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Profile from the Field

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Spring-Grazing Cover Crops with Nebraska's Knuth Farms

Project Titles: Impacts of Ionophore Supplementation and Corn Residue Management on Profitability of Grazing Rye with Growing Calves within an Integrated Production System
Coordinator: Ashley Conway
Location: Lincoln, Nebraska

SARE Grant $: $11,997
Duration: 2016-2018

To read the full project reports, go to www.sare.org/projects and search for project number GNC16-220

When a fourth-generation farm in Mead, Nebraska began to diversify their primarily cash crop operation in 2012, they gave some thought to cover crops and livestock. Knuth Farms didn't want to buy cattle or become beef producers, but they did want to diversify their income stream, capture some of the soil benefits of cover crops, and explore the benefits of grazing.

"We're not livestock producers and we didn't want to raise the cattle ourselves," explained Angela Knuth. "But we wanted to use the land resource that we had that was underutilized and make it more profitable in early spring before planting."

The Knuths wondered if a spring-grazed cover crop in their existing corn and soybean rotation could cover the cost of the cover crop seed. In 2016, Knuth Farms approached the University of Nebraska-Lincoln (UNL), where graduate student Ashley Conway teamed up with Beef Systems Specialist Mary Drewnowksi to help them develop a spring-grazed cover crop system with support from an $11,997 NCR-SARE Graduate Student grant.

"That field is just sitting there doing nothing for us, so it made sense, with all the talk of cover crops and the benefit of them to the soil, to get those on our soil and in our field," said Knuth.

The Knuths planted cereal rye just after fall harvest—the cereal rye would either germinate to briefly establish then die off in the winter, or lie dormant and vernalize through the winter. When the rye sprouted up in spring, they brought in cattle to graze that lush, green growth in March, April, and May and then killed it immediately before spring planting. They stocked their research fields at a rate of 0.9 head per acre and

Knuth Farms is a fourth generation farm in Mead, Nebraska that is moving toward a more diversified rotation. With help from University of Nebraska-Lincoln, they integrated a spring-grazed cover crop in their existing cash crop system to cover the cost of the cover crop seed. Photo by Angela Knuth.

1.8 head per acre. Cattle grazed for a total of 22 days and gained an average of 3.2 lbs. per day. The Knuths had some initial concerns about compaction with spring grazing, but it didn't become an issue.

"Everybody's always worried about compaction with cattle, and we were planting corn that spring so we were a little nervous about compaction and how our corn seeding would go," said Knuth. "We actually didn't have a single problem with that."

Knuth said the corn crop in the fields planted with cover crops had harvest yields as good or better than in years

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past. They planted 30 acres of rye after harvest this fall and plan to spring-graze cover crops in the future.

As for the cattle, they demonstrated considerable growth over a short period, according to Conway, indicating that cattle can perform well on spring rye maintained in a vegetative state. Regardless of the grazing management strategy, she says incorporating cattle into this system offset the increased costs of planting the rye by providing additional returns, and improved the profitability of the whole system. Based on the spring 2017 calf market price of $140 per cwt., returns ranged between $62.81-70.09 per acre or $36.63-48.68 per head. Conway notes that market conditions may not always result in profitability. Still, there is potential for this system to offer diversified revenue streams for both crop and livestock producers under certain conditions.

"We think that the information that we got is extremely practical for producers in the region who are also interested in looking at ways to diversify their cropping system production," said Conway.

Conway has since moved on from UNL to the University of Missouri's Center for Agroforestry, where she is currently an Assistant Research Professor investigating intensive integrated tree-forage-livestock systems (silvopasture).

"Going through the process of writing a SARE grant gave me a lot of confidence to apply for the job I have now," said Conway. "I think the experience I gained from this grant project made me a stronger candidate for the position and it made me feel more confident in my abilities. Learning how to write grants and how research funding works was the best experience I could ask for."

UNL has developed resources for farmers and cattle producers who want to develop similar mutually beneficial agreements for grazing cover crops. Find them online at https://agecon.unl.edu/cornhusker-economics/2015/rentalagreements-cover-crop-grazing. Read more about this NCR-SARE Graduate Student Grant project and watch a YouTube video about this project at https://projects.sare.org/GNC16-220/ or contact the NCR-SARE office for more information.

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