

FIELD AND FARM

Increasing cover crop seeding rate means fewer weeds, more benefits

By TERRI ADAMS
The Prairie Star

Farmers often use winter cover crops to add organic matter to the soil, improve nutrient cycling and suppress weeds.

Now these producers can optimize cover crop use by refining seeding strategies, thanks to work by an Agricultural Research Service (ARS) scientist.

Eric Brennan, ARS horticulturist at the U.S. Agricultural Research Station in Salinas, Calif., has been studying the effect of seeding rate on cover crops and the soil for several years.

He noted that their research has shown that farmers can improve early season cover crop biomass production, nitrogen capture and reduce weeds all by increasing the seeding rate.

"Seeds are a good way to do that. Seeds are relatively cheap when compared with most other inputs," said Brennan. Doubling or tripling the seed rate can dramatically improve cover crop performance without a dramatic rise in price. "It may take a little more time to load more seed but the other costs remain the same."

The higher seeding rates provide more weed suppression on those fields but can also produce more good biomass in the soil early on, he explained.

"If you have a relatively short window of time to grow your cover crop you want to get as much biomass produced in that period of time as you can," said Brennan. By planting more seeds the cover crop produces more biomass from the very beginning.

When they doubled the amount of cover crop seeds sown, biomass content was raised by 50 percent.

When they tripled the amount of cover crop seeds sown they noted a full doubling of cover crop biomass early in the season.

Another advantage to raising the seeding rate is that producers may be able to reduce input costs on their later crops. "There is more carbon going back into soil and you are also trapping more nitrogen that may otherwise leech out of the soil," he said.

One disadvantage to higher seeding rates is that a cereal cover crop may lodge more, fall over or lay down. In some cases that may make it harder to mow, said Brennan.

Brennan found less tillering in rye that had higher seeding rates but speculates that this may be good because the crowns, where tillers begin, will be smaller and thus less likely to create residue problems when mowing or preparing a fine seed bed for subsequent plantings.

"You want tillers if you are growing it for grain but when you are growing it as a cover crop you don't need tillers," he said.

Brennan planted rye using three seeding rates: 80 pounds per acre, 160 pounds per acre and 240 pounds per acre.

The higher seeding rates consistently improved early-to-midseason rye biomass production and weed suppression.

Additional studies conducted with a cover crop mixture of legumes and oats also showed similar results.

Those seeds were planted at densities of 100, 200, and 300 pounds per acre.

Additionally, Brennan tested the effect of planting covers, running tests on fields planted both in grids and traditional rows. He found that planting patterns had no effect on cover crop yield or weed sup-

pression. Furthermore, since planting in a grid pattern requires two passes through the field, grid planting would likely double the cost of fuel use, planting time, labor and increase dust production.

"I see increased seeding rates as a cost-effective way of increasing weed control and early season biomass. It also increases trapped nitrogen that would have been leached out of the system," he said. ★

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