



2021 WSSA Standing Committee Report

Committee Name and Code: E12a Herbicide Resistant Plants Committee

Committee Chair: Muthukumar Bagavathiannan

Committee Members (includes sub-committee members):

Caio Brunharo, Tom Barber, Jason Bond, Daniel Stephenson, Jim Brosnan, Charles Geddes, Neha Rana, and William Vencill

Board of Directors Liaison: Lynn Sosnoskie

Summary of past year's activities including:

- Committee goals:

To serve as an information resource for scientists and practitioners in the areas of confirmation, identification, and management of herbicide-resistant weeds.

- Committee accomplishments

- Impact of committee activities/accomplishments on membership, publications, policy, education, others, etc.

There were two major activities:

- 1) Advance our understanding of formulating community-level efforts for weed resistance management:

- These activities are carried out in collaboration with the Herbicide Resistance Education committee (E12b), Chaired by Dr. Jill Schroeder. Actively involved in studying and promoting community-level efforts for weed resistance management. Co-authored a peer-reviewed journal article on this topic led by Katie Dentzman.
- Co-organized and moderated a AAAS symposium on ‘Converging lab and field evidence to empower cooperative pest management’. The speakers of the symposium included Dr. Katie Dentzman (Assistant Professor in Rural Sociology and rural Public Policy at the Department of Sociology and Criminal Justice, Iowa State University), Dr. Clint Pilcher (Global Technology Educator and Distinguished Laureate in the R&D Organization at Corteva AgriScience), and Dr. George Frisvold (Bartley P. Cardon Chair of Agribusiness Economics and Policy and Professor and Extension Specialist in the Department of Agricultural and Resource Economics at The University of Arizona). The live panel discussion was organized on Feb 20, 2022. It was a very successful symposium with a lot of interest from the general public.
- Co-PI on an NSF Growing Convergence Program proposal (led by Dr. Katie Dentzman) to secure resources to continue research on community-level pest resistance management, by collaborating with social scientists and experts in other pest management disciplines.

2) Facilitate the establishment of a weed seed germplasm repository through
GRIN

- On behalf of the WSSA herbicide-resistant plants committee, we reached out to the seed curators at GRIN expressing our interest to submit/contribute a collection of herbicide-resistant and susceptible weed biotypes to GRIN-Global Plant Germplasm Collection.
- We used the NPGS map at <https://www.ars-grin.gov/Pages/Collections> to identify the gene banks and specific curators.
- We prepared a list of 24 target weeds in order of their importance that can be submitted to the GRIN network for subsequent use by the broader community.
- We contacted each seed curator at GRIN to understand their protocol for the submission of herbicide-resistant and susceptible weed seeds.
- Based on the information provided by GRIN curators at various locations, we prepared a standardized sample submitting protocol template. This involved information about collection location, originator and pedigree information, seed quality, numbers, passport/provenance data, and any other pertinent information or potential phenotypic data.
- Dr. David Brenner shared the NPGS passport form that GRIN utilizes to collect information internally. The idea was also to include bibliographic citations on the database that can be used later.
- We organized several meetings with the seed experts, USDA project leaders, WSSA members, and the GRIN team to seek ideas and discuss further steps in moving the agenda forward.

Outputs:

1. A list of important troublesome weeds and their associated seed curators at GRIN
2. Weed seed sample submission protocol template

Link to the files: https://drive.google.com/drive/folders/1qQvJpK0xqAil0vdZL_-LDhyD7p0Z-2eW

- WSSA funds requested if any?

None

- Current state of the committee's projects or activities?

Ongoing

- Summary of plans for next year (changes in goals, key initiatives, plan of action, etc.):

The following action items were identified FY2022:

1. Develop an outreach document outlining a standardized protocol for herbicide resistance confirmation in weeds
 2. Identify ways to encourage/incentivize the reporting of new resistance cases on Heap's website (www.weedscience.org)
 3. Continue to distribute the recent changes to herbicide MOA through presentations in regional weed science society meetings and via WSSA social media pages
 4. Work with the terminology committee in developing definitions/factsheets on metabolic weed resistance
- Any new information posted on the WSSA website?

None

- Recommendations for Board or Membership action (funds or other requests):
None