DR. JEFF BRADSHAW

PROFILE

Dr. Bradshaw began working at the Panhandle Research and Extension Center in 2010. His research focuses on the applied ecology (i.e., agroecology) of insects in High Plains row crops and rangeland. His research is especially focused on the biological control of insect pests, insect pest monitoring, and novel pest strategies that improved profitability through conservation practices and reduced input costs for pest management.

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Insect Pest Resistance in Sugarbeet

The sugar beet root aphid was a key pest of sugarbeet prior to the development of genetic resistance in commercial varieties. This is why Western Sugar requires 100% of planted acres to contain root-aphid resistant varieties. I am working with colleagues at the USDA-ARS in Fort Colins, CO and faculty at Colorado State University to understand the pathways for resistant to the sugar beet root aphid in sugarbeet. This will help us find new sources of resistance to the root aphid and help us maintain the sources we have. Because of this research our growers can now plant Ses Vanderhave beets throughout the Western Sugar growing region.

Dry Bean Insect Pest Management and Survey

The western bean cutworm is an important pest of both dry bean and corn throughout North America. There are no resistance or transgenic traits in dry bean to help manage this pest. Therefore, managing this pest relies on monitoring, scouting, and carefully-times insecticide applications when necessary. The PHREC Entomology Program has been collaborating with our dry bean industry, the Dry Bean Commission, and the Nebraska Department of Agriculture to set up monitoring network. Information from this network helps our growers and agriculturists help refine pest-management decisions. Weekly reports are archived through Dr. Julie Peterson's "Western Bean Cutworm Central".

Wheat Stem Sawfly Management

The wheat stem sawfly has been the most important pest of Nebraska wheat since around 2012. Our program has worked with growers to identify patterns of movement and spread of this insect. We also found a beneficial insect that attacks the wheat stem sawfly and might be conserved through grassland management practices.

Managing Pests and Pollinators in Sunflower

Our previous research has shown that about 45% of seed set in sunflower is facilitated by pollinators. However, seed weevils are a serious pest of sunflowers and can only be managed through insecticides. However, many of the most affordable insecticides are highly toxic to pollinators. Our program (with collaborators in Lincoln) has been awarded a grant from the Nebraska Department of Agriculture to develop a strategy to help us reduce pest damage while maximizing yield potential.