WRIGHT, MADISON L.*[1], RAM YADAV[1], and ANDREW R. KNISS[1], [1]University of Wyoming, Plant Sciences, Dept. 3354, 1000 E. University Ave, Laramie, WY 82071.

Effect of cover crop presence on herbicide efficacy.

Shade avoidance syndrome is a plant response to neighboring vegetation. It was hypothesized that cover crops could alter herbicide efficacy due to the relationship between shade avoidance syndrome and herbicide modes of action. Field experiments in sugar beet were conducted in 2023 and 2024 near Lingle, WY, using a split-plot randomized complete block design with four replicates in 2023 and three replicates in 2024. Winter wheat cover crop (presence or absence) was the whole-plot, and herbicide treatments were applied as the split-plot, allowing herbicide injury to be evaluated with and without the presence of wheat. The wheat cover crop was terminated at the sugar beet two true-leaf stage. The herbicides acifluorfen, clopyralid, and a pre-mix of phenmedipham + desmedipham + ethofumesate were applied in the sugar beet study at the 4 true-leaf stage. Weeds were removed by hand to exclude confounding effects of weed competition. In 2024, an additional field study was completed in Laramie, Wyoming to evaluate Chenopodium album and Bassia scoparia response to herbicide in the presence or absence of a cover crop. Herbicide treatments included basagran, dicamba, glufosinate, glyphosate, imazamox, and pyraflufen. Crop and weed injury were generally worse when cover crop and herbicides were combined, but the effect was additive in most cases rather than synergistic.