

NEW RESEARCH ON INTERSEEDING COVER CROPS INTO STANDING CORN BEGINS

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Trials testing the potential of seeding forage-type cover crops into standing corn – and utilizing the cover for grazing – have been planted in southeastern Minnesota this week.

“We’re going to try seeding small grain, radish, annual ryegrass, vetch, crimson clover and maybe some kale and turnips into knee-high silage corn,” explains Jim Paulson, University of Minnesota Extension educator, dairy.

“The objective is to see if we can have a cover crop established when we take the corn off for silage and then have the option of doing a late fall grazing,” Paulson says. The annual cover crop will freeze and die out, but protect soil from wind and water erosion over winter.

One of the challenges to seeding into standing corn is having planting equipment that will provide good seed-to-soil contact, he adds.

“We’re realizing that just dropping the seed doesn’t get us good enough soil-seed contact, so we’re looking at ways to modify equipment to be able to do that.” A combination of planters and drills are being considered. Paulson’s team is experimenting with equipment that offers drill aspects and possibly some cultivation.

“Initially, we’re trying to see if we can get establishment – see what grows in the corn. We’ll also have shading issues and potentially herbicide challenges,” he says.

The cover crops will be examined and discussed at an Aug. 11 Southeast Minnesota Forage Council Field Day organized in cooperation with the Midwest Forage Association and University of Minnesota Extension. The Field Day and the cover-crop plots will be located on the Ron Pagel farm, Eyota, MN.

Watch for more on the field day, which will also provide mowing, baling and wrapping demonstrations, at midwestforage.org.

Interseeding cover crops into growing corn was the subject of rather recent university research in Wisconsin and South Dakota. North Dakota State University has also studied the technique and has just received more than \$2 million in grant funds to continue its work. It will be a collaborative project, says Marisol Berti, the NDSU forage agronomist who will lead it. Researchers from the University of Minnesota, Iowa State University, and USDA’s Agriculture Research Service laboratory in Morris, MN, will also take part.

The project will include seeding four cover crops – rye, forage radish, camelina, and a legume – into standing corn and soybeans at different growth stages in trial plots in the three states. The scientists will modify or design seeding equipment and improve seeding strategies to establish the cover crops, Berti says.

“We hypothesize that new or modified seeding equipment will enable growers to successfully establish second crops (cover crops) in standing corn or soybean. Also, by determining the nutrient credits for the next cash crop, the grower will be able to reduce fertilizer costs as well as lower greenhouse gas emissions,” she adds. For more on this developing research, [click here](#).

In 2014 and 2015, winter rye, red clover, radish, and oat-pea mixture (70% oats, 30% pea) were four cover crops tested



Several cover crops are being interseeded this week into this southeastern Minnesota cornfield to test whether they will establish well, provide erosion control and add value as a grazing crop. Photo: Jim Paulson, University of Minnesota.



Researchers interseeded cover crops such as camelina into corn (pictured) and will continue a several-state collaboration of cover-crop research using a \$2 million grant. Photo: Russ Gesch, USDA, Morris, MN.

in University of Wisconsin trials at the UW Arlington Research Station. The crops were seeded, using a modified no-till grain drill, into V5 growth-stage corn later harvested for grain.

“The drill had four row units removed, leaving six-row units to allow the drill to go through the crop rows and plant three rows of cover crops between each corn row. The no-till disks and supporting hardware were also removed to prevent damage to the corn,” according to a report on the research. After corn grain harvest, cover crops were evaluated by weighing the total dried biomass collected from a small quadrat in each plot.



Cover crop stands just prior to harvest with average corn yield and average cover crop dry biomass weight. Photo: Daniel H. Smith, University of Wisconsin.

Within four weeks of seeding, radish, red clover, and winter rye germinated; had consistent growth during the growing season; and good vigor up until two weeks to grain harvest.

In 2015, the oat-pea mix didn't have good vigor or biomass accumulation. The corn didn't show any visible symptoms of stress and the cover crops didn't significantly reduce corn yields.

In 2014, radish and oat-pea winterkilled, rye was the only cover crop that needed to be terminated in spring, and red clover looked very poor at corn harvest. The late corn harvest stressed the red clover too much for it to survive winter. Both years, all cover crops were completely buried by corn residue after harvest, resulting in variable biomass data.

“Future research will focus on evaluating the soil conservation, soil carbon building, and potential N credits obtained with interseeding these cover crops,” according to the report. [Click here](#) to find that report, starting on page 75 of the 2016 Wisconsin Crop Management Conference proceedings.

In South Dakota, a mixture of crimson clover (6 lbs/acre), lentil (11 lbs/acre), and winter wheat (10 lbs/acre) was interseeded into V6-growth-stage corn at South Dakota State University research locations at Andover (in 2010 and 2011) and Trail City (in 2011 only). Each location sported two separate plots that were subdivided, one broadcast-seeded and the other drilled into 30" corn.

Drilling provided better cover-crop establishment over broadcast. All three cover crops established over the growing season, but only the crimson clover and winter wheat remained at the end of the growing season. Cover crops had little or no effect on grass weeds and didn't affect corn yield. To view a presentation on the trial results, “Possible Advantages of Cover Crops Interseeded at V5-V6 Corn Growth Stages in South Dakota No-Till Production Systems,” [click here](#).

Other interesting information related to interseeding cover crops into a standing crop can be found by clicking the titles below:

[Improving the Success of Interseeding Cover Crops in Corn](#)

[Retooled Rotary Hoe Interseeds Cover Crops Into Corn](#)

[Interseeding Cover Crops into Corn and Soybeans: a Meta-Analysis](#)

[Top tips on interseeding cover crops in corn and soybeans](#)