

Project Overview

Herbicide resistance in lucerne seed production systems in the South East of South Australia.

September 2020 to May 2023

Background

Weed and pest management continue to be a high priority for lucerne seed growers as major production issues. Ryegrass, barley grass and sowthistle are three key weeds in lucerne seed crops. These weeds all have confirmed herbicide resistance throughout Australian cropping regions. The extent of this resistance in lucerne production regions is unknown.

Lucerne seed production can be profitable but it's also a high-risk business. Meeting seed certification standards and seed yield is vital for the contracted life of the lucerne stand and business profitability. Each stand is typically in production for five to seven years.

Herbicides are an integral part of lucerne seed production systems, providing the most efficient and cost effective weed control. However, due to the small-scale of the industry, there are only limited registered herbicide options for weed control to meet seed certification requirements. Further, certification programs dictate that

seedling regeneration is not permitted, with paraquat the only control option for lucerne seedlings within the stand. Dependence on a few herbicides increases the risk of herbicide resistance in weeds.

The industry has anecdotal evidence of poor weed control in both seedling and established lucerne stands, following herbicide applications. There have also been reports of weed-control failure following non-selective herbicide applications on channels and check-banks. As a result, weeds have migrated from these areas into production areas.

It's now critical to extend the life of the limited herbicide options for both weed and seedling lucerne control. To do this, there must be an understanding of the extent of the problem, increased awareness within the industry and the development of specific integrated weed management strategies utilising a diverse range of management tactics.

Objectives

This research will evaluate the level of resistance to commonly used herbicide groups in three key weeds affecting lucerne seed crops in South Australia's south east. These weeds include, annual ryegrass (*Lolium rigidum*), barley grass (*Hordeum sp.*) and sowthistle (*Sonchus oleraceus*). Information generated during this research will be communicated throughout the industry to increase the understanding and awareness of herbicide resistance. It will also assist the development of integrated weed management (IWM) strategies to manage the risk of increased herbicide resistance.

The objectives are:

- Conduct a weed survey by collecting annual ryegrass, barley grass and sowthistle seeds from commercial lucerne production areas.
- Conduct herbicide resistance testing on these surveyed weeds, using common herbicides.
- Provide Lucerne Australia and AgriFutures Pasture Seeds Program with information generated from this survey and testing to outline the extent of herbicide resistance in these weeds and assist in the development of IWM strategies specific to the lucerne seed industry.



Learn more
agrifutures.com.au/pasture-seeds



AgriFutures[®]
Pasture Seeds

Research

This project will undertake a weed survey of commercial production areas in Australia's primary lucerne seed growing region. This survey will collect seeds samples for resistance screening and will generate data about the current level of herbicide resistance in annual ryegrass, barley grass and sowthistle.

These survey results will inform the development of integrated weed management guidelines for the lucerne seed industry, with the aim to extend the life of important herbicides. This research will also inform the industry of the extent of resistance, and help farmers and advisers take a longer-term view of resistance risk management, improving the profitability and sustainability of the Australian Lucerne Seed Industry.

Expected outcomes and implications

Expected Project Outputs

- Data for industry on the current level of herbicide resistance in annual ryegrass, barley grass and sowthistle weed populations in lucerne seed production areas in the south east of South Australia.
- Strategies identified to underpin the development of specific integrated weed management programs for the lucerne seed industry.

Expected Project Outcomes

- Lucerne growers and managers better understand the extent of herbicide resistance and the risk it poses to the industry.
- Improved sustainability of Australia's lucerne seed production industry by providing access to specific information to extend the life of the limited range of herbicides available for weed control.



Contact

Dr Katrina Copping

Executive Officer
Lucerne Australia
PO Box 505, Keith SA 5267

0439 538 332
info@lucerneaustralia.org.au

AgriFutures Australia Publication No. 21-130
AgriFutures Australia Project No. PRO-015003

