

Public Abstract

Luke Smith

M.S.

Agronomy

Overseeding Annual Ryegrass and Cereal Rye into Soybean for Winter Forage and as a Cover Crop for Weed Control and Soil

Advisor: Dr. Robert Kallenbach

advisor's signature

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Annual ryegrass (*Lolium multiflorum* Lam.) and cereal rye (*Secale cereale* L.) are two forages that fit well into mixed row crop/livestock operations as they can be used both as a cover crop and as a source of winter pasture. Few researchers have studied how to integrate these forages in a soybean [*Glycine max* (L.) Merrill]-winter pasture-corn (*Zea mays* L.) rotation. An experiment was conducted where each of these forage species was overseeded at different stages of soybean development, and corn was grown as a subsequent crop.

Soybean yield was not altered by overseeding annual ryegrass or cereal rye. All treatments yielded over 2,500 kg ha⁻¹ for the season (with a high of 4,200 kg ha⁻¹), which would supply much needed pasture for winter grazing. While all treatments were adequate sources of forage, overseeding at the R 6.5 stage consistently produced the greatest yields for both annual ryegrass and cereal rye. Forage quality from annual ryegrass was slightly better than for cereal rye, but both had crude protein levels of more than 170 g kg⁻¹ and neutral detergent fiber of less than 559 g kg⁻¹. The overseeded treatments had at least 60% more residue cover and at least 70% less weed cover than did the control plots. Corn yield in the following year was not altered by overseeding. The results of the experiment demonstrate that livestock operations in the lower Midwest could use cereal rye and annual ryegrass overseeded into soybean for winter grazing.