

FINAL REPORT

Project No. R2017-P08

Title: *Developing and Implementing Educational Programs for Herbicide-Resistant Horseweed/Marestail and Invasive Pigweeds in Pennsylvania Cropping Systems – Pennsylvania Soybean Board*

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Project Objective: We received PSB funds in FY2017 to: 1) develop and produce of extension-education materials that focus on IWM strategies for herbicide-resistant horseweed/marestail and invasive pigweeds, 2) purchase of additional PSU education materials (“A War on Weeds”) for distribution, 3) defray additional costs of a post-doctoral research associate salary (PI Wallace) at PSU in FY17/18, who will help produce extension-education materials, and 4) provide travel support for project-related activities.

Accomplishments: The project was mostly completed in March, 2018

Five-part video series on Palmer amaranth and waterhemp management

1. Herbicide Resistance Pigweed 1: Identification

This video covers the key points to identifying Palmer Amaranth and waterhemp, as well information about their biology that is important for effective management.

2. Herbicide Resistant Pigweed 2: Management in Conventional Row Crops

This video covers the best management practices for Palmer Amaranth and waterhemp in conventional row crops.

3. Herbicide Resistant Pigweed 3: Management in Horticultural Crops

This video covers the best management practices for Palmer Amaranth and waterhemp in horticultural cropping systems.

4. Herbicide Resistant Pigweed 4: Management in Organic Systems

This video covers the best management practices for Palmer Amaranth and waterhemp in organic cropping systems.

5. Herbicide Resistance Pigweed 5: Prevention and Disposal

This video describes how to best prevent the entry of herbicide resistant Palmer Amaranth and waterhemp to new fields, and how to properly dispose of plants so that they do not cause larger infestations.

Horseweed/Marestail Management videos

1. Horseweed Part 1: Resistant Marestail in Pennsylvania

https://youtu.be/XUDvxxDbsC8?list=PL_bTWa1uOqMHaTOOZ51OG32knTuC5SYUj

2. Horseweed Part 2: Managing Herbicide Resistant Marestail

https://youtu.be/LnYisN_GngQ?list=PL_bTWa1uOqMHaTOOZ51OG32knTuC5SYUj

Introduction to the Harrington Seed Destructor video

https://youtu.be/EYvZJ_KjMKY

Xtend Soybeans Use and Precautions video

<https://youtu.be/pYWcb-bniR8>

Diagnosis of Soybean Injury From Dicamba Drift video

<https://youtu.be/RsLoYJv8P5o>

Marestail Management in Pennsylvania – two-page factsheet being distributed at various extension events (see attached).

Developed an Integrated Weed Management Resource Website. This is being populated with various IWM materials. This was developed in conjunction with an USDA-ARS area wide weed management project. Ms. Annie Klodd was managing the website which can be found at integratedweedmanagement.org. Mr. Claudio Rubione was recently hired and will continue to manage and expand the website.

(<http://integratedweedmanagement.org/index.php/iwm-toolbox/what-is-integrated-weed-management/>)

“A War on Weeds” – a growers guide to minimizing the threat of Palmer Amaranth and Waterhemp in the Mid-Atlantic Region has been purchased and are being distributed. Additional copies were obtained in fall of 2017.

<http://extension.psu.edu/plants/crops/news/2016/06/new-invasive-pigweed-materials-available/>

Invasive pigweed survey. We had been conducting an invasive pigweed (Palmer amaranth and waterhemp) survey in Pennsylvania mostly focusing on the SE Region. We have been identifying farms and fields with the problem in order to help landowners with management and to build a database that will help us monitor the spread. We had hoped to link this to a mapping tool with the help of Dr. Doug Miller at Penn State. Unfortunately, Dr. Miller and his team have not had time to accomplish this activity. On a positive note, both invasive pigweeds were classified as PA Noxious Weeds starting in 2018.

Work still in progress:

We are in the final stages of finishing a new on-line IWM guide that will be published through the University of Delaware:

Integrated Weed Management for the Mid-Atlantic Field Crops - We are developing a new IWM guide in collaboration with other Mid-Atlantic University colleagues. All 15 chapters are in the final stages of review.

Anticipated IWM Guide Chapters

Chapter 1: Resistance

Chapter 2: Prevention

Chapter 3: Identification

Chapter 4: Scouting

Chapter 5: Emergence

Chapter 6: Biological Control

Chapter 7: Cultural

Chapter 8: Cover Crops

Chapter 9: Tillage

Chapter 11: Cultivation

Chapter 12: Thermal

Chapter 13: Chemical

Chapter 14: Late Season

Chapter 15: Thresholds