documented and circulated to committee members.

OUTPUT 102: ANNUAL OPERATING PLAN

The Annual operating plan (AOP) was developed in all years of the project to help inform and guide the direction of the project for that year. The AOP for 2020 had significant time put into it, to reflect the changes to the final year of the project surrounding the financial analysis of the project.

OUTPUT 103: ESTABLISHMENT OF PULSE CHECK DISCUSSION GROUPS

Pulse Check groups were established in 12 locations across the Southern region in October 2017. Following the EOI process, 9 groups were initially established, however it became evident some regions experienced greater demand than could be covered by these groups and subsequently GRDC approved an additional three pulse Check groups, completing the 12 groups.

These included:

1. SA; Wudinna (moved from Kimba in February 2020) (Previously EPARF, now AIR EP)
2. Cummins (Previously LEADA, now AIR EP)
3. Lock (Ag Consulting Co)
4. Cleve (Ag Consulting Co)
5. Napperby (UNFS)
6. Loxton (MSF)
7. Mannum (MSF)
8. Coomandook (moved from Keith in February 2019) (MFMG)
9. Pinnaroo (moved from Nandaly in June 2019) (MSF)
10. VIC; Pyramid Hill (BCG)
11. Murchison (moved from Dookie in February 2020) (Riverine Plains)
12. Werrimull (MSF)

An initial survey was conducted by all participants to gauge level of understanding around pulse growing, surveys were submitted to ENFAC Consulting for monitoring and evaluation (Appendix 1.)

OUTPUT 104: DELIVERY OF PULSE CHECK DISCUSSION GROUP ACTIVITIES

Since the commencement of the project in October 2017, there have been 14 rounds of meetings for the 12 pulse Check groups. This was carried out through four meetings/year for each group, which was made up of a pre-sowing meeting, post establishment, pre-canopy closure and then pre-harvest. In the final year of the project (2020) some groups made amendments to their plans based on grower feedback of four meetings being too many in one year and hence these groups delivered three meetings during the 12-month extension of the project.

Facilitators were responsible for organising the meeting, any guest speakers if required, facilitation on the day and grower engagement.

2017: Meeting #1 Crop topping, harvest logistics set up and fire risk, retaining seed, marketing, and paddock selection.

2018:

Meeting #2 Pre-sowing meeting. Post-harvest review, selecting varieties and NVT results, paddock selection, herbicide strategies (at sowing and residual herbicides), inoculants and seed dressings, soil ameliorants, nutrition, sowing time (rates and depth), disease management decision pre-sowing.

Meeting #3 Sowing review, measurements, weeds/herbicide damage in the early establishment phase, disease in the early establishment phase, pests in the early establishment phase, marketing opportunities, field peas, faba beans, lupins, and vetch.

Meeting #4 Pre-canopy closure, disease and insects.

Meeting #5 Pre-harvest weed seed set control, crop-topping, narrow windrow burning, marketing pulses, storage

2019

Meeting #6 Nitrogen fixation and rhizobium, inoculants and seed dressings, acid soil amelioration and fungicide seed treatments.

Meeting #7 Herbicide resistance update, @risk.

Meeting #8 Insects pests.

Meeting #9 Marketing; lentils peas, chickpeas

2020

Meeting #10 Pre-sowing planning (all facilitators together in Adelaide)

After this meeting, facilitators indicated that they did not need a dedicated meeting to plan out meeting content and consequently facilitators were then encouraged to listen into the monthly public webinars and contact project leader for any meeting assistance as required.

Following the completion of each pulse Check meeting a facilitator survey was completed for each meeting, this included feedback from growers, attendees, facilitators, what was covered, suggestions for future improvements.

At the completion of the final pulse Check meeting (February/March 2021) all grower participants completed a follow up survey to capture key learnings on pulses from the investment and improvements. Facilitators sent this out electronically and hard copies at the final meeting.

OUTPUT 105: COMMUNICATION ACTIVITIES

Pulse Australia developed promotional material prior to each round of Pulse Check meetings. This included advertising for the meeting specifically for each group and promotional marketing for upcoming webinars.

Case studies were developed as part of the project. These included 14 researcher case studies and 13 grower case studies which were developed by Sandra Godwin of POD Media. For the grower case studies, one grower from each group was put forward to be interviewed based on varying pulse activities they are doing on farm. Researcher case studies was a mixture of early pulse career researchers and experienced researchers.

Case study topics included:

1. Nitrogen fixation
2. Pulses on acid soils
3. Soil herbicide residues
4. Pulses on sands – ground cover on hills v flats
5. Inoculants
6. Fungicide application and gibberellic acid
7. Controlling wild radish
8. Growing pulses under low rainfall environments
9. Pulses – frost, heat and drought
10. Marketing and handling of pulses
11. Facilitation evaluation and developing a discussion group
12. Vetch and grazing

The researcher case studies accessed the following people for experiences in pulse production and agronomics:

1. Sara Blake
2. Josh Fanning
3. Arun Shunmugam
4. Penny Roberts
5. Amy Gutsche
6. James Manson
7. Audrey Delahunty
8. Liz Farquharson
9. Dylan Bruce
10. Sarah Day
11. Blake Gontar
12. Mitch Fromm
13. Navneet Aggarwal
14. Babu Pandey

They are attached in Appendix 2-13 as a final draft (completed grower case studies).

In the first two years of the project facilitators were provided with technical notes to help plan and implement each Pulse Check meeting. These were distributed to facilitators prior to each round of meetings.

During the final year of the project some changes were made to the webinar notes. The five webinars held in 2020 had one-page summary notes produced from each of them by Astute Ag (Appendix 14- 18)

OUTPUT 106: EXTENSION AND ENGAGEMENT VIA MAJOR INDUSTRY EVENTS

The project had strong linkages with the GRDC Southern Pulse Agronomy project at major industry events this was delivered through a range of opportunities across Victoria, South Australia and Tasmania. Events throughout the project included Wimmera field days, Tooligie field day, GRDC Updates and local grower group trial site tours.

Over the life of the project a total of 118 events were held of different formats including Advisor updates, attendance at field days, grower groups crop walks etc. As a result of COVID-19, delivery in 2020 had to be adjusted to accommodate the inability to have face to face meetings as easily. As such, 10 events were delivered electronically to maintain reach of project outcomes of the project.

OUTPUT 107: WORKSHOPS

Workshops consisted of webinars. 10 webinars were run in each year of the project, five of which were pre-sowing and five in-season (with one/month during the growing season). These were targeted around technical and timely topics to ensure maximum relevance for growers and advisors. They were generally on a specific topic including: Growing beans, lentils, chickpeas, field peas, vetch, pulse pests, pulse diseases, pulse frost ID. Workshop numbers consisted of the following, 2018 - 7, 2019 – 20 and 2020 – 21, this comprised of workshops in person and webinars.

OUTPUT 108: ENGAGEMENT WITH AGRIBUSINESS AND CORPORATE AGRICULTURE

Agribusiness was engaged throughout the life of the project to ensure that agronomists are up to date with the latest information which they can disseminate across the Southern region.

There were invitations for various agribusiness groups to have individual private trial tours to sites such as the Curyo and Wimmera Southern Pulse Agronomy trials. Private and targeted webinars for agribusiness was also held across South Australia and Victoria.

OUTPUT 109: CONTENT DEVELOPMENT AND TECHNICAL REVIEW

Prior to each pulse Check meeting a short informal webinar was held with the facilitators and a guest speaker. This was called 'train the trainer'. This allowed the facilitators the chance to plan their next meeting and learn information from a guest speaker about topics to present at that meeting. Notes from these meetings were recorded and distributed to the project personnel by Katherine Hollaway, Astute Ag. This ensued that all facilitators knew what they were presenting on at the next meeting and provided a strong mechanism for communication between the 12 facilitators and project manager. The notes prepared by Katherine ensured that there was consistency between the messages that were being delivered to all growers involved in the pulse Check meetings. After a project meeting in August 2019, feedback from the facilitators was they no longer felt these meetings were necessary as their skills evolved over the life of the project. From this point there was no more of the 'train the trainer' webinars.

Outcomes

This investment had the following aim:

The purpose of this investment is to realise the potential long-term farming system and financial benefits of pulse crops in the Southern Region through targeted expansion of lentils and chickpeas into new areas and sustainable intensification of pulse crop production in existing areas.

By March 2021, growers and advisors in the southern region will have improved skills and knowledge relating to profitable pulse crop production and agronomy allowing them to exploit the systems and financial benefits of pulse crops in a sustainable manner.

Growers and advisors will have improved confidence in the agronomic management of key pulse crops for their sub-region; an awareness of the major risks associated with production; and appropriate management strategies in place to mitigate risks identified.

An additional 24 advisors presently with no or limited knowledge of pulse crop agronomy will possess the basic skills and knowledge to support pulse crop expansion into new areas. An additional 96 growers presently with no or limited knowledge and confidence in pulse production will have, at minimum, a competent understanding of basic principles of these crops and possess the confidence to sustainably integrate these crops into their farming systems to improve farm profitability.

OUTPUT 101: PROJECT STEERING COMMITTEE

The project steering committee met twice per year during the project (except during 2020), mostly in person. The role of the PSC was to support the project management team and provide guidance to the project activities. In the early years of the project the PSC discussed some of the concerns of the facilitators, which included interest in lentils and chickpeas would wane without locally relevant trials. The PSC discussed the need to incorporate a stronger modelling focus into the Pulse Check groups and were keen to ensure that facilitators are involved in this process.

The PSC expressed concerns around the timing of the establishment of Pulse Validation as part of the Southern Pulse Agronomy project and risks associated if trials were not established in the first year of the project.

When the chickpea and lentil tariffs were imposed on Australia by India the PSC met to discuss broadening the scope of the project to include more pulses.

The PSC achieved the desired outcomes of the project through the direction and guidance they provided to the project team and all the pulse Check facilitators.

OUTPUT 102: ANNUAL OPERATING PLAN

The Annual operating plan achieved its purpose which was to provide guidance to the yearly activities and consequently ensure that the project was meeting all outputs.

OUTPUT 103: ESTABLISHMENT OF PULSE CHECK DISCUSSION GROUPS

Pulse Check groups met once in 2017, four times per year in 2018 and 2019. In 2020 some of the groups proposed to meet 3 times per year (due to the feeling of meeting fatigue). All groups held a final meeting in February/March 2021. A summary of the number of attendees for each group over the life of the project is in Appendix 19 – final M&E report.

OUTPUT 104: DELIVERY OF PULSE CHECK DISCUSSION GROUP ACTIVITIES

The request for changing group locations was run past the GRDC project manager each time. The reason for moving group locations was to ensure delivery. This was low attendance in the locations

they originally started in. The facilitators felt the changes resulted in better attendance at the new locations. One location was changed due to facilitator involvement which had low grower attendance and subsequently a new facilitator was engaged in the new location.

Based on feedback, the @risk tool was presented to all groups during 2019. The feedback consisted of the model having too much variability and therefore didn't mean a lot without their own specific figures in it. Some thought the explanation of @risk was not clear enough for growers. Another aspect of feedback was there was not enough enthusiasm in the delivery of the tool from the facilitators. This was possibly driven by a lack of facilitator understanding of the tool. The timing of the delivery of the @risk tool was another barrier to its adoption, based on facilitators feedback.

In early 2020 the PSC endorsed the development of a new tool by Pinion Advisory – which was a gross margin rotational analysis (Appendix 21). This was on the basis that many agronomists do not carry out basic gross margins with their clients. Hence a tool was developed which covered gross margin analysis and covered the risk of pulses in the rotation in a free excel based platform. Consequently, the gross margin rotation tool developed by Pinion Advisory was implemented across all groups at their final Pulse Check meetings in February 2021. This excel based rotation tool is free to use as there is no licence associated with it. The final project meeting offered suggestions for a name for the new tool the uptake of it. Suggestions included, Pulse Profitability Planner, Southern Pulse Profitability Planner, Rotation Risk Reckoner, Proventus. A final decision was made on the name and it is Rotations, Profit and Risk Planner and a explanation document has been made to accompany the tool (Appendix 25).

All groups reported positive experiences from the growers who were exposed to the tool at the Pulse Check meetings. The group managed by UNFS at Napperby had several requests for a copy of the tool (prior to it being sent out). Pinion Advisory ran eight one on one sessions with growers who were very keen on the tool and the benefit it provided. These growers were Ian Nicolson Narridy, Jesse Catt Booborowie, Matthew Starick Cambrai, Simon Ballinger Wolesley, Paul Rudiger Loxton, Peter Frahn Youngusband, Anthony Hunt Merrinee* and Andrew Walter Booleroo Centre* (last two, to be completed by the end of March).

Feedback provided by growers who used the tool (either one on one or at their Pulse Check meeting) was the ease of use of the tool, it gave them a greater understanding of gross margins with the various pulse crops they are growing, and it gave them the ability to easily compare profitability of rotations whilst also giving an assessment of risk of nine rotations.

Anecdotal feedback at various Pulse Check meetings was an increase in grower confidence to grow pulses as they now have a greater level of knowledge and understanding through grower interaction with advisors, researchers, and local trial sites. One grower highlighted that there has been a multitude of topics, it was not one dimensional, and that has kept interest in the Pulse Check group high. The engagement between farmers was strong and the collaboration with SARDI excellent.

OUTPUT 105: COMMUNICATION ACTIVITIES

At the time of compiling the final report, 5 out of the 12 grower case studies have been published in GRDC GroundCover. Feedback from these case studies has been very positive. The topics selected covered a wide range of topics associated with pulses to ensure that growers searching for new information could read about it, in case study form.

In addition to the grower case studies, 14 researcher case studies were developed by Sandra Godwin of POD Media. The case studies showcase and highlight the multitude of skill sets in the pulse

industry working on research for the benefit of local growers. All communication material was approved by GRDC prior to distribution. The researcher case studies are all housed with GRDC and awaiting approval.

OUTPUT 106: EXTENSION AND ENGAGEMENT VIA MAJOR INDUSTRY EVENTS

Major industry events included:

Year	# of Events	Attendees
2017	13 events	306 attendees
2018	26 events	837 attendees
2019	44 events	2129 attendees
2020	23 events	1274 attendees (physical events). (Due to COVID - 10 virtual events with 7500 attendees)
2021	3 events	530 attendees
	Total	5,076 attendees
	Online	7,500 attendees

Total attendees for major events was 5,076 and online events was 7,500. By hosting these events, growers and advisors were able to see firsthand the Southern Pulse Agronomy research trials in their own area. It also allowed for growers and advisors to hear from industry experts and researchers.

Dr. Jason Brand, who presented at 81 events over the life of the project, was awarded the GRDC Seed of light award (Southern) in 2019 and in 2021 was awarded the MSF David Roget award. This showcases the high calibre of researchers the growers and advisors get to hear from at major industry events.

OUTPUT 107: WORKSHOPS

Throughout the project, there were 21 webinars on specialised topics, which in total attracted 517 participants at the time, and which has since had subsequent views of 6165 as at March 2021. There were 21 workshops at research sites or webinars with 431 attendees (Appendix 20).

	# of events	Participants	Subsequent Views as of 12/3/21
Webinars	21	517	6165
Workshops	15	431	431
YouTube	11	7569	7350
Total	47	8583	13946

Tailored workshops allowed growers to know exactly which workshops to tune into as they were short, either 30 mins or one hour, with tailored messages or short workshops in the paddock.

Anecdotal feedback during and after webinars was generally very positive through comments in the chat function and talking with participants afterwards. In season webinars on agronomy issues such as disease were often well attended by agronomists. The timing of the webinars was moved to lunch time to attract more growers. Despite the lower grower attendance at these webinars, agronomists

distributed the key messages to their clients, thereby helped getting the latest information out to growers.

OUTPUT 108: ENGAGEMENT WITH AGRIBUSINESS AND CORPORATE AGRICULTURE

Agribusiness groups were offered personal tours of trial sites, this included groups such as Dodgshun Medlin, AGRivision consultants, Elders, Nutrien Ag, Tyler's Rural supplies, Sparke Agricultural and Associates, Cox Rural. These groups appreciated the chance to visit the trials with their own staff groups. Feedback is the agronomists enjoy the private nature of the tours as they can talk about relevant topics for their own clients. Talking to each of the advisors means that key messages can be easily passed onto their clients and enables quicker extension of the latest pulse agronomy research.

OUTPUT 109: CONTENT DEVELOPMENT AND TECHNICAL REVIEW

All developed content was approved by GRDC prior to dissemination. This included notes from the facilitator private webinars. Protech also were involved to Check any chemical label registrations that were mentioned in any webinars.

Public webinar notes were all provided to GRDC for further extension and to accompany the webinars for those people that prefer reading notes. How these are distributed is in progress of being worked out by GRDC.

Stakeholder Engagement Matrix

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
New/inexperienced pulse growers & advisors in targeted Pulse Check areas	Continued participation in Pulse Check Groups to improve skills and knowledge relating to profitable pulse crop production	Critical	Neutral	High	Increase in skills knowledge as demonstrated in M&E Plan	Pulse Check Discussion Groups and supporting communications	Recurring Pulse Check discussion group meetings and supporting communications will be ongoing. Some Pulse Check groups will change location in 2020 to attract more members	Communications prior to each pulse Check meeting was completed to ensure that not just current members saw the promotional material. Generally, all facilitators were open to inviting new members to each meeting.
Southern Region growers not included in above stakeholder segment	To enhance understanding of the latest developments in pulse crop agronomy through targeted and intensive extension and communication of the outcomes of relevant GRDC R&D projects	High	Neutral	High	Event/workshop attendance and evaluation. Communications product access and uptake	Presentations at events (Output 106), workshops (Output 107) and technical content development (Output 109)	Ongoing. Events (GRDC Updates, field days, internal agronomy trainings and independent consultant's meetings). Communications and crop walks/webinars as per output 107	Events such as field days, presentations at GRDC updates, crops walks were held in both traditional and non-traditional pulse growing areas to encourage the latest pulse information to reach a wider target audience.
GRDC	Project funder	Critical	Supporter	High	Reports are accepted, and project is seen to be meeting stated objectives. GRDC	Quarterly reports and annual results report. Regular project update	Quarterly for reports and monthly for project updates (email)	Regular updates throughout the life of the project were provided to GRDC project manager. Changes in project personnel was overcome with regular communication.

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
					is aware of what project is delivering at all times.	emails from project coordinator. Regular contact with GRDC Project Manager		
Project Steering Committee	To prioritise topics, endorse the AOP, consider ideas and issues raised, act in consultative capacity	Critical	Supporter	High	Project Steering Committee views project and outputs as successful, acceptance of AOP.	Meetings, AOP, regular communications from Project Coordinator	Minimum of two meetings annually, monthly project emails.	The PSC met twice/year. In the final year of the project there was 1 face to face meeting and a zoom meeting was held due to COVID. Project coordinator kept PSC up to date with regular emails.
GRDC Communications Personnel	To distribute project communications through existing channels and avoid duplication of communications efforts	Critical	Supporter	High	The project is attributed through timely and relevant GRDC communications products	Talent lists, calendar of pulse issues/events, suggested Claire topics and formats, pulse stories included in GRDC communications (GroundCover, media releases, GRDC social media etc.)	Quarterly teleconference with, Amy, Katherine and Sandra	Communications were developed in a timely manner. The project coordinator maintained strong communication with Southern Pulse Agronomy and GRDC N fixation project to identify project linkages where possible. All case studies, webinar recordings and written material has been provided to GRDC
Agribusiness & corporate agriculture	To enhance understanding of the latest developments in pulse crop	Critical	Neutral	High	Continuous engagement with the project. Event/workshop attendance and	Consultation with key contacts within existing independent	Ongoing – deliver against recommendations made in Output 108 consultation	Agribusiness were offered the chance to visit trial sites through individual/private crop walks. This also included private and individual webinars.

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
	agronomy through targeted and intensive extension and communication of the outcomes of relevant GRDC R&D projects				evaluation. Communications product access and uptake	consultant networks, Elders, Landmark, Rural Co, AIRR, National Rural Independents and AgLink. Subsequent consultation report	report. Continue to approach for bespoke training and engagement with PC Groups and activities from Output 107.	
Pulse Australia	To ensure project efforts complement, support and extend Pulse Australia efforts	Critical	Supporter	High	Pulse Australia views project and outputs as successful	Involvement in Project Steering Committee. Sharing of Pulse Australia resources to project stakeholders	Ongoing	Pulse Australia were on the PSC and involved in some of the pulse marketing webinars.
Pulse Researchers (and other pulse investments)	To ensure the project is showcasing recent & credible research and collaborating effectively with complementary investments	Critical	Supporter	High	Researchers approach the project to extend their research, projects don't compete for grower time nor deliver conflicting messaging	Regular consultation, communication to industry of research outputs. Frequent engagement with Southern Pulse Agronomy project personnel. Participation in	Ongoing	Regular communication was had with the Southern Pulse Agronomy project leader and also the leader of the South Australian component to ensure that we were reaching the South Australia as well.

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
						other project meetings		
GRDC N-fixation extension projects	To be aware of each project's activities and complement rather than compete	Critical	Supporter	High	Projects collaborate with each other and activity participants (growers and industry) are not confused by both projects	Regular communications between Project Managers and project personnel. Sharing of project documentation	Ongoing	Effort was made to ensure that webinar topics did not overlap to avoid presenter fatigue and utilise resources efficiently.
GRDC Northern Pulse Check Investment	To share learnings and resources across region	High	Supporter	Moderate	Efficiencies are gained by sharing learnings, resources and presenters across regions.	Include northern PC facilitators in project communications	Monthly	Northern pulse Check coordinator was included in email communications.
Grain traders/marketers	To link Pulse Check group members, growers and agribusiness with appropriate pulse marketing information	High	Neutral	Moderate	Traders/marketers engage with project activities	Invited to participate in activities associated with outputs 104, 105, 106, 107 and 109. Upskilling of Pulse Check facilitators	Ongoing	
Grain processing plants	To provide engagement with the Pulse Check group members and	High	Neutral	Moderate	Grain processors and end users get engagement with Pulse Check group members	Pulse processing invited to attend project meetings (online or in paddock) or visit	Ongoing	Some of the Pulse Check groups had visits to grain processing plants.

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
	pulse processing plants and value add sector (ie. Australia Plant Proteins, Lupins for Life, UniGrain)					processing plants.		
Pulse breeders & seed companies	To link Pulse Check group members, growers and agribusiness with appropriate pulse variety information and provide industry feedback on variety performance and future requirements	High	Neutral	Moderate	Project activities are useful to stakeholder from an industry feedback and extension perspective and audience values information provided.	Approached through the SPA project, stakeholders are invited to participate in activities associated with outputs 104, 105, 106, 107 and 109.	Ongoing (potentially 2019)	Pulse breeding companies were invited to present at Pulse Check meetings on an as need basis as facilitators requested them to attend. Seed companies presented at the Southern Pulse Agronomy field days and were also given the opportunity to be involved in videos which were filmed in October 2020.
Chemical manufacturers, fertiliser companies, inoculant providers	To link Pulse Check group members, growers and agribusiness with appropriate pulse agronomic information and provide industry	Moderate	Neutral	Moderate	Project activities are useful to stakeholder from an industry feedback and extension perspective and audience values information provided.	Invited to participate in activities associated with outputs 104, 105, 106, 107 and 109 if deemed appropriate.	Ongoing	Webinars that had a focus on weeds had chemical companies involved and often attendance for herbicide related webinars was very high.

Intended Audience	Purpose of Engagement	Importance	Status	Desired Support	Determinant of success	Communications Approach	When	Status/Comments for Final Report
	feedback on products.							
Farm financial advisors, financiers, farm economists	To link Pulse Check group members, growers and agribusiness with appropriate farm business information in relation to pulse production.	Moderate	Neutral	Moderate	Project activities provide audience with clear information on financial considerations when growing pulses	Invited to participate in activities associated with outputs 104, 105, 106, 107 and 109 if deemed appropriate. Rural Directions benchmarking work (see page 14).	Ongoing	The @risk model was rolled out across all 12 Pulse Check group from Pinion Advisory. Following this a crop rotation tool was developed and this has since been presented to all Pulse Check groups to help inform growers on financial considerations when growing pulses.

Discussion and Findings

The project had a key deliverable around targeted expansion of chickpeas and lentils across the Southern region. Shortly after this project commenced India imposed tariffs on Australian chickpeas and lentils in February 2018, this greatly reduced chickpea plantings in 2018. Consequently, the purpose of the investment was tweaked ever so slightly to encompass more pulses in the project purpose. The discussion group approach was critical in the success of the project and provided growers with a safe environment to ask questions of advisors and researchers after a period working together. The role of the facilitator was crucial to the development and continuation of the groups over time. Facilitators were provided with training on how to facilitate meetings by Jeanette Long, twice during the program. Technical support and content suggestion to facilitators was provided by Tony Craddock. Most facilitators acknowledged the importance of this support and training throughout the program and reported an improvement in facilitation skills and process at the conclusion of the program. The 12 Pulse Check discussion groups met four times per year, which equated to 130 meetings in total.

The mechanism of small discussion groups was beneficial for all parties involved. Throughout the life of the project there was a big leap in skill development of the facilitators particularly around capability and confidence which has left a legacy behind following the pulse extension investment. Groups such as Cleve, Lock, Millewa and Mannum experienced droughts during the project found it incredibly invaluable for the growers to still get together and support each other. Reports from growers in these groups highlighted huge benefits to mental health from getting together in a social setting.

The PSC instrumented an interim monitoring and evaluation report following a discussion about project legacy at the February 2020 project meeting. All facilitators were interviewed by Jamie Allnut and it covered the period from project inception to February 2020. The purpose of this interim report was to evaluate the project (given a 12-month extension had been granted) and to provide information to GRDC about project legacy and evaluation to date (Appendix 23.)

The Pulse Check groups had higher success rates when there were local trials as part of the Southern Pulse Agronomy project. This was important when growers had not seen certain pulse crops growing in their own region, which was a barrier as they were unsure if certain pulses crops would be successful. Growers typically have a strong learning type of kinesthetic (hands on), consequently this model of peer to peer learning is well suited to growers. Growers are visually stimulated and seeing the trials removed some of their barriers to growing pulses.

The model of peer-to-peer learning has built trust into it, which has helped to fast track adoption of new practices and technology. Adoption of new practices typically doesn't happen for five to seven years; this reflects the trust and relationships built in the model.

Why do we want to see increased pulse area sown? Expanding the area sown to pulses allows a greater number of growers in the southern region to realise the financial and the overall system benefit of growing pulses. Informing growers about the benefits of pulses and the potential upsides of profitability to be gained helps them in terms of overall profitability and it also helps with more legume crops grown in rotations in the southern region.

Financial benefits of pulses in rotations were highlighted to all Pulse Check groups through a couple of different mechanisms. The first was the @risk model, developed and presented by Pinion

Advisory to all groups. The approach utilised a rotational analysis tool which incorporated @RISK – an excel-based model that produced outcomes based on the 10th/50th/90th percentiles of ‘risky’ variables (yield and price). The tool generated gross margins from historic prices and a range of yield outcomes for each crop in the rotation sequence. The tool enabled nine different rotational sequences from three to six years in length to be analysed. The program runs through 5,000 iterations of the calculations with the results presented as a distribution graph of gross margin possibilities.

It is then possible to determine the risk of achieving breakeven for each rotation. Feedback from the @risk sessions (both growers and facilitators) was it did not answer all the questions around financial analysis and risk that the project was trying to answer. From this the project team took a step back and decided there was a need for a gross margin tool as it was reported that minimal agronomists and growers were doing basic gross margins calculations. From this the gross margin rotational analysis tool developed by Pinion Advisory presented gross margins for all commodities as well as the risk associated with growing pulses in our regions. This tool is Excel based and hence has no software cost.

Feedback from different growers highlighted their knowledge has increased in pulse cropping. They now feel more confident about knowing how to grow them. This was particularly prevalent in regions such as Dookie and Werrimull where pulses had limited production. An example of grower adoption is in the Dookie group where one grower has spread lime over his paddock using variable rate technology (VRT) and has taken soil samples to test and identify his acid soils areas (Attachment 22).

As the project had a strong event and extension focus, COVID caused some issues in the delivery of face-to-face groups in 2020. However, this was overcome due to the adaptability of the project team to hold meetings via zoom, some groups combined meetings (with the same guest speaker) and videos were made for virtual trial sites visits.

It became evident during the project that facilitators don’t necessarily need to know everything regarding pulse production, however they do need a process and skills for group facilitation and some level of technical knowledge is advantageous.

Group facilitators highlighted the advantages of small groups (10-20 people) compared to larger groups. There were examples where 50 growers attended a meeting, this did not favour group discussion as it inhibited some growers from interacting in the session.

The overarching aim of the project was achieved by the adaptability of the project, with changes always being endorsed by the project steering committee, and successful facilitation, which built up trust and relationships amongst growers and researchers. The project provided proof and demonstration of peer to peer learning, where adults learn from other adults and showed that good planning with the right process and reporting structures in place will result in a good outcome. Future group extension programs should include support for peer to peer learning to ensure a successful outcome. Strong leadership and management of the project also were also key to the success as reported by facilitators during the final project meeting.

Monitoring & Evaluation executive summary – Jamie Allnut

Summary taken from appendix 19 - full M&E report

This project delivered extension activities to increase the knowledge and confidence of farmers and agronomists about pulse cropping in Southern Australia. This in turn could lead to an increase in pulse cropping to provide increased profitability and sustainability for mixed farming systems in Southern Australia.

The main extension activity involved 14 rounds of Pulse Check group meetings across 12 regions. Pulse Check groups are a group discussion or peer to peer extension method. This extension method was applied to this project through the deployment of regional facilitators to run Pulse Check groups with the co-ordination and support of BCG, communications specialists, and researchers.

Other extension activities involved workshops (targeting a broader audience), extension events and communications. Workshops are reported in this report. Extension events and communication activities are outlined in the project report.

This report evaluates the effectiveness of the project against contracted project targets and feedback from participants and facilitators.

The evaluation methods involved, surveys of participants and facilitators at project inception, throughout the project, and at project completion. The surveys contained questions derived from the project's logic or theory of change.

The project completed 152 Pulse Check meetings with approximately 2200 attendances and 12 workshops with 390 attendances. Many of the participants in the Pulse Check groups were repeat attendees indicating strong ongoing interest in the project.

The project was successful in reaching its performance targets for the number of meetings, and the number of farmers and advisors that had increased knowledge and confidence about pulse cropping. The project also established facilitation and small group extension capability across Southern Australia.

The project has also achieved on the ground adoption of pulse cropping. Farmers reported that through their involvement in this project and due to the project activities, many had expanded or changed their pulse cropping.

The evaluation results also highlight a range of other project outcomes and multiplier impacts including social benefits for farmers and networking between researchers, agronomists and farmers.

There was a clear and universal response from both facilitators and project participant's that small group or peer to peer learning is an effective and a preferred extension method. There was strong interest from farmers for this extension method to continue pulses or other agronomic or farming systems issues.

This evaluation concludes that the project has been effective given the:

- meeting of project performance targets
- positive feedback provided from participants across all regions
- survey responses indicating increased knowledge and confidence of participants about pulse cropping

- survey responses indicating that there is likely to be increased pulse cropping as a result of this project
- facilitator feedback about the value of the Pulse Check meetings and peer to peer learning extension method
- the strong level of interest surveyed for the continuation of this type of extension activity in the project regions

This project provides a good model for the implementation of small group discussion groups in other locations and on other topics.

Recommendations

Following the completion of the project there are key areas identified through growers, Pulse Check facilitators and steering committees for consideration in future work. These include:

Delving deeper into agronomic issues:

- subsoil constraints which are barriers to pulse adoption in certain regions, such as Pyramid Hill and Dookie.

Greater facilitation and financial training of gross margin rotational tool:

- Provide a greater level of support for facilitators particularly when delivering gross margin tools
- Encourage group facilitators that they have the knowledge and ability to deliver and run meetings through facilitation, as opposed to getting multiple guest speakers for each Pulse Check meeting.
- Training day for agronomists such as Elders or Nutrien Ag, to help further expand the use of the rotational tool or a greater level of training for facilitators. Some expressed concerns around their financial knowledge.
- Group size. Some groups had 50 growers in attendance in the initial year. Feedback from the facilitator involved, is that next time they would split the group into 2, so its smaller and ensure effective discussion can still occur. Higher numbers?

Allow groups greater flexibility in delivery:

- This occurred in the final year of the project, but meeting numbers could be tailored to group needs, provided M&E can still be effectively completed.

Grower 'buy-in'

- This is important so growers feel a part of the group and have the opportunity to help shape the direction of the group.
- Continuity of grower attendance is important at each meeting as it helps build trust and repour with group members and the facilitator.

Peer to peer learning methodology

- This project has identified that we got the methodology correct for peer-to-peer learning on pulses. The project team feel that methodology could be further adapted to other investments not necessarily about pulses ie agronomic discussion groups – provided they have a clear purpose. Facilitator training is essential for those who have not had training and facilitation mentoring should be provided throughout future programs to ensure consolidation of skills.

Zoom was an effective method during COVID and particularly for getting expert speakers in, but it needs to be combined with physical touch and feel meetings. Feedback from northern Pulse Check

groups were that 'zoom' based sessions solely do not work effectively as growers miss the social aspect of the group. Resources:

- Case studies of growers and researchers be distributed through GRDC networks and then consequently grower groups.
- The rotational tool could also be distributed through the South Australian and the Victorian independent consultant network. Assuming the 25 consultants in South Australia and the 30 consultants in Victoria have 20 clients each, this will create a ripple effect and assist in the roll out and consequently uptake of the gross margin rotation tool.

Appendices

Appendix 1 – Initial M&E report December 2017

Appendix 2 - 13 Grower case Studies

Appendix 14 – 18 Webinar notes from 2020 – 1-page documents

June: Weed control

July: Disease management

August: Pulse market update

September: Insects

October: Header and front set-up

Appendix 19 - M&E final report Jamie Allnut ENFAC Consulting

Appendix 20 - March 2021 Pulse Extension Project Plan

Appendix 21 – Rotation Profit and Risk Planner tool

Appendix 22 – Dookie Pulse Check final meeting notes

Appendix 23 – Interim evaluation report June 2020

Appendix 24 – Final project meeting minutes – March 2021

Appendix 25 – Rotation Profit and Risk Planer text (explanation)