

KENTUCKY AGRICULTURAL EXPERIMENT STATION

Pennyrile Grain Testing Field
1952 Corn Performance Tests

The Pennyrile corn performance tests in 1952 were a continuation of the program of the Pennyrile Grain Improvement Association in cooperation with the Kentucky Agricultural Experiment Station. Results for the 1946-1951 tests were reported in mimeograph form for those years.

Two comparative yield tests were grown as in previous years. One test was composed of the hybrid varieties grown in several other locations in the state. It included various commercial hybrids being grown extensively in the state and the more promising experimental hybrids. The other test consisted of the commercial hybrids being grown in this section of the state and two-open-pollinated varieties. The performance of hybrids tested in previous years but not included in 1952 can be obtained from reports for previous years. The test on the effect of rate of planting was continued in 1952.

Experimental Procedure

A cover crop of lespedeza and weeds was turned under in the spring of 1952, and 500 pounds per acre of 4-12-8 fertilizer was applied before planting. The entries in both tests were compared in 2 by 10 hill plots using a simple randomized complete block design with 5 replications. The hill spacing was 42 inches each way with 3 plants grown per hill. The corn was planted April 28th, thinned to 3 stalks per hill May 30th and harvested September 29th.

Measures of Performance

1. Yields are recorded as bushels per acre of shelled grain at 15.5 percent moisture. In both tests corrections were made for missing hills but not for minor variation in stand.
2. Moisture at harvest. The percentage of moisture in the corn at harvest was obtained by sampling 15-20 ears from each of two replications. The average moisture percentages of the two replications sampled were used in calculating the yields.
3. Broken stalks. The percentage of total broken stalks was determined by making a count of the plants broken below the ear-bearing node and include those broken because of corn-borer damage. Plants broken because of corn-borer damage were determined by examining the plants for corn borer punctures or the presence of frass. Percentage of plants erect is 100 minus the total percentage of broken stalks.
4. Husk length is recorded in inches of husk extension beyond the tip of the ear. It is desirable that the ears be protected with husks that fit closely around and over the tip of the ear and extend at least an inch or more beyond.

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for maximum protection against damage by birds, ear rots, earworms and weevils.

5. Ears per plant were determined by dividing the number of ears harvested by the number of plants in the test for each entry.

Interpretation of Results

Experimental results cannot be freed completely from an element of error. Hybrids of equal yielding capacity may vary appreciably in any one test. The data reported in the following table have been analyzed statistically to eliminate varietal differences in yield which may be due only to chance. The computed least significant difference (L. S. D.) which is indicative of a true yield difference between hybrids is found at the foot of each table. Unless the two hybrids being compared differ by as much or more than the L. S. D., little confidence can be placed in the superiority of one over the other. Superior performance by a hybrid over a period of years is stronger evidence of real superiority than are the results in any one year. For this reason the period of years results are much more reliable and should be used when selecting a hybrid for a particular locality or purpose.

The data for the uniform hybrid test are given in Table 1 and for the commercial hybrid test in Table 2. The average yield in the uniform hybrid test was 31.4 bushels per acre less than in 1951 and the average yield in the commercial hybrid test was 27.1 bushels per acre less than in 1951.

Generally unfavorable growing conditions prevailed during the entire growing season for corn and are reflected by these lowered average yields. A heavy local rain on July 4th prevented the even lower yields which were common in the Pennyroyal area.

Uniform Hybrid Test

Results in 1952. The average yields of the white and yellow hybrids were essentially the same. Four experimental white hybrids and three experimental yellow hybrids were the highest yielding.

Several commercial hybrids also yielded very well. This group included the white hybrids Broadbent 235W, US 523W and Stull 400W, and yellow hybrids Ky 103, US 13, and Funk's G-91.

Long-term results. As noted previously, performance data based on several years test are much more reliable than for any single year. Experimental hybrids are dropped from the uniform test after one or two years if they do not show promise of superiority to the hybrids being recommended.

Thirty hybrids grown in the uniform test in 1951 were repeated in 1952; nineteen were tested for three years; thirteen were tested for four years; eight were tested for five years, and six were tested for six and seven years.

Two year period. For the period 1951-1952 the white hybrids were higher yielding than the yellow hybrids. CB 8911W, Stull 400W, US 523W, and Ky 9105B were the highest yielding of the white hybrids. Ky 9107, Broadbent 235W, Ky 0105 and Ky 203 were also high yielding. There was no significant difference in yield