

Winning the war against weeds

Winning the war against weeds is a long-term campaign because the real enemy – the seed – lies hidden in the soil. To win the war, growers need to target the weed seedbank beneath the ground, as well as the weeds growing above it. At a direct cost to Australian farmers of \$1.5 billion per year, with lost agricultural production estimated at more than \$2 billion per year, it is a war worth winning.

Results of a GRDC supported study by Department of Agriculture and Food WA (DAFWA) researchers, compiled and reviewed by Peter Newman, demonstrated that a wild radish seed bank can be eroded by 95 per cent over four to five years of complete or almost complete seed control.

This equates to approximately 50 per cent decline of the seedbank each year.

Dr Rohan Rainbow, Manager, Crop Protection, GRDC said that wild radish has the potential to be even more significant than annual ryegrass because the seeds have dormancy and protective mechanisms, making them difficult to destroy.

“The way forward is to use Integrated Weed Management (IWM), which is a modern, long term and sustainable approach, using a wide range of control options,” he said.

Rohan indicated that single use techniques, such as repeated use of the same herbicide, increases the risk of herbicide resistance. IWM is a long-term approach involving a five to 10 year weed reduction strategy, rather than a short-term response to current seasonal events.

Understand, predict and manage weeds

One way to understand, predict and manage weeds is to use a model to integrate knowledge from a large number of trials to build a representation of the way weeds work over a longer time frame, given a wide range of interacting factors.

A recently developed CRC for Australian Weed Management prototype, aptly named *Weed Seed Wizard*, is a work in progress developed by co-project leaders, Dr Michael Renton from the University of Western Australia and Dr Sally Peltzer of DAFWA.

According to these researchers, the weed seedbank is a formidable opponent to farmers because it is invisible, ‘patient’ and hard to understand.

Michael, a mathematical modeller, said that

the Wizard provides a window into parts of the system usually hidden (the seedbank) and a look at how they influence and are influenced by parts of the system that affect growers (the weeds) and the parts growers can control.

“We want this model to be the basis of a practical decision-aid tool to help farmers and consultants manage weed populations in real farming contexts and determine optimal control measures,” he said.

For more information go to www.weeds.crc.com.au

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