

Title: Establishing an On-Line Recertification Course for WSSA Lesson Modules on Herbicide Resistant Weeds

Project Leaders: Russell R. Hahn, Department of Crop and Soil Sciences, Cornell
Mary E. McKellar, Department of Crop and Soil Sciences, Cornell

Cooperator: Ronal D. Gardner, Pesticide Management Education Program, Cornell

Abstract:

There is ongoing concern about the increasing number of herbicide resistant weed biotypes. As a result, the Weed Science Society of America (WSSA) developed five lesson modules on herbicide resistant weeds. This project provides New York Certified Pesticide Applicators the opportunity to enhance their knowledge about herbicide resistance, and about the advantages of utilizing integrated approaches to weed management while earning recertification credits. Ten pre- and post- test questions were written for each of the five WSSA lesson modules. Once the New York State Department of Environmental Conservation (DEC) approves these lesson modules and test questions, they will be available to applicators through the Cornell On-Line Recertification system managed by the Pesticide Management Education Program (PMEP).

Background and Justification:

Development of herbicide-resistant weed populations is of increasing concern to the agricultural community. According to the International Survey of Herbicide Resistant Weeds (<http://www.weedscience.org>), 396 resistant weed biotypes representing 123 dicot (broadleaf) and 87 monocot (grass and sedge) species have been confirmed as herbicide resistant as of January 1, 2013. There is special concern about ALS (Acetolactate Synthase inhibitors – Group 2 herbicides) and about glyphosate (EPSP Synthase inhibitors – Group 9 herbicides) resistant weeds. In the case of ALS resistance, this concern is due to the rapid increase in the number of weed biotypes (129) that are resistant to these Group 2 herbicides. In addition, there are numerous herbicides with this mechanism of action that are used on multiple crops, including alfalfa, corn, soybeans, wheat, and numerous vegetable crops. Although there are only 24 confirmed cases of glyphosate resistant weeds, the widespread adoption of glyphosate resistant crops and the increased use of glyphosate herbicide has placed a spotlight on weed populations resistant to this mechanism of action. Concern about herbicide resistant weeds is heightened by the fact that the flow of new herbicide mechanisms of action has dwindled to a trickle. There is a need to preserve the value of current herbicides and of herbicide resistant crop technology, including glyphosate resistant crops.

Objectives:

- 1) Develop pre- and post-test questions for each of the five lesson modules.
- 2) Upload the lesson modules and the pre- and post-test questions into the Cornell On-Line Recertification Course system.
- 3) Project evaluation.

Procedures:

- 1) Ten questions were written for each of these five WSSA lessons
Lesson 1 – Current Status of Herbicide Resistance in Weeds

Lesson 2 – How Herbicides Work

Lesson 3 – What is Herbicide Resistance?

Lesson 4 – Scouting After a Herbicide Application and Confirming Herbicide Resistance, p

Lesson 5 – Principles of Managing Herbicide Resistance

- 2) Once approved by DEC, The five lesson modules and the associated pre- and post-test questions will be uploaded into the Cornell On-Line Recertification Course system managed by P MEP.
- 3) In the short term, project evaluation will be determined by whether DEC approves these lesson modules for recertification credits. Based on the assumption that DEC will approve these lessons, project evaluation will ultimately be based on the number of applicators, as tallied by P MEP, who take advantage of this training opportunity.

Results and Discussion:

Since development of this project is still in progress and these lessons are not yet approved by DEC, it's not possible to measure impact on weed management practices. At a minimum, several dozen private and commercial pesticide applicators should take advantage of this on-line opportunity to improve their knowledge of herbicide resistance management and to earn DEC recertification credits. To increase the visibility of this training opportunity an article will be prepared for *What's Cropping Up?*, the on-line newsletter for New York field crops and soils, once these lessons have been approved by DEC. Although it's impossible to estimate the number of acres this might impact, it should be thousands of acres.

Project locations: Not relevant.