

# Industry Update

## Vol.1 No.5



**Current projects**



**RD&E investment July - September 2019**



**Total RD&E investment committed from 1 October onwards**

### Advisory Panel

- Lisa Anderson (Chair)
- Joe Cook
- Brian Fields
- Dr Mary-Jane Rogers
- David Brown
- Annelies McGaw (AgriFutures Australia Manager, Research)

### AgriFutures Australia Advisory Panels

AgriFutures Australia is committed to working with industry to deliver the research and development outcomes that meet rural Australia's needs. We work closely with Advisory Panels to decide on research priorities and make investment decisions each year.

Members of AgriFutures Australia's Advisory Panels are selected following an open call process which involves a competitive skills-based assessment and/or consultation with key industry bodies and stakeholders.

AgriFutures Australia is dedicated to embracing and promoting cultural, age and gender diversity on all of our Advisory Panels. To learn more about the AgriFutures Australia Advisory Panels and the members of the Pasture Seeds Advisory Panel please visit [agrifutures.com.au/advisory-panels](http://agrifutures.com.au/advisory-panels)

### From the Manager, Research

One of the greatest pleasures of my role is getting out and about and connecting with the industries AgriFutures Australia represents. Earlier this year Janelle Thomas (AgriFutures Australia), the AgriFutures™ Pasture Seeds Program Advisory Panel and I visited Keith, SA to meet with Lucerne Australia (LA) and others involved in the pasture seeds industry. We met with LA's Executive Team and visited the Lucerne Variety Trial (PRJ-010959 - see more on page 2) to see how the variety trial was planned and managed. We also met with growers for a better understanding of dryland and irrigated pasture seed production. We also visited PGG Wrightson Seeds seed cleaning facility to gain first-hand seed cleaning experience and to understand what lucerne affected by seed wasp looks like. Seed cleaning is really an art and a science!

I would like to extend my gratitude on behalf of AgriFutures Australia and the Advisory Panel to Lucerne Australia, PGG Wrightson Seeds and the growers we met for their generosity, sharing their time and knowledge.

### Ensuring lucerne seed production in the absence of bees

**Project ID:** PRJ-010875

**Principal investigator:** John Hamblin, University of Western Australia

Lucerne is grown throughout the world and whether it is grazed or conserved for fodder, it has one of the highest feeding values of all stock feed. It was introduced to Australia over 200 years ago and, as the third largest exporter, Australia now supplies the world with high quality, clean lucerne seed.

Lucerne requires pollinators when the plant is in bloom and the bee decline is seen as a potential threat to this industry. Although there has been much debate on managing the impact of bee decline on food production, this has focused on bees and modifying the plant's need for insect pollination is often overlooked. Previous research and the research team's experience in a range of species suggests selecting for self-pollination in crops may be one approach to managing the challenges and impact of a declining bee population on lucerne production.

This project seeks to identify genotypes of lucerne (the complete genetic makeup

of lucerne) that have the ability to self-pollinate in the absence of bees. In doing so the research seeks to determine whether there are Lucerne genotypes that have the ability to self-pollinate in the absence of bees and if there are commercial opportunities for lucerne genotypes with self-pollination ability.

This project will develop and maintain a large and diverse lucerne population in insect-proof screenhouses to provide an effective screen to select for self-pollination. It is proposed that this project will screen 200,000 genotypes. This should allow for the detection of up to a four gene system for self-pollination ability in lucerne. The facilities provide a suitable environment for testing the selected plants both with and without bees to determine whether the material selected is truly capable of self-pollination. Once identified, there may be several options as to how this self-pollination character might be exploited.

## Current projects

Project ID	Project Name	Finish	Principal Investigator	Research Organisation
PRJ-010449	Lucerne seed wasp management	11/03/19	Seago, Ainsley	NSW DPI
PRJ-009751	Potential exotic virus threats to Lucerne seed production in Australia	30/04/19	Dietzgen, Ralf	University of Queensland
PRJ-011917	Assessment of size and scope of the certified temperate pasture seeds industry	14/10/19	Lucas, Donna	RM Consulting Group Pty Ltd
PRJ-009750	Molecular markers for cultivar ID and seed certification in pasture legumes	15/05/20	Ghamkhar, Kioumars	AgResearch Limited
PRJ-010875	Ensuring Lucerne seed production in the absence of bees	31/07/20	Hamblin, John	University of Western Australia
PRJ-010959	Lucerne Variety Trial – Assess optimum plant stress levels for seed production	30/09/21	Aitken, Jenny	Lucerne Australia Inc.
PRJ-011096	Profitable and environmentally sustainable sub clover and medic seed harvesting	22/04/22	Erskine, William	University of Western Australia
PRJ-012052	Australian Pasture Seed Genebank 2019-2021	30/06/2022	Appleford, Peter	SARDI

## Project spotlight: Lucerne trials reveal water stress response

Twenty-nine commercial and pre-release lucerne varieties have been put to the test under modified irrigation management systems

The trials funded by AgriFutures Australia and Lucerne Australia showed a significant boost in seed yield when a delay in irrigation increased plant stress.

Annelies McGaw, AgriFutures Australia Manager, Research said the trials run by Lucerne Australia at Keith, South Australia provided all-important data for lucerne grown under Australian conditions.

“The trials provide vital and scientifically-rigorous information for Australian lucerne seed producers,” said Ms McGaw. “It builds on a previous variety trial funded by AgriFutures™ Pasture Seeds Program which shows imported genetics have generally struggled to produce consistent seed yield under Australian conditions.”

The trials were run at Simon Allen’s Warrawee Park, south of Keith with seed supplied by Alforex Seeds, Heritage Seeds, Naracoorte Seeds, Pasture Genetics, PGG Wrightson Seeds, Seed Force, S&W Seed Co, and Upper Murray Seeds. Heritage 10 and SW18NPK91 were consistently the highest yielding seed varieties across all three watering strategies.

Lucerne Australia Chair, Josh Rasheed said the results reflected seed harvest from March this year and the executive

committee was keen to see how the trial progressed.

“These early results are a summary of the first-year seed production from a seedling crop so, while we are confident with the statistical information, data should be read with that in mind, We look forward to having data from the mature crop over the next two years.”

“Delaying irrigation timings statistically increased seed yield. Under the trial conditions a 14% seed yield increase was observed across the moderate watering strategy. The high and moderate stress watering strategies respectively had 11.5% and 14.4% higher yields when compared to the standard watering strategy,” said Mr Rasheed.

The highest yielding varieties for the high stress watering strategy were Heritage 10, SFR27-032, Silverland (D5), AR245, SW18NPK91 and SW18NPK92 which yielded between 0.652t/ha and 0.721t/ha.

SW18NPK91 and Heritage 10 were the highest yielding varieties across the moderate stress watering strategy with clean seed weights of 0.789t/ha and 0.783t/ha respectively.

The highest yielding varieties across the standard watering strategy were SW18NPK91, SW18NPK92 and Heritage 10 with clean seed weights between 0.673t/ha and 0.726t/ha.

Read the full year one seed production report prepared by Lucerne Australia [agrifutures.com.au/pasture-seeds](http://agrifutures.com.au/pasture-seeds)