

## University of Illinois Extension and



# Illinois Valley Community College Agriculture Department Partnership

2021 Agronomy Research and Demonstration Projects
Cover Crops in Soybean/Planting Depth in Corn/Leaf Disease Susceptibility

In 2021, the acreage at Illinois Valley Community College Campus Farm made available for demonstration and research projects (in cooperation with Luke Holly) expanded. In addition to the 10 acre plot dedicated to corn research projects, 56 acres planted to soybean in 2021 were planted to



cover crops in the fall of 2020. This expansion was accomplished with input and support of a number of individuals and agribusinesses. Our sincere thanks to the following entities and individuals who recognize the value of localized research and demonstration projects and share inputs and expertise.

CNH Industrial Innovation and Agronomy teams-

Trevor Stanhope Lily Cobo Jose Guzman

Nick Jablonski

#### Corn Seed Donation -

LG Seed/NK Seeds/CROPLAN - Montana Knoblauch, Sun Ag Inc.

Pioneer – Lukach Seed Agency

DeKalb – Jamie Eilts, Evergreen FS

LG Seed – Bruch Farms, Gary Bruch Adam McVey

NuTech - Corey Matter

#### Cover Crop Seed -

Sheena Schmidt, Ford and Son's Samantha Schmidgall, Ag View FS

#### Cover Crop Planting -

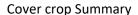
Dave Callan, GRAINCO FS Greg Simms, GRAINCO FS

#### Cover crops planted into corn stubble before soybean

A field dedicated to seed corn production in 2020 consisted of 4 large scale plots (each approximately 14 acres) planted to an individual cover crop or a cover crop mix. The seed was blended (if needed) and surface applied with a spreader using pell lime as a carrier to the corn stalks. Seed to soil contact was enhanced with a vertical tillage tool. One plot was intended to winter kill (Plot 2) and three were expected to overwinter and resume growth in the spring.

- Plot 1 Cereal Rye
- Plot 2 Oats and Radish
- Plot 3 Annual Ryegrass, Radish, and Turnips
- Plot 4 Cereal Rye and Radish

All 4 treatments had excellent emergence and fall growth. As expected, the oats and most oil seed radish winter-killed. Cover crops with spring growth were terminated the week of soybean planting (April 28<sup>th</sup>). Soybeans were planted in 30 inch rows at a population of 140,000.



- Overwintering cover crop options visibly reduced winter annuals
- Cereal rye reached 8 14" at termination
- Despite very dry and hard soil conditions at planting, soybean emergence was uniform across plots (aided by early May precipitation)

Yields (measured with yield monitor) did not vary between three cover crop and no cover crops. Yields recorded between 62 – 66 bu. per acre.

#### Corn planting depth

Dry soil conditions at planting had several field agronomists recommending increasing corn planting depth to reach moisture. Recommendations ranged from 3 to 4 inches. Current recommendations in the Illinois Agronomy Handbook suggest that for most conditions, corn should be planted  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches. Later in the season, when soil temperatures are higher and evaporation is greater, planting as much as  $2\frac{1}{2}$  inches to reach moist soil may be advantageous, especially if the forecast is for continued dry weather. Four corn varieties were planted at  $1\frac{1}{2}$  and 3 inches deep. Variance in time to emergence, stand at V5, and final yield were evaluated.

#### Planting depth summary

- Corn varieties planted at 3 inch depth vs 1 ½ depth required an additional 4 5 days to emerge
- Deeper planting depth did not have an effect on stand at V5 or final harvest
- Planting depth did not affect final yield in this study



#### Hybrid leaf disease susceptibility

With the annual potential for leaf disease incidence we wanted to compare disease infection rates on hybrids rated with high levels of tolerance to leaf diseases (Gray Leaf Spot, Northern Corn Leaf Blight, and Tar Spot), to a hybrid considered average. Corn was planted on April 28<sup>th</sup> with favorable planting conditions. Emergence was excellent and the plot received several localized rains through early June. Early July brought a substantial rainfall event that carried the



crop through tasseling. The plot was sprayed with a fungicide at R1. Late July and August were mostly dry. Harvest took place on October 1.



Hybrid leaf disease susceptibility summary

- Despite receiving an R1 fungicide treatment, all corn varieties were infected by Tar Spot late in the season
- Southern Rust, also was present in 2021, initial infection occurred near tasseling or R1
- Variation across replications resulted in high LSD (least significant differences) within the study, suggesting there was not a significant difference between hybrids at this location in 2021
- Yields across plots ranged from 206 to 218 bu. per acre and averaged 16 to 17% moisture at harvest



We are looking forward to the continuation and further expansion of projects at the Illinois Valley Community College in future years.

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