

Corn Variety Trials

PFI cooperators are evaluating open-pollinated corn varieties and varietal hybrids in cooperation with Walter Goldstein of the Michael Fields Agricultural Institute and with USDA and ISU corn breeders. Why go to all this trouble when hybrid corn is so successful? Because that success comes with a price, literally. Technology fees on hybrid seed continue to rise. Some producers are concerned that future consolidation in the industry might even limit choice of seed. These farmers reason that if they had seed that they could save and replant from year to year (unlike hybrid seed), then they wouldn't have to get top yields to remain profitable.

Most hybrids, also, are bred for yield not for nutrition. A project that begins in 2003 will seek to develop corn varieties high in specific nutrients. This corn would benefit livestock producers, especially if they could demonstrate its benefits to consumers. An example would be eggs with yellower yolks from increased vitamin A in the corn fed to chickens.

In 2002, farmers in Iowa, Minnesota, and South Dakota compared several open-pollinated and "synthetic" mixtures of varieties to a "farmer's choice" variety of their choosing. Figure 6 and [Table 2, click to view](#), show yield data from the PFI farms. Several ISU farms also participated, but their results are still being analyzed. As might be expected, on most farms the "farmer's choice" yielded the most; the exception was on the farm of Don Adams and Nan Bonfils, Madrid, the only farm where the farmer's choice variety was not a hybrid.

The highest yielding of the alternative varieties in 2002 was a "synthetic" mix of two inbred varieties, BS21(R)C7 and BS22(R)C7. Next was the synthetic mix of inbreds BSSS(R)C14 and BSCB1(R)C14, followed by Nokomis Gold, an open-pollinated variety developed by Walter Goldstein.

Some Corn Variety Types

Open-Pollinated:

Plants are a mix of different genotypes, all crossing with each other randomly.

In-Bred

Plants are all the same genetically, the result of generations of in-breeding plants grown from seeds from the same ear. Crop characteristics are stable over time.

Hybrid

Plants are similar because they are the first generation from the cross of two (usually) in-bred lines. Hybrid vigor is lost after one generation.

Varietal hybrid

A cross between two open-pollinated varieties. Some hybrid vigor is expected in the first generation.

Synthetic

The result of crossing a number of inbred lines with each other. Hybrid vigor should be maintained.

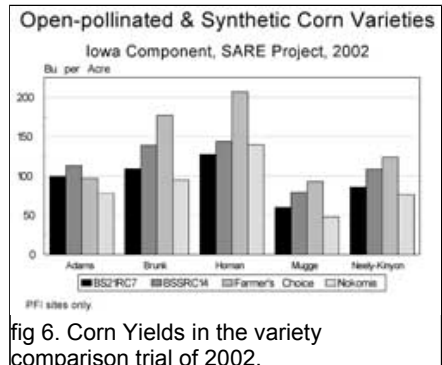


fig 6. Corn Yields in the variety comparison trial of 2002.

