WIU CENTENNIAL HONORS COLLEGE
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Abstract

Poster

Major Ag Education

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Planting Soybean Green: Effect of Termination Time and Supplemental Nitrogen on Soybean Yield and Weed Growth

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The use of cover crops has become increasingly important for weed and nutrient management within corn (Zea mays) and soybean (Glycine max) cropping systems. Delaying the termination time of cereal rye (Secale cereal) cover crop until soybean planting results in greater biomass and increased weed suppression, but may cause yield loss. Applying supplemental nitrogen to soybean planted into green rye may minimize potential yield loss, but may also increase weed growth. Our objective was to measure 1) weed growth and 2) soybean yield as affected by cereal rye termination time and the addition of supplemental nitrogen at planting. Two experiments (one weedy and one weed-free) were conducted at Western Illinois University's Agricultural Field Laboratory in 2020 and 2021. A cereal rye cover crop was terminated 2 weeks before planting soybeans or 0 or 2 weeks after planting soybeans using glyphosate. Nitrogen was applied at 0, 22, 44, or 66 kg N ha-1 at the time of soybean planting using UAN (32-0-0). At 2, 4, and 6 weeks after planting, weed counts and crop growth parameters were measured from each plot. After senesce the middle two rows were harvested for yield. Planting green (terminating cover crop at planting) suppressed weed biomass compared to terminating the cover crop 2 weeks before planting. Weed biomass was increased at six weeks after planting in treatments that received 44 and 66 kg N ha-1. Soybean yield responded inconsistently to delayed cover crop termination -- in 2020 yield was decreased by delaying termination until two weeks after planting, but in 2021 termination date had no effect.