

CAWS Early Career Weed Scientist Travel Award Jenna Malone – Travel Report

As the recipient of the CAWS Early Career Weed Scientist Travel Award, Jenna Malone attended the Weed Science Society of America's 52nd Annual Meeting in February 2012. Jenna presented a talk on the work she has been undertaking at the University of Adelaide as a postdoctoral researcher with Chris Preston's Weed Management group. The title of her talk was: Glyphosate resistance in weed species of Australia. Jenna presented an overview of the current glyphosate resistance situation in Australia and some of the work currently being undertaken investigating this issue. The overview contained the latest information on the weed species, locations and number of sites where glyphosate resistance has been reported in Australia. This included information on the first ever case of glyphosate resistance in *Bromus Diandrus*. Further information presented included investigation into glyphosate resistance mechanisms; altered translocation of glyphosate has been found to be the most common mechanism of resistance in *Lolium rigidum*, however a few cases of target-site mutation based resistance have also been observed. In addition, two populations of *L. rigidum* containing both resistance mechanisms have been identified. Target-site mutations have been found in resistant *Echinochloa colona* and *Urochloa panicoides*. No target-site mutation has been identified in the resistant *B. diandrus* population. Results from a recent investigation into glyphosate resistance in non-agricultural areas in Australia were also presented. In this study, more than 400 weed samples were collected across Australia and high frequencies of glyphosate resistance were identified in *L. rigidum* and *Conyza bonariensis*.

The conference was attended by nearly 700 people and there were 440 presentations given, a majority of which were oral presentations as well as almost 180 posters. The conference was based around three main symposia concepts; 'non-chemical weed management', 'off-target pesticide movement', and 'the role of herbicide resistance crops in sustainable agriculture'. In addition to the main symposia the conference covered presentations on weed science in the areas of agronomic crops, horticultural crops, invasive plants, weed biology and ecology, education and extension of weed research, bio-control of weeds, soil and environmental aspects, pastures, rangelands, forests and right-of-ways, formulation, adjuvant and application technology, integrated weed management, regulatory aspects and weed physiology.

While there were numerous presentations on glyphosate, few were on resistance in the species Jenna focused on. There were also no other presentations on resistance in non-agricultural areas, with only one presentation covering the use of herbicides in a non-agricultural area to manage problem weed species, namely *Festuca arundinacea*. This highlights that the work Jenna presented was relatively novel and was hopefully of interest to other weed scientist and provided them with new and valuable information to apply to their own research. Conversely, there were also presentations on work similar to that being undertaken at the University of Adelaide, that provided new information, techniques and ideas for us to apply to our own work. As Jenna's focus is on the investigation of resistance mechanisms, she found two presentations by Sammons et al of particular interest. They focused on the investigation of target-site mutation based resistance to glyphosate in *Palmer amaranth* and covered the use of some relatively new concepts and techniques, namely the use of nuclear magnetic resonance (NMR), that Jenna would like to apply to her work in the future.

As an early career researcher, attendance at this conference enabled Jenna to be introduced to and establish contact with leaders in her field, as well as approach collaborations and working relationships with these researchers. The opportunity to present also enabled her to communicate her research to the broader international community, and hopefully establish a profile as a researcher in this field.

Jenna Malone would like to take this opportunity to thank CAWS for their financial support, which made her attendance at this conference possible.