

WASHINGTON TURGRASS SEED COMMISSION
PROGRESS REPORT

Project No.: 3390

Title: Integrating New Tools for Grass Weed Control in Kentucky Bluegrass and Perennial Ryegrass.

Personnel: Raul Arryo, Graduate Research Assistant; Rachel Zuger, Research Associate

Accomplishments:

- Both indaziflam and pyroxasulfone are effective herbicides for managing the most common problematic grass weeds in turfgrass seed production.
- Both pyroxasulfone and indaziflam will require carbon seeding for weed management in the establishment year for turfgrass for seed.
- A laboratory assay was developed to study turfgrass cultivar sensitivity to indaziflam.

Results:

In 2017, 2018, and 2019, multiple field trials were established to examine the effects of field applications of GA on grass weed seed germination and seedbank depletion during establishment and to identify herbicide systems combining pyroxasulfone (Zidua) or indaziflam (Alion) with mesotrione (Callisto) to provide an integrated management plan leveraging our understanding of seed dormancy and seedbank management with herbicide physiology and targeted herbicide use, rather than relying on herbicides alone. Our results indicate: 1) that PRE applications of pyroxasulfone or indaziflam in combination with mesotrione provide complete control of downy brome, rattail fescue, alkali grass, and annual bluegrass in the establishment year, but requires the use of activated carbon above the seed row for selectivity, and 2) all grass species tested responded to GA applications, but the effect is strongly dependent on soil temperature. Use of GA for establishment or for weed seedbank management will require more study. Carbon seeding is an effective strategy to achieve selectivity with pyroxasulfone and indaziflam.

Publications:

Arryo, R., K. Sanguinet, T. Lehman, and I. C. Burke. 2019. A root growth assay to determine dose-response of weeds and crops to indaziflam. In *Proceedings of the Western Society of Weed Science*.

For detailed reports of our work for the Turfgrass for Seed Commission, please visit the Small Grains website:

Lyon et al. 2019. Annual Weed Control Report. <http://smallgrains.wsu.edu/weed-resources/weed-publications/weed-control-reports/>