



Hey everyone,

This update will cover some assorted information about our cover crop after wheat. This update took a little longer to get out than I would have liked, but I've been working on materials for the website, we've been busy getting ready for harvest, and I was running a small experiment that I was hoping to include in this update. That experiment didn't go as fast as I'd hoped, so I switched it up a little to make it work.

A Quick Note

It's worth repeating: This field has no serious weeds after 15 months without herbicide. It proves that while herbicides are an important ***PART*** of weed control, they are not the ***ONLY*** part, and it is foolish to pretend otherwise.

My Carbon Experiment

One of the many goals in sustainable agriculture is addition of carbon. Carbon feeds the soil and makes up all living things. Our black, rich soils were formed from long term carbon inputs. Carbon (as organic matter) is being lost from agricultural soils from tillage and nitrogen overuse. This is obviously bad for the long-term productivity of the soil. Also, the lost carbon is released by microbes as carbon dioxide, which then ends up in the atmosphere, a serious issue. Our goal is to reverse these trends.

This brings us to my (modified) experiment. My goal was to weigh a certain area of cover crop, dry it, and calculate carbon/acre. After a week of drying plants, I got impatient. Sun drying plants is incredibly slow, and I doubt anyone will volunteer their oven for my plant use...so I had to do estimates, otherwise this will take weeks. Following are some of my estimates based on plant cuttings last week:

| | |
|--|-----------------|
| Initial wet biomass/acre based on measured weight of ~3.5lbs/yd ² : | 16,940 lbs/acre |
| 80-90% of plant weight is water. So, using 85%, dry weight is: | 2,541lbs/acre |
| 45% of plant dry weight is carbon. So, total carbon weight is: | 1,143lbs/acre |

*This does not account for wheat straw, any spring growth, or any underground material, so the number is a very low estimate.

Clearly there is a lot of room for error, but it gives an awesome illustration. Using those numbers, in 5 acres, there is ~5,715 lbs of carbon. This is approximately the weight of a Ford F-250 truck. In the entire 110 acre field, there's about 125k lbs, so about 22 trucks of added carbon.



Making a Cover Crop Mix

An after-wheat mix involves choosing species that will compliment, not compete with each other. We want to have a few species that overwinter, some short or tall, some with shallow fibrous roots, and others with deep strong roots. Some species will produce some nitrogen for the next corn crop, while others will send deep roots and bring nutrients up to the surface. The mix we designed met those goals and has come along great. Some producers who use a similar program have reported using only 40 lbs of nitrogen for the next corn crop and raising 200 bu corn... which would be up to a 140 lb reduction from most people's programs. We will be doing strip testing next year to see just how little nitrogen is needed after doing something like this.



Tape measure = soil line

Above shows sunflower, radish, and okra roots (L-R). Roots broke off obviously, but will easily reach 3+ feet. This brings up nutrients and makes channels for crop roots later.

Sunflower visited by a butterfly. We've seen countless bee, fly, wasp, and butterfly species.

Species are included in a mix for various benefits. Watermelons for example will cover blank areas as vines, flowers attract insects, and melons will breakdown and support soil life.

In Other News

Harvest is right around the corner. We tried to start soybeans today, but they aren't quite dry enough yet. Should be early/mid next week before we try again.

Wheat varieties have been chosen and planting will begin around Sept. 27 at the earliest, depending on conditions. We chose to go with 3 AgriMaxx hybrids. All they sell is wheat and are passionate about it. Their varieties are very often used in yield contests and have a great reputation, both in products and company as a whole.

We have contacted several outlets about premiums for corn next year and have a few possible leads. A few of these leads only became interested when we mentioned our sustainable practices. We'll see what opportunities come up, distance from elevators is our biggest enemy at this point.

Corn hybrids are beginning to be lined up for next year. Bean hybrids are undetermined as of yet and will depend on potential contract options for next year.

Conclusion

Next update will probably be in a couple weeks depending on how timing and weather works out. We have to harvest, plant wheat, and cover crops in a timely manner. Once we get some of our harvest data organized I'll send out a summary. I'll also include results for any trials we did in corn and where we may take them next year.