

2011 Cooperative Research Plot Activities at Orthman Strip-Till Research Farm

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It is the intention of Orthman Manufacturing, that we work with other input Agricultural groups/companies to jointly demonstrate the positive impacts of a fully engaged Conservation Tillage Systems approach that is used to grow corn and soybeans under supplemental irrigation via a center pivot system. We are all about uniting properly placed and the highest quality fertilizers, utilizing GPS RTK level guidance, using advanced planters, a conservative fertilizer program with precision placement for the advancement of crop physiology as we know it. We recognize the importance of using the best seed sources that will fit the Strip-Tillage soil environment and top level weed control products at timely application to grow top notch row crops.

This level of technology in farming is carried out with less than 8% of the American farmers. It is sophisticated but feasible for all row crop farming operations at some level of what we carry out each year. As part of this systematic approach, we are soil sampling annually and are working to modify our application rates accordingly along with an agronomic/soils outlook of reducing total N and P inputs by a minimum of 30-35% from the standard Nebraska university recommendations. We apply 60-70% of the needed nitrogen through the center pivot during irrigation applications 3 to 5 times so as to spread out the load, spoon feeding the crops.

Our Project plots in 2011:

Primary Project – associated with three Seed Corn Companies that sell and grow corn in Nebraska. To use 6 parent lines hybrids in a maturity range of 102 to 114 relative maturity date corn varieties in the strip-tilled and precision placed fertilizer plots. All are 4 row-30” plots. One set of these 6 hybrids (3-companies) will have a late application of a slow release N product at the fully released pollen corn stage, the other set of same hybrids will not have the late application to gauge differences in outcome and plant health. One participant agreed to carry out work at three geographical locations in Nebraska these same hybrids selected; Western Nebraska – Central Nebraska – Northeastern Nebraska on a moisture gradient increasing in precipitation from west to east.

Secondary - To observe the differences in Direct Seeding (No-Till) corn compared to Strip-Tillage with 2 hybrids from DuPont-Pioneer Seed company.

Third set of projects:

1. Observe changes and growth in an early senescence corn variety in the strip-till environment.
2. Observe with a Dekalb 109 RMD corn yield potential in Strip-till systems approach at four rates of plant population.
3. Observe changes and growth above ground and below (roots) where we add Humic acid, Carbon Boost™, Agrotain® Super-U to enhance the fertilizer programs.
4. Observe 2 new hybrids from Pioneer in the strip-till system.

The Value of these projects?

At 45-50 days after emergence maize (corn) time frame, the genetic design of this plant determines the number of rows around the cob; 12, 14, 16, 18, 20 or 22. The length of the ear has not been full determined until pollination. However, the larger number of rows (always in two's) generally will offer higher yields. We know from the studies here at the Orthman Research Farm and previous studies in Eastern Colorado from 2000 to the 2008, that more roots, deeper root systems have yielded consistently better every year by 6-21% over either conventionally tilled or Direct Seeded corn.

We have observed that by just obtaining a larger root system by 1000 cubic inches (2540 cubic centimeters) at a minimum will gain the American grower a little over 5% yield improvement and not counting the lesser quantity of water that has to be applied. Larger root systems over 2000 cu.in. more will even multiply to yield improvement. In dryland conditions or arid environs, the larger root system is incredibly important to gaining yield or having a crop at all.

As a manufacturing company, we are aware that tillage can be an automatic detail to the conventionally tilled farmer, but to us it is strategic and vital to making a crop become more profitable. We look to make this known and to serve you, our customer.