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Abstract

Poster

Major: Agriculture

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Golden Pennycress Response to Simulated Carryover of Group 14 Soybean Herbicides

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Field pennycress (*Thlaspi arvense* L.) is being domesticated as a winter annual oilseed for use as an aviation biofuel. One line with enhanced oil characteristics and reduced weedy traits is golden pennycress. Pennycress establishes better in soybean residue than in corn stubble. Consequently, concerns have arisen about the effect Group 14 soybean herbicide carryover may have on pennycress establishment. The objective of this study was to simulate herbicide carryover and its effect on pennycress establishment and growth in a greenhouse environment. Herbicide dose rates were selected to represent expected half-life concentrations in the soil, with the less persistent herbicides of acifluorfen, carfentrazone-ethyl, lactofen, and tiafencil being assigned rates starting at the typical field use rate, and the longer half-life herbicides fomesafen and sulfentrazone being assigned dosage rates starting at half the labeled rate. Thirteen golden pennycress seeds (ARV1-tt8) were planted in 4-inch pots containing a modified mineral soil and grown under greenhouse conditions with consistent light and temperature. Treatments were applied using a single tip chamber sprayer. The experiment was repeated three times. Pennycress seedlings were counted and visual injury was assessed for each pot 2, 4, and 6 weeks after treatment. Above ground biomass was harvested at 6 weeks. All herbicides caused significant injury to pennycress at doses simulating 4 or 5 half-life concentrations (6 and 3% of labeled rate, respectively). Field studies should be conducted to determine which herbicides will allow for the safe rotation of pennycress in environments that are more conducive to herbicide degradation.