** This news release from K-State Research and Extension is available online at https://ksre-learn.com/agriculture-double-cropped-soybeans

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Intensify sorghum systems with double-cropped soybeans

K-State study: Double-cropped soybeans can boost profitability, environment

By Jacob Klaudt, K-State Research and Extension news service

MANHATTAN, Kan. — Nitrogen and herbicide applications rank among the highest input costs in crop production. To help offset some of those expenses and realize environmental benefits, producers can introduce double-cropped soybeans or cover crops to no-till systems.

Kansas State University cropping systems agronomist Kraig Roozeboom and his team initiated a long-term study in 2007 to determine the effects of this practice and cover crops on a fairly common cropping system on sorghum.

Their rotation started with sorghum, followed by soybeans, wheat, and cover crops before returning back to sorghum.

“Initially, we were looking at weed suppression,” Roozeboom said. “We also wanted to know how to manage the cover crops to have the best biological, yield, and economic responses, which has been the focus of agricultural economist Elizabeth Yeager’s work.”

Yeager, Roozeboom and colleagues summarized their results from several years of that study in a publication titled, “Cover Crops, Double-Crop Soybeans, and Nitrogen Rates Affect Productivity and Profitability of a No-Till Rotation," which can be found in an upcoming issue of the Agronomy Journal.

“Double-cropped soybeans are not a cover crop, and we thought about it as a secondary check to chemical fallow when we set up the experiment,” Roozeboom said. “In chemical fallow, we harvest the wheat, apply herbicides to keep the weeds and volunteer wheat down until sorghum planting the following spring. Adding double crops or cover crops coincides with popular discussions, like diversifying our cropping systems.”

Yeager found that farmers made more money when implementing double-cropped soybeans because they were able to harvest the grain and have bushels to sell even when yields were not great.

“One year we didn't have soybeans to harvest, but it was a failure in only one out of nine harvests,” Roozeboom said. “Yields averaged about 25 bushels per acre, which is not great, but at least you have income potential, and in one year we had nearly 60 bushels per acre. So it depends on the conditions that year.”

Beyond yields, Roozeboom’s team sampled plots to look at the influence of double-cropped soybeans on soil.

“It did not hurt the sorghum yield like some of the other high biomass cover crops evaluated and sometimes even contributed a little nitrogen like a summer legume cover crop,” he said. “It also helped build carbon over time.”

Chemical characteristics and biological activity were also assessed, according to Roozeboom.

“Even though the double crop soybeans didn't get as much of a response as some of the more traditional cover crops, it got us about halfway there, and we're still getting that additional economic return,” he said. “It just reinforces the fact that anytime you can intensify the system – even if you're harvesting that crop – there’s a potential gain in environmental benefits.”

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