

Rates Under Study

Higher Stands Equal Bigger Yields, Study Show

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A study in its third year was conducted on seeding rates and nitrogen rates for twin-row corn at Stoneville. Dr. Wayne Ebelhar, research scientist agronomist working in soil fertility with corn, cotton and soybeans, is conducting the research.

"This was the third year the study has been on farm with George Rea Walker and Martin Walker farms here at Stoneville," Ebelhar said. "Walker and his family switched from cotton several years ago. They are growing predominately corn and soybeans in their operation.

The study evaluated corn on 38 inch row beds with eight to 10 inch spacing between the rows. The project was begun on this farm in 2005 in a 40-acre field. Five different seeding rates and three nitrogen rates are under study. The nitrogen rates ranged from 180 to 260 pounds of N, part of it going out preplant or just after planting.

"We put the test rates in as a side dress," he said. "The crop was planted with a Monosem twin-row planter using planter book recommendations for the seeding rate, which runs from 24,000 up to just over 40,000 plants per acre. The plants are offset by the planter so the two rows are planted in a staggered planting pattern.

"In 2005 we lost the test due to Hurricane Katrina," Ebelhar stated. "We didn't have a whole lot of control over Hurricane Katrina, as did anybody else."

The Walkers were able to harvest the crop by harvesting across the rows to pick up the downed corn.

However, there was one thing noticed in that year. From stand counts taken early in the season it was seen that the planting rates on the Monosem planter take into consideration some stand reductions.

"So if we shoot for 24,000 plants per acre on that planter, we end up with at least that many in the field," he noted. "One of the things that farmers need to do if they use other planters is to calibrate their planters to make sure they know what rate they are actually planting. They can then take into consideration germination and some stand loss and adjust accordingly."

In 2006 Ebelhar shifted the study to another field on the same farm. The plots that were harvested were 0.5 to 0.62 acres.

"The Walkers were interested in using this area for the National Corn Growers Contest for irrigated corn. The first three plots harvested 1.8 acres total, and averaged 270 bushel per acre," Ebelhar reported.

If yields exceed 235 bushels, a second test area has to be harvested from the same field.

With that set of plots at the higher plant populations, Ebelhar speculated in his research that yields probably would maximize at around 35,000-36,000 plants per acre on the twin rows.

"Ending up with 40,000 plants per acre gave us the highest yields," he said.

"However, in the short term in that particular area, the second plot harvested, 1.86 acres, averaged 280.03 bushels per acre, which won the Mississippi Irrigated Corn Contest by 48 bushel per acre," Ebelhar reported.

Last year the Walkers have gone back to the field used the first year. The crop looked real good again last summer, and the test included the same nitrogen rates - 180, 220 and 260 pounds of N per acre. Seeding rates were from 24,000 to 40,000.

"The plant populations last year when we did the stand counts were running anywhere from 5 to 8 percent higher stands than the planter book estimates," he said. Now Walker has changed planters, a newer model of the Monosem.

Last year Mississippi also established a Corn Promotion Board and corn checkoff program in order to fund research and promotion of corn for the state, and Ebelhar has one of the projects that was funded with very limited money for 2007. In his research last year, he compared single rows with twin rows in the same test. The question about single-row corn versus twin-

row corn has surfaced several times in the past few years.

"We are looking at plant populations of 25,000-30,000-35,000 and 40,000 plants per acre both in single rows and twin rows," he said.

The test is being conducted in the same field, under the same conditions, same soil types. The same N rate also is being used.

"These are 100 foot plots, so they are basically 0.03 acres as compared to the larger on-farm



Seeding rates and nitrogen rates for twin-row corn is a study conducted by Dr. Wayne Ebelhar, Research Scientist Agronomist at Stoneville, Miss.

Photo by John LaRose

plots," Ebelhar said. "We are also looking at the same N rates as we have on the Walker farm. Those rates were 180, 220 and 260 pounds per acre, but it is all in the same field. We are using the same variety that we used at Walker's farm so we have those direct comparisons of single row versus twin row last year."

With the extremely dry spring most of the beds put up in the spring were soft with irrigation initiated before the beds really had time to settle.

"We saw a lot of root lodging especially at the higher plant populations for single-row corn," Ebelhar said. "While lodging did occur in the twin-row corn, it was not as severe as that observed in the single-rows. Yields were comparable at the lower seeding rates, but as the seeding rates were increased we saw higher yields for the twin-row plantings."

One problem that was observed dealt with harvesting the lodged corn. It is more difficult to harvest down the row and get the tips of the corn header under the lodged corn in twin-rows as compared to the single-rows. This was the first year of the study and we have some changes to make."

Some lodging did occur in those fields. One of the differences in this test at the station versus the Walker farm is that Walker is using a roller just ahead of the planter which is equipped with middle busters to help shape the row for the planter.

"In other words, he rolls his bed before planting so he has a nice firm seed bed," Ebelhar explained. "Most of our beds, with the drought that we had in the spring, never got any rain so they were real fluffy beds, which didn't allow for a real good root system. The ground is loose so we had some root lodging in these plots."

Ebelhar said an evaluation will be made at harvest to determine if it is treatment related. The plots were irrigated at least three times before it started raining. Then the rain came steady for at least three weeks and had some pretty high winds associated with the storms.

"The crop looked good early, and we were very conscientious about getting water on there," he added. The creek was used as a water source. "We are excited about the project and greatly appreciate the efforts of the Mississippi Corn Promotion Board. Δ