News Release

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Waterhemp and Other Pigweeds Problems in Agronomic Crops

What weeds did you see left in your field during the 2022 harvest? Each year OSU Extension Educators ask the same question. Several Educators travel their counties to identify which weeds escaped our herbicide applications and in 2022, Educators surveyed 3,810 fields in 37 counties! This helps us evaluate resistance development or application timing issues that need to be addressed for the next growing season. As I make my way around Southern Ohio to teach private pesticide recertification sessions, waterhemp and other pigweed control problems continue to surface. Whether you are a private pesticide applicator, hire a commercial applicator, or you simply rent your land out to a producer who makes management decisions, knowing the weeds you have in your field is important for selecting the proper management approach and ensuring long-term success in your fields

In the fall of 2022, Educators also found that pigweeds continue to be a headache for many producers. The following information is a compilation of resutls from the Southern Ohio regions that included surveys from 5 counties (Greene, Clinton, Clermont, Adams, and Highland). Throughout this region, 435 fields were surveyed, and the most commonly occurring weeds were Redroot pigweed and Waterhemp. Redroot and Waterhemp are both in the pigweed family and Educators reported their appearance in 13-19% of the fields in their counties. The good news is that the percentage of weed-free fields ranged from 35-51% of the 435 fields surveyed.

While 13-19% of fields with a population of pigweeds may sound relatively low, waterhemp can produce up to 1 million seeds per plant in ideal growing conditions. In addition to their abundant seed production, waterhemp populations can quickly develop herbicide resistance. Therefore, those fields with waterhemp populations still standing in the fall have likely survived herbicide applications and the seed deposited from those plants are likely to inherit that resistance. For this reason, proper management tools and decisions will be critical in preventing a rapid population spike in these counties.

To put this into perspective, if a single female produces 1 million seeds, we will assume 20% of those are viable. If only 25% of those viable seeds germinate the following year, we would have 50,000 plants. Even if we have 99% control (500 plants survive) and only half of those are female, we

have 250 waterhemp plants that can produce seed. Those plants can produce 250 million seeds which equates to 12.5 million plants. If we control 99% of those, we still have 125,000 plants that survive the 2nd year!

So, what are the best management practices for waterhemp and other problematic pigweeds? The top priority for effective control is to prevent seed production. This means frequently scouting fields during the entire growing season because waterhemp is a summer annual with an extended period of emergence (May-September). As our OSU Extension Weed Scientist, Mark Loux states, the one weakness of waterhemp is that 80% of the seeds lose viability within the first 12 months and only about 5 % remain viable after 36 months. Overall, waterhemp seeds is only expected to be viable for 4 years whereas red root pigweed can be viable for up to 40 years. We can significantly reduce waterhemp populations with just a few years of effective control, but redroot pigweed can continue to be a nuisance. Therefore, correct identification is crucial for effective management.

Herbicide programs will require frequently rotating mode of action to slow down resistance development. Residual herbicides at or before planting are recommended to help combat the delayed emergence and allow for a timely post application. Residual herbicides with active ingredients of Acetochlor, Metolachlor, or Pyroxasulfone have shown to be effective when weeds are small. When paired with a herbicide program, shallow tillage can also help with control. In Ohio, waterhemp has developed resistance to site 2, 9, and 14 herbicides. Refer to the “Weed Control guide for Ohio, Indiana, and Illinois” for a full list of herbicide efficacy ratings. For post emergent applications, apply a mixture of 2 sites of actions that are effective. Soybean herbicide resistance genetics become an important selection decision when evaluating effective herbicide options. Scout again after the final “post” application and remove existing plants that have survived. Integrating cover crops such as cereal rye, wheat, and barley have also show to reduce waterhemp populations. It is important to utilize an integrated approach to have the most effective control program.

OSU Extension will also be offering Weeds University programs that will address these problems with more detail. OSU Extension Highland County will offer their program on March 1st from 9:00 AM - 4:00 PM at Southern State Community College located at 100 Hobart Drive in Hillsboro. OSU Extension Clinton County will host their session on March 3rd from 9:00 AM – 4:00 PM at the Clinton County Extension office located at 111 S. Nelson Ave, Suite 2 in Wilmington. The registration fee per person is $40 and is due by February 24, 2023. This fee includes lunch and course materials. Private and Commercial Pesticide and Certified Crop Advisor (CCA) credits will be available.

Weeds University is designed to keep agronomic producers on the cutting edge in weed control for their cropping operations. Topics addressed will include local weed issues, biology, and identification of weeds, waterhemp challenges, weed resistance mechanisms, evaluating your herbicide program, and sprayer clean-out tips. Featured speakers will include Dr. Alyssa Essman from The Ohio State University, Dr. Aaron

Hager and Pat Tranel, from the University of Illinois, and Dr. Fred Whitford, from Purdue University. Contact James Morris at Highland County Extension at 937-393-1918 for more information.