

RESEARCH PROJECT SUMMARY

Project Title: Evaluation of Anthraquinone as a deterrent to Canada goose damage on soybeans with possible application to other crops.

Need: Much research has been completed on urban Canada geese with many techniques employed, including chemicals (Cummings et al. 1991, 1992, 1995). However, these studies were conducted on flying or migrating geese, and these methods have not been evaluated in agricultural settings where geese are flightless such as in eastern South Dakota. In a project funded by GFP, Dieter and Warner (unpublished data) evaluated the effectiveness of formulations of methyl anthranilate and Anthraquinone (AQ). While methyl anthranilate was ineffective as a deterrent, soybean foliage treated with AQ was avoided by foraging Canada geese. The foliage had been sprayed shortly after the soybeans emerged from the ground. During this time, test plots were arranged with treated soybeans adjacent to control areas with no spray. The control areas were completely consumed in all eight study sites, while the treated sites experienced normal or slightly inhibited soybean growth. While AQ exhibited an ability to deter geese from grazing on soybean foliage, it is still uncertain what applications rates, frequency of application, and spray band width of the chemical are needed to deter geese from causing damage. While research has been conducted primarily on soybeans, it is likely that treatments of AQ on corn and wheat would also be effective deterrents to Canada geese.

- Objectives:**
1. Determine the most effective field application rate (i.e. gallons/acre) of AQ to prevent or significantly reduce soybean damage from Canada geese and evaluate damage estimates and/or yield comparisons between treated and non-treated sites.
 2. Determine the most effective number of applications of AQ to effectively reduce soybean damage.
 3. Determine the most effective width of the spray band of AQ adjacent to wetlands needed to prevent or deter Canada geese from damaging crops.
 4. Evaluate AQ residues upon each application as well as residue levels prior to harvest.
 5. Provide management recommendations on the feasibility and utility of applying AQ on soybeans and possibly other crops such as corn and wheat.

6. Estimate the financial cost of application of AQ on a per acre basis.

Study Location: Eastern South Dakota

Expected Completion: June 2015

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