



2010 Results Summary

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Results from the DPIVic, SARDI, I&NSW and GRDC funded project: 'Expanding the Use of Pulses in Pulses in South-Eastern Australia (DAV00113)'.

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INTRODUCTION

The 2010 Southern Pulse Agronomy Program had 40 trials across south-eastern Australia at 15 sites addressing key management issues associated with the 5 pulse crops, lentil, field pea, chickpea, faba bean and lupin. Growing season conditions, including rainfall and temperatures were generally ideal for pulse production in most areas. However record rainfall events throughout harvest meant that in many cases potential grain yields were not met and grain quality downgraded.

Field Days were held at Curyo (southern Mallee) and Vectis (Wimmera) sites, Victoria; Mallala (Lower North), SA and Yenda and Wagga, NSW. At each of the field days, key industry production and marketing issues were highlighted and new varieties released as appropriate from Pulse Breeding Australia. In total, four new varieties were released in 2010 - two lentils, PBA Blitz and PBA Jumbo; and two field peas, PBA Gunyah and PBA Twilight. This program has developed and incorporated all the management related information for these varieties.

About Us

Southern Pulse Agronomy is a tri-state research program lead by DPIVic and funded through GRDC, DPIVic, SARDI and NSWI&I. The current project, from which research results presented here have been generated, is entitled 'Expanding Pulses in South-Eastern Australia' (DAV00113).

Program Objective: To undertake research aimed at increasing on-farm productivity, reliability and profitability of lentil, field pea, chickpea, faba bean and lupin in south eastern Australia. The program delivers specific crop management practices that optimise yield and quality and minimises production risks of new varieties. Further, new traits are identified and explored for each pulse that will provide future benefits to each breeding node of PBA.

Background: Pulses are an integral part of farming systems in southern Australia, delivering well known and proven rotational, economic and environmental benefits to growers. Despite a wide spread understanding of these benefits in southern region farming systems, pulses are not always profitable in their own right due to higher input costs and lower reliability than cereals. Further to this they are predominately grown on the better soils in the more reliable cropping areas (medium to high rainfall) and are currently poorly represented in lower and higher rainfall growing regions.

Many new varieties will be released over the next 5 years by Pulse Breeding Australia (PBA) offering changes in agronomic traits and improved adaptation. Further and ongoing improvements in matching farming systems and agronomic management practices with the new improved varieties are required to address these issues. The proposed research in this project will improve profitability in the more traditional pulse zones where they currently occupy up to 30-40% of the rotation, while at the same time assist their expansion into the drier and more marginal pulse growing areas as well as the more reliable higher rainfall zones of the cropping belt.

This project will contribute to the expansion of pulses in the southern region through research and development that delivers:

1. Variety specific agronomy packages (VSAP) - delivering benefits of new varieties to growers.

Targeted agronomic research to produce data for new pulse varieties which will be synthesised into management packages for the southern Australian cropping regions in collaboration with PBA and other pulse breeding organisations.

2. Profitable pulses for modern farming systems - matching best genotypes to best farming systems. Strategic genotype x management research that provides: direction to PBA on potential genes/traits that confer advantage in new farming systems; information on how to agronomically maximise the benefits of new traits/genes currently recognised in the breeding program and the impacts of the genotype x management interaction on soil moisture. More specifically research will be focussed on 2 areas:

a. Understanding the agronomic importance of traits linked with weed management, eg. early maturity, herbicide tolerance, competitive plant types including forage types.

b. Identification of traits that are required to maximise production in modern minimum or no-till farming systems.

This research draws on the extensive experience of project partners in pulse production and linkages with PBA, grower groups, commercialising companies, advisors and other research projects. Research is conducted on smaller scale detailed trial plots due to limited seed supply. However research sites, where possible, will be located with other pulse research sites and larger scale grower managed demonstration strips of new varieties.

The research addresses traditional and expanding production zones of:

1. The more reliable areas where pulses often stand alone as a cash crop as well as provide break crop benefits (eg Mid North of SA, York Peninsula, Wimmera & parts of the eastern portion of southern NSW);
2. The more marginal areas where the “break crop” effect is often the biggest issue :
 - High Rainfall Zones - southern Victoria, South East and parts of the Mid North of SA, and the eastern portion of southern NSW.
 - Low Rainfall Zones – Victorian Mallee, parts of the Mid North and Eyre Peninsula of SA, Western NSW.

The delivery of VSAP's and matching genotypes to cropping systems is viewed as an essential ingredient to a vibrant pulse industry and to the development of new varieties by PBA.

In addition, economic analysis of key agronomic treatments x varieties within research trials will occur to assess potential profitability within a farming system context. It is proposed that an initial focus will be on the traits and management associated with weed management. Scoping will occur in year one of the project followed by data collation and preliminary analysis in years 2-3 followed by more detailed economic studies in year 4-5. The economic analysis will provide a fundamental base for growers to identify the best options for their farming systems.

Delivery of the outputs will build towards the common vision we share with PBA for the Australian pulse industry to develop profitable and sustainable pulse crops, to increase their adoption to between 15-20% of total crop area planted, increase their average yields from 1.0 to 1.5 tonnes per hectare and reduce overall input costs. The project maintains close industry links through active participation at field days, with technical publications and grower groups (eg. VNTFA,BCG, SFS, MSFS, CWFS, EP, Farm Link, YPASG, Riverina Plains, Hart, MNHR) and presentations at key industry conferences (i.e GRDC updates and Pulse Australia).

Acknowledgements

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