EVALUATION AND EXTENSION OF ON-FARM INTEGRATED WEED MANAGEMENT IN THE LOWER NORTH OF SA

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In 1994 the Alma and Tarlee Land Management Groups commenced a National Landcare Program (NLP) project to evaluate the effectiveness of on-farm weed management strategies practiced by grain growers in the Lower North of South Australia. Following the conclusion of their NLP funding the groups were successful in obtaining funding from the Grains Research and Development Corporation (GRDC) to continue this work.

With assistance from Primary Industries and Resources SA and the CRC for Weed Management Systems the groups have developed a system for monitoring weed seedbank levels. Thirty one (31) commercial paddocks are systematically core sampled a long a transect in autumn each year.

The weed seeds are washed and sieved from the bulked soil, identified and numbers assessed per square metre.

The prime focus for the groups is the management of herbicide resistant annual ryegrass but other difficult to manage weeds are also monitored, including wild oats, bedstraw, bifora and wild radish.

Case studies of weed seedbank trends are prepared and provide a basis for group discussion on the impact of different management techniques. The groups meet in April for these discussions and also undertake farm walks in monitored paddocks during spring.

Weed seedbank data is matched to rotation and weed management practices to assess effectiveness of such and to help plan future strategies. The seedbank trends help alert growers to short comings with certain practices and management strategies but of equal importance, provide growers with the confidence to use practices that have proved effective in reducing seedbank numbers.

Data trends indicate the following:

- Oaten Hay is very effective in reducing the seedbank of annual ryegrass (Group A resistant populations).
- Canola has tended to hold the annual ryegrass seedbank rather than increasing or decreasing it.
- Annual legume pastures are more effective in reducing the ryegrass seedbank where phases of two or more years are practiced. Note: Spraytopping and strategic heavy grazing are important management components of such pasture phases.
- Newly sown pasture (first year) has proved a weak link in the management of ryegrass, allowing an increase in seedbank levels in the majority of cases.
- Durum wheats allow a rapid build up of the ryegrass seedbank due to less vigorous competition than other wheat varieties.

The project is also proving effective in raising the awareness and understanding of an integrated approach to weed management amongst other grain producers. The project has created considerable interest within the South Australian farming, advisory and research communities. GRDC funding has been gained for a University of Adelaide project to further refine and extend the process of monitoring weed seedbanks and other in-paddock indicators of reduced weed numbers and profitable weed management. This new project will see an additional 100 paddocks monitored over the next three years and five more farmer groups involved in the observation and assessment of a range of weed management practices and strategies focusing on both grass and broadleaf weeds.