2020 USAFRI Research Project Objectives

On-Farm Research to Support the Registration of New Insecticides for Alfalfa
Montana State University - Wanner

Project Award: $99,960

Justification:

- Alfalfa weevil is the primary pest of alfalfa and it has developed resistance to insecticides containing pyrethroid active ingredients, the most common and affordable insecticides used to control their populations and damage (Warrior II, Mustang Maxx, Baythroid, Fastac, Respect, Tombstone, Proaxis, Declare, Silencer, Grizzly Too, etc.). Producers dealing with resistant alfalfa weevils have seen control failure and yield loss after applying a pyrethroid insecticide two or even three times. This lack of control may allow weevil numbers to increase in the surrounding areas; sweep net samples after 2-3 insecticide applications have reached 40-100 larvae per sweep, 2-5 times higher than the economic threshold of 20 per sweep. Economic loss results from increased control costs and lower yields from increased damage. Resistance develops to insecticides that have the same mode of action (MoA), pyrethroid active ingredients are MoA group 3A and they now fail to control resistant alfalfa weevils. Lorsban (chlorpyrifos, MoA 1B) has been used to control alfalfa weevil for several decades but chlorpyrifos is currently under court action for delisting and its future is uncertain (and due to its long term use resistance has developed to this MoA). Steward (indoxacarb, MoA 22A) has become the only "go to" insecticide for alfalfa weevil control when pyrethroids fail (despite its 3 times higher cost). Repeated use of only Steward to control alfalfa weevil will put this product at risk of resistance, an outcome that would leave no viable insecticide options. Insecticides with different modes of action (MoA) are urgently needed. The purpose of this project is to provide insecticide testing in collaboration with industry towards registering new insecticides for use in alfalfa and to target adult weevils for control in addition to larvae.

Objectives:

- The objectives of this project are to 1) evaluate new insecticides provided by industry for control of both larvae and adults to provide efficacy data to support new registrations; 2) evaluate timing and rates of currently registered insecticides to provide best use recommendations; and 3) publish a multistate insecticide guide for alfalfa that includes evaluation data.