

# FINAL REPORT

PAL00019

## Australian Broadleaf Cropping Project

### PROJECT DETAILS

**PROJECT CODE:** PAL00019

**PROJECT TITLE:** AUSTRALIAN BROADLEAF CROPPING PROJECT

**START DATE:** 01.09.2013

**END DATE:** 31.08.2016

**SUPERVISOR:** NICHOLAS GODDARD

**ORGANISATION:** PULSE AUSTRALIA LIMITED

**CONTACT NAME:** NICHOLAS GODDARD

### Summary

The project delivered on its goals:

1. Improved grower and adviser knowledge and skills to reduce the barriers to adoption of broadleaf crops.
2. Contributed to the provision of regionally based risk management options for broadleaf crops to meet market quality, standards and delivery requirements and reduce financial and production risks.
3. Provided industry and market intelligence to assist the tailoring of research, development and extension (RD&E) projects consistent with the profitable adoption of broadleaf cropping.
4. Supported the outcomes from various research projects by tailoring information and knowledge transfer methods to growers and advisers to ensure relevant information reaches the target audience in appropriate formats.

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## Conclusions

Most growers recognise and acknowledge the importance of broadleaf crops in the farming system. However, for many they have been considered to be a high risk option. This project has served to build confidence and capability among growers to include pulses and oilseeds in the rotation.

This project has been highly successful in terms of both developing 'Best Management Practice (BMP)' training courses and the delivery of these courses to the main stakeholders, (growers and advisers throughout the northern and southern regions).

Thirty courses were delivered nationally with a total of 411 attendees during the three years of the project.

The courses have gained a very positive reputation within the broader industry for their content and relevance to the production of broadleaf crops by providing attendees with a greater level of understanding of crop production in order to proactively manage and minimise production and price risk.

Course participants have remarked on the high standard of information and delivery, as well as the value of the course manuals. Several of the reseller organisations now consider these courses to be an integral part of the training of new staff.

A new initiative targeting past course attendees in the northern region was also commenced during this project. These new courses were designed as a one-day refresher, upskilling course, focusing on the more dynamic components of crop production, such as varieties, agronomy, pathology and entomology.

Seven 'Best Management Guides' have been completed and are available on the Pulse Australia and Better Sunflower web sites. These guides are intended to be a brief summary (approx. 50 pages) of the current BMPs (for a specific region).

In addition to the course training manuals and Best Management Guides, publications including Variety Management Packages, bulletins and fact sheets have been produced to address individual knowledge gaps as they have arisen.

The development of market news bulletins and marketing guides has also increased the broader level of knowledge concerning the market quality requirements and timely market signals to help growers to minimise their market risks and to maximise their profit opportunities.

All field staff have maintained a high industry profile with researchers, growers and advisers with a proactive approach to communication. This ensures a two-way flow of information so that consistent and clear messages achieve rapid adoption.

A highlight is the successful establishment of a collaborative relationship between the New South Wales Department of Primary Industries (NSW DPI), the Australian Oilseed Federation and Pulse Australia to provide a jointly funded industry development manager based in NSW.

## Recommendations

The updating of current BMP training manuals with new research findings as they become available, from the Southern and Northern Agronomy projects, National Pulse Pathology project, National Rhizobium project, and Pulse Breeding Australia to ensure their accuracy and relevance.

This content updating needs to be done in collaboration with the GRDC produced GrowNotes so as to ensure consistency of content between both products.

Continued delivery of BMP agronomy courses targeting:

- Repeating of courses in other regional areas that have not been conducted to date.
- Delivery of courses for new growers and advisers who have recently entered the industry.
- Delivery of one-day upskilling courses for previous course attendees.

There is a clear need for open engagement between this project and other GRDC funded research projects as an opportunity to ensure that the research questions are of relevance to industry and are targeting the knowledge gaps pertaining to profitable broadleaf crop production.

The maintenance of a high profile field team to act as a 'go-to' contact point and conduit for two-way flow of information and timely accurate support for growers, advisers and researchers.

## Outcomes

Optimised the profitability of the farming system through increased adoption of pulse and oilseed crops aided by growers and advisers having the knowledge to actively manage both production and price risk and production opportunities associated with these crops.

Increased area of broadleaf crop production due to growers and advisers having gained:

- Increased knowledge of the benefits of broadleaf crops.
- Greater levels of knowledge and skills in current best practice for pulse and oilseed production to ensure reliable and profitable production that meets current market requirements.
- Reduced perception of risks associated with broadleaf crops.
- Increased awareness of future demands from markets and market requirements.
- Greater understanding of how quality affects marketing options for oilseeds and pulses by growers and advisers.
- Simple and direct access to the most current comprehensive information.
- Greater knowledge of how different market factors affect pulse and oilseed demand.

Examples of the benefits achieved by this project's activities, often in collaboration with the broader industry, include:

1) The rapid adoption of new varieties released from the breeding programs, with effective extension of each variety's new attributes and fit resulting in significant practice change.

2) The continued expansion of the area sown to pulses of high value human consumption, such as lentils, chickpeas, mungbeans and faba beans, have been targeted by growers to ensure maximum profitability and farming systems benefits. This expansion has been supported by higher levels of production knowledge by both growers and advisers, as supported by all Pulse Australia activities, concerning both production and market requirements helping to minimise risks.

3) The sustained production of canola, especially in southern NSW and Western Australia (WA) with increased understanding of the differing varietal requirements for the control of the two key pathogens, blackleg and sclerotinia. The extension of recent research findings relating to the timing of swathing and harvest was well received and appears to have resulted in some practice change.

All are clear examples of a healthy industry in which growers and advisers understand the agronomic benefits, and have the skills to manage both production and market risks to maximise immediate profitability, as well as maintaining a healthy farming system.

Economic benefits include the ability of growers to capitalise on high world prices for pulses by increasing the area sown to pulses. This has enabled growers to benefit economically from the inclusion of pulses in their recent rotations.

Environmental benefits have included the nitrogen (N) benefits afforded to pulses, as well as increased disease break benefits attributed to enabling greater broadleaf rotations.

Social benefits are directly related to increased prosperity of growers and their districts from the higher farm gate prices received for pulses (especially with regard to cereals).

## Achievements/Benefits

The project has successfully developed (10) BMP training manuals for broadleaf crops addressing production and marketing risks:

- Better Sunflowers BMP training manual.
- Better Soybeans BMP Manual.
- Southern and Western Chickpea BMP manual.
- Southern Faba bean BMP manual.
- Southern Lentil BMP manual.
- Southern Field pea BMP manual (draft).
- Northern Mungbean BMP manual.
- Northern Chickpea BMP manual.
- Northern Faba bean BMP manual.
- Northern Canola BMP manual (draft).

These manuals are an integral component of the agronomy training courses conducted by the program and are highly valued by course participants as a future reference and resource.

They are also a valued reference for other GRDC funded projects when determining project objectives and designing trial protocols (i.e. northern and southern agronomy projects), to help identify current best practices and current knowledge gaps that such projects should be targeting.

The delivery of the BMP training courses has been of the highest success. Course participants have remarked on the high standard of information and delivery, as well as the value of the course manuals. Several of the reseller organisations now consider these courses to be an integral part of the training of new staff.

A new initiative targeting past course attendees in the northern region was also commenced during this project. These new courses were designed as a one-day refresher, upskilling course, focusing on the more dynamic components of crop production, such as varieties, agronomy, pathology and entomology. Presenters were asked to limit their focus to current BMPs resulting from their current research. Their formal presentation time was limited to 30 minutes allowing for 60 to 90 minutes for discussion on either the current research findings or to discuss the current limitations and lack of knowledge that these more senior advisers are finding in the field.

This course structure had two main benefits of providing attendees with the opportunity to examine the current difficulties that they are facing in the field and to engage directly with key researchers. It also provided the researchers with a valuable opportunity to hear and learn about the current in-field limitations, to help focus their research activities.

A total of 30 agronomy courses were delivered nationally with 411 attendees, with the following regional distribution:

Southern region (1 day): 5 Lentil (75), 5 Faba bean (79).

Northern region (2 day): 4 Mungbean (40), 4 Chickpea (70), 2 Faba bean (35).

Northern region (1 day upskilling): 4 Mungbean (34), 4 Chickpea (41).

Oilseed: 2 Sunflower (37).

Seven BMP guides have been completed and are available on the Pulse Australia and Better Sunflower websites. These guides are intended to be a brief summary (approx. 50 pages) of the current BMPs (for a specific region) that will answer the question "I have never grown this crop before, what do I need to know to successfully grow it the first time?"

Additional supportive agronomic publications that have been produced include:

36 new Variety Management Packages in response to new variety releases from the breeding programs.

27 new Pulse Bulletins, targeting knowledge gaps that were identified during the course of the project.



Five new soybean fact sheets.

Seven new sunflower sheets, sunflower marketing guide.

Crop forecasts for pulses and canola have been regularly produced by both organisations and are publicly available along with supporting marketing information including Australian Pulse Market News, historical cropping areas, yields and commodity prices.

## **Intellectual property summary**

The aim of the project was to increase the amount of broadleaf crops grown in rotation with cereal crops in a sustainable and profitable way through increased knowledge of crop agronomy and market requirements combined with current BMPs for the long term benefit of the Australian grains industry.

No intellectual property (IP) of commercial value was generated. All information generated is publicly available.

This information has been and will continue to be used to provide guidelines and protocols to grain growers and their advisers to aid their decision making on how to more effectively manage and profit from different cropping options.