2022 USAFRI Research Project Objectives

Herbicide Option for Weed Burndown in Alfalfa
University of Idaho - Adjesiwor

Project Award: $48,549

Justification:

- Broadleaf weed control continues to be a problem in alfalfa. Aside from residual herbicides, spring and post-cutting weed burndown remains one of the major practices for alfalfa weed management. Weed burndown programs in alfalfa have historically relied heavily on paraquat (*Gramoxone® SL 3.0*, and other trade names), a non-selective (kills both grass and broadleaves) contact herbicide (does not translocate within plants). However, paraquat is a Restricted Use Pesticide and one of the most acutely toxic herbicides used in alfalfa production. To limit the risk associated with paraquat use, the United States Environmental Protection Agency (US EPA) has introduced new safety measures for paraquat use (https://www.epa.gov/pesticides/epa-finalizes-new-stronger-safety-measures-pesticide-paraquat).

  These include:
  - Limiting aerial applications and requiring residential buffers
  - Prohibiting pressurized handgun and backpack sprayer applications
  - Requiring enclosed cabs or respirators for ground applications
  - Increasing the restricted entry interval

  Although these measures are aimed at ensuring the safe use of paraquat, this may be just the beginning of stiffer regulations to limit the use of paraquat in agricultural production systems. Thus, it is important to identify effective alternative herbicides for weed burndown in alfalfa.

  The value of paraquat to alfalfa growers has been primarily a function of four factors: high efficacy (especially on small broadleaf and grassy weeds); fast activity or weed control; lack of residual effect on rotational crops; and fast regrowth of alfalfa after burndown. Thus, any possible alternatives to paraquat must satisfy at least some of these conditions if they were to be adopted by growers.

  We are proposing to evaluate alternative contact herbicides including *Aim EC®, Reviton®, Sharpen®*, and *Vida®* (Group 14). These are fast-acting contact herbicides and short-lived in the soil, making them ideal as burndown herbicides. Most of these herbicides are not soil active or translocated in the plant, making it unlikely to have residues in the hay. If proven to be safe on alfalfa and provide effective control of common and troublesome weeds, this will provide growers with alternative herbicides to paraquat for weed control.

Objectives:

- The objectives of this study are to provide alfalfa growers guidelines on alternatives to paraquat for spring and post-cutting weed burndown in alfalfa. Specifically, to: 1) Evaluate the efficacy of alternative burndown herbicides; 2) Assess the impacts of these herbicides on the yield and quality of alfalfa; and 3) Quantify the economics of using alternative burndown herbicides on alfalfa.