

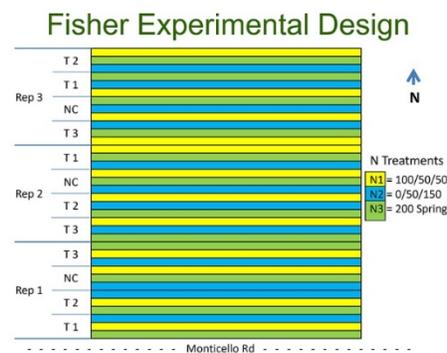


FIELD NOTES

April 10, 2019

Cutting the grass in the spring

It's not exactly grass – but rather a cereal rye cover crop in a continuous corn field. Lowell Gentry and his research team started collecting above-ground cereal rye (biomass) samples from one of their fields in Champaign County to gather data on growth rates and N accumulation of the cereal rye. The cereal rye is terminated with glyphosate immediately following biomass sampling. The timing coincides with terminating the cereal rye approximately four weeks, two weeks, and the day before planting corn; however, this year with the late start those times may be compressed down to 10 days apart to get corn planted on time. The idea is if this can work in continuous corn it should have an even greater chance of success when cereal rye is planted after soybean and ahead of corn. Terminating a large amount of cereal rye only one day ahead of corn planting is not recommended, but designed to stress the system.



The diagram at the left shows the ¼ mile long plot design with randomization of the three termination dates and three N systems. There is a no cover crop (NC) treatment as well. The three N systems allow for an evaluation of what is the best time or combination of application times that produce the greatest corn yield with or without the cover crop present. Ultimately, the results will reveal what is the best N management system and termination date for cereal rye ahead of corn. This three-year study has had a warm winter (2017) and now two cold ones in a row, which directly affects when was the best time to terminate the cereal rye. In 2017 there was a clear tradeoff between too much cereal rye biomass and a yield reduction of the subsequent

corn crop. Whereas the cold winter and early spring of 2018 limited cereal rye growth and even the late terminated cereal rye had no negative effect on corn yield.

Gentry has other fields across central Illinois with cereal rye planted ahead of soybean and has found that tile nitrate can be reduced by more than 40% -- showing that cereal rye can do more than just protect the soil from erosion, it can act as a N “catch crop” too.



Lowell Gentry (left) and Luis Andino, a graduate student from Honduras cut samples of cereal rye within a half-square meter area. The cereal rye was planted with a drill following corn harvest. Lowell noted that this is a good, full cover crop of cereal rye that survived the extremely cold winter days – unlike the annual ryegrass on his research field in Douglas County that died in the -20°F temperatures.

University of Illinois (UIUC) researchers are collaborating across NREC-funded projects, by sharing data and other information. One example is cover crop research. A team of researchers is working with computer scientists and programmers to develop a web-based decision support tool for cover crop management. Project leader Jonathan Coppess emphasizes the importance of data from cover crop research collected by Lowell Gentry: “Data is absolutely critical for managing cover crops and producing outputs that align with real-world fields, such as Lowell’s”.