

Doing Things Right

Iowa corn champ tells how he has been able to top 300 bu/A.

For five out of the last seven years I've won the Iowa Master Corn Growers Contest. I also won in 1967. The acres I farm near Manchester, Iowa, total 314. I live on a century farm and therefore grew up farming. The crop ground has been in continuous corn since 1966. In 1967, I started managing a 25-acre plot in my field with the purpose of gaining maximum yields. In 1982, I started managing three different 25-acre plots to increase my odds of one of them producing a record yield. Average on my three high-yield plots has been 280 bushels per acre. My top yield so far on these high-yield plots was 311 bushels per acre harvested in 1996. Illustrated in Figure 1 are my winning years versus the nearest competitor. I broke state records in 1992, 1994, and 1996.

The purpose of this article is to explain how I've been able to obtain these high yields.

I farm average ground, but you don't need the most productive ground if you and Mother Nature do things right. My soil is Carrington Floyd with a corn suitability rating of 74. Soil tests show lime at 7.6 with P and K values remaining pretty much the same. Organic matter is 6.5 percent, which is an increase of about 1.5 percent over the years at the rate of about 0.2 percent per year. Soil tests indicate a pretty good job of mixing has been accomplished, because the tests are the same throughout the soil profile.

One challenge I've had is getting good root development. Root depth can vary from year to year. I've seen soil compaction limit root growth to 8 or 9 inches. When this happens, yields usually go down. To help correct this, I'm tilling 14 inches deep in the fall with a mini-moldboard plow, which leaves 28 to 30 percent residue on the surface. This provides a very loose soil environment in which to build a good

root system for the following spring's seed population. An added benefit of the residue left on top is less soil erosion.

We take a sample from the entire soil profile where the roots are growing. If we don't see a good root system where the nitrogen is supposed to be when the corn is 4 to 5 feet tall, we may come back with a high-clearance rig and dribble an additional 50 pounds per acre of nitrogen between the rows. The past year, however, soil tests showed we had about 190-200 pounds per acre of nitrogen, so we didn't apply any additional nitrogen. I work on the philosophy that corn roots are lazy. The fertilizer needs to be put where the roots are rather than depending on them to grow into the fertilizer.

The soils in the three test plots are not uniform. One is what I call a light ground, one a medium ground, and the other a heavy ground. The medium ground has been the best producer. This ground may be heavier than I think, but it is tilled better than the plot I call heavy ground. My best yields have come from the better tilled plots—290, 279, and 311 bushels per acre.

With the fall plowdown, I apply 50 pounds of nitrogen, 220 pounds of phosphorus, and 180 pounds of potash. Early the next April, 380 to 400 pounds of nitrogen is applied in 10-inch spacings. In mid-April, I field cultivate and my planting bed is completed. Last year, I planted April 23rd, using Pioneer 3489 placed approximately two inches deep. The planter is equipped for liquid fertilizer so as I plant I apply 150 pounds per acre of a 4-10-10 liquid starter with ACA, a root growth stimulant.

I like to plant 44,000 kernels per acre but, because I thought it was going to be dry, I dropped my planting rate to 42,000 kernels per acre. Final stand when the crop was harvested on



November 4th was 38,000 plants per acre. In the past, I had used a much lower population but felt that a higher population was needed to increase the yields to winner status. I plan to gradually keep increasing the population and am considering 20-inch rows.

Pesticides are also an important part of my program. This past year, there was very minimal corn borer damage. For the 1996 growing season, I used Counter at 80 percent of the recommended rate. The herbicide was *Dual II* at 2.5 quarts per acre. When the corn was about two inches tall, I spot sprayed with *2,4-D/Banvel* for giant ragweeds, and *Buctril* for lambsquarters. The corn was cultivated once when it was about eight inches high. I scouted my fields 72 times this past season.

Moisture is yet another key to making high yields. Annual precipitation in Iowa is normally somewhere around 42 inches, but what really counts is what happens during the growing season. Last year, we had

21.5 inches during a growing season that lasted from April through mid-September. A cooler summer definitely helped make up for the moisture shortage along with loose soil conditions created by 14-inch deep tillage. Plant roots can grow deeper and maximize the deeper moisture. With this depth, soil can absorb a two-inch rain where on other fields that do not have deep tillage, the moisture is not absorbed and runoff occurs. Also, on a field that is not deep tilled, the top couple of inches stays wet and, the proper water to air ratio is not achieved.

I'll close by summing up with seven critical factors I feel contribute to my success as a master corn grower. They are: 1) soil testing, 2) deep tilling, 3) fertilizing properly, 4) controlling pests. 5) scouting thoroughly, 6) selecting the right hybrids, and 7) planting higher than average plant populations. And, of course, if Mother Nature doesn't supply adequate moisture and sunshine, record yields are not likely.

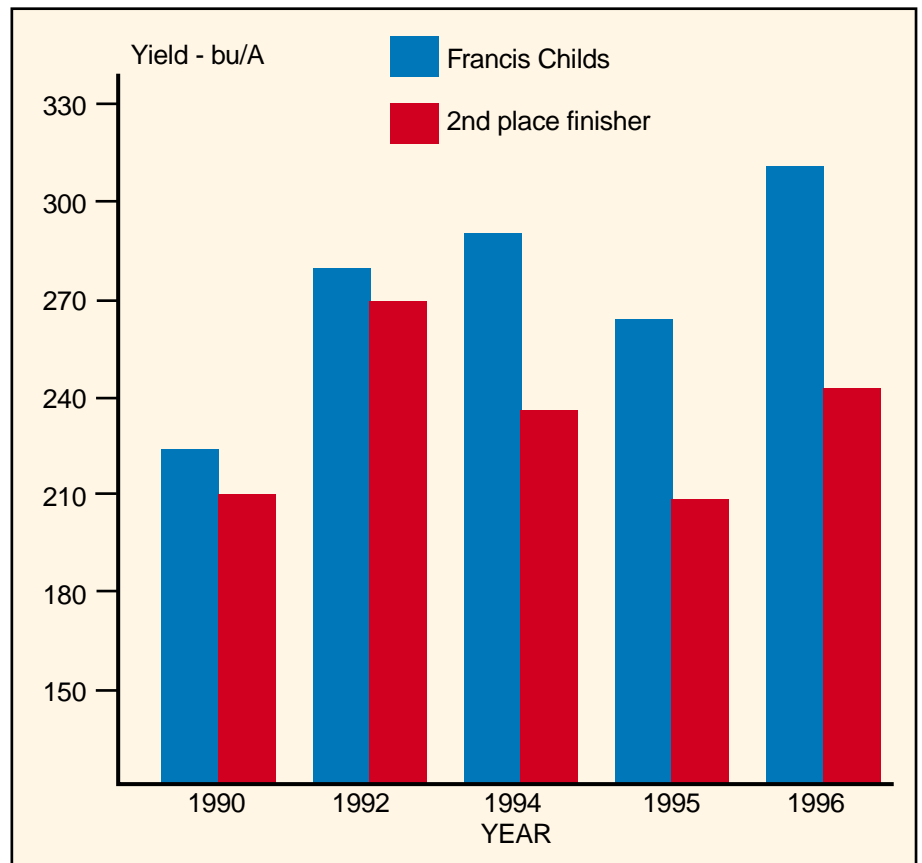


Figure 1. Iowa Master Corn Growers Contest: Francis Childs vs. nearest competitor over five winning years.