

NEXT YEAR

The 2019 trial location will be planted to soybeans in the 2020 growing season. We will closely monitor the strips and any differences in yield in the soybeans. We will repeat the corn trial with some modifications in a nearby field.

The 2020 60 inch corn trial will be located along Highway 12 west of Millbank, SD. If interested in a tour of the plot, watch for our scheduled field days or call a coalition employee to arrange a tour!



Special thanks to David Kruger, and the entire Kruger family for their dedication to and work on these trials.

The Kruger family works hard to continue building their soil health and are dedicated to soil conservation.

CONTACT INFORMATION

Interested in setting up an experimental test plot? Would you like information about ways to incorporate soil health in new ways on your operation?

Contact a member of our team today!

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60 Inch Corn Trial With Interseeded Cover Crops

*2019 Twin Brooks, SD
Producer: David Kruger*



- **Corn Planting Date:** 5/4/19
- **Corn Variety:** Peterson 78B98 VT2Pro (Semi-flex)
- **Cover Crop Planting Date:** 6/5/19
- **Corn Harvest Date:** 11/5/19
- **Field History:** 3 years no-till (lightly tilled before purchased)

LOGISTICS

Fertilizer: 250 lbs. 27-18-9 starter 2x2

- 35 gallons 28-0-0, side dressed

Pesticides: 26 oz. Roundup, 8 oz. LV6,
20 oz. Verdict

- 9 lbs. AMS/100 gal of H₂O, 1 qt. non-ionic surfactant/100 gal of H₂O (before emergence)
- Applied straight roundup at 32 oz./acre right before cover crop planting



Cover Crop Planting Equipment Used:

10 ft. Drill

- Cowpeas
- Winter Wheat
- Sunhemp
- Buckwheat
- Hairy Vetch
- Flax
- Red Clover
- Millet
- Oats
- Rapeseed
- Annual Oregon Ryegrass



THE DATA



Cover Crop Biomass Samplings:

7/22/19: 280 grams green weight, 14000 lbs. green weight, Dry Weight– 45 grams, 2250 lbs.

9/27/19: 460 grams green weight, 23000 lbs. green weight, Dry weight– 130 grams, 6500 lbs.

Corn Harvest: 30" Plot Averaged 192 bu/acre

60" Plot Averaged 174 bu/acre

Soil Moisture and Bulk Density*:

30" Plot: Average soil moisture of 4.95%, average bulk density of 1.72 g/cm³

60" Plot: With cover crops average soil moisture of 6.25%, average bulk density of 1.62 g/cm³

60 inch corn with interseeded cover crops would increase the biodiversity in a rotation and have significant impacts on soil health.

The field displayed good soil health over all, due to good prior management, showing lots of evidence of biological life through the presence of large amounts of worm counts and good aggregation. Had the field been in poor conditions, we may have seen greater differences in soil health from the 30 inch rows to the 60 inch rows with cover crops.

***Bulk density** is the weight of **soil** in a given volume. **Soils** with a **bulk density** higher than 1.6 g/cm³ tend to restrict root growth. **Bulk density** increases with compaction and tends to increase with depth.

***Soil moisture** is the water stored in the **soil** and is affected by precipitation, temperature, **soil** characteristics, and more. The size of the **soil** particles and pores affects how much water a **soil** can hold, and how that water moves through the **soil**.

CONCLUSION

The trial consisted of four replicated 120 ft. strips of 60 inch corn with interseeded cover crops and 30 inch corn without interseeded cover crops. The strips were monitored throughout the growing season.

There was a significant difference in plant health throughout the season, with the 60 inch corn with cover crops appearing greener, and healthier. The 60 inch corn also seemed to be further along in its maturity for most of the growing season. However, lower yields were experienced within the test strips at harvest.

Impacts To Watch For and Why?

Uneven emergence was noted at the beginning of the growing season, in the test strips that contained the 60 inch corn with interseeded cover crops. Numerous fields in the area with the same initial planting date had to be replanted, but this particular field was not replanted. It was concluded that the yield deficiency that was subsequently experienced in the 60 inch corn plots was because of a combination of factors.

The uneven emergence in the 60 inch corn was paired with increased competition due to the amount of millet in the cover crop mix. It is believed that this was also a factor in the lower yield results. During the key stage of grain fill, a hindrance of capture and release of nitrogen appeared to occur.

