

CORN GRAIN HYBRID TESTS IN TENNESSEE

2025

Experimental Procedures:

AgResearch and Education Center Tests: All corn hybrid trials were conducted in each of the physiographic regions of the state. Tests were conducted at the East TN (Knoxville), Northeast TN (Greeneville), Highland Rim (Springfield), Milan (Milan) and West TN (Jackson) AgResearch and Education Centers (**REC**).

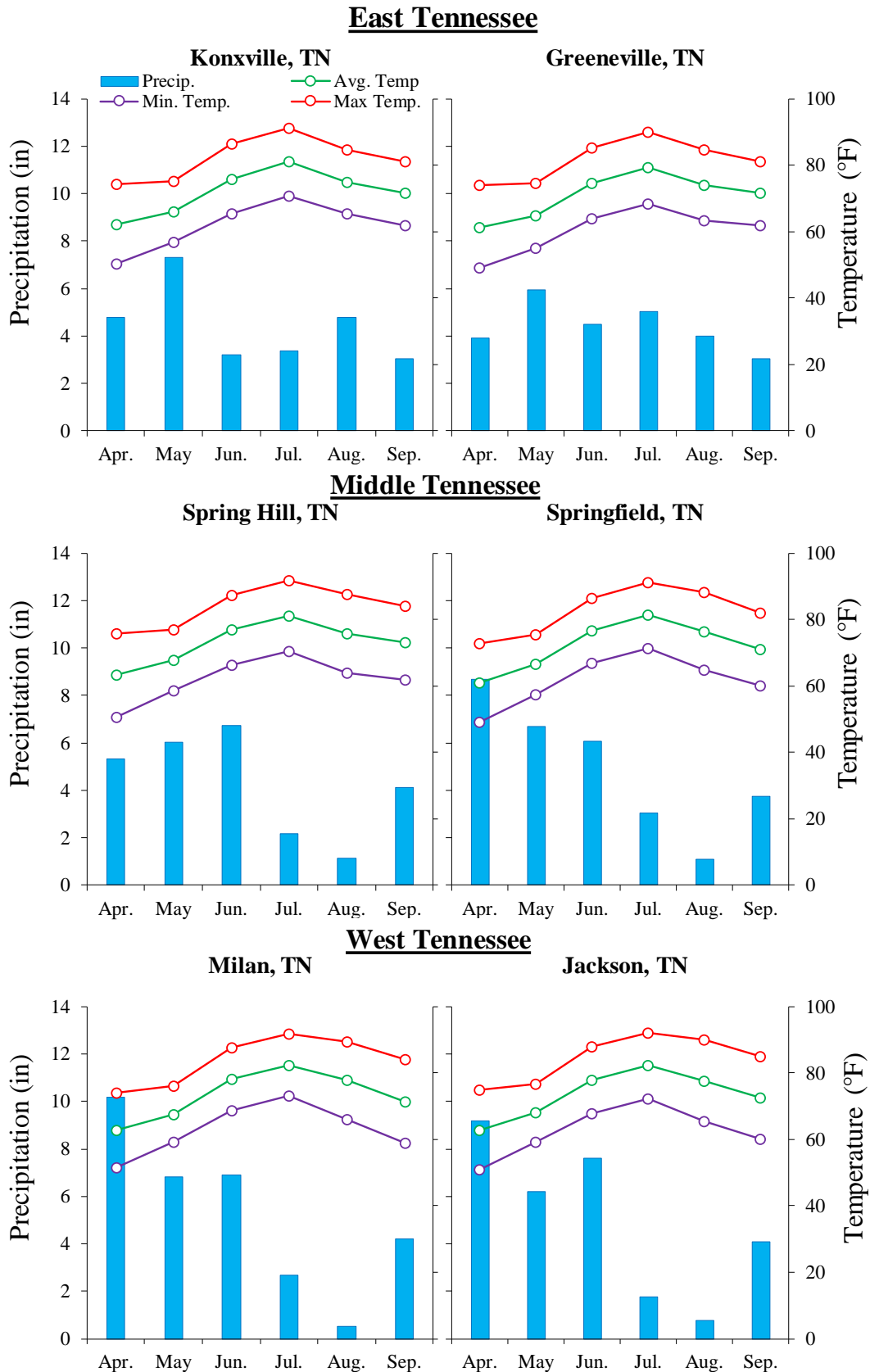
Duplicate plantings of the early-, medium- and full-season tests were made at the **Milan and Highland Rim REC** for performance testing **with and without irrigation**.

The corn hybrids were placed in either the **early-, medium-, or full-season tests** based on the maturity as reported by the company providing the hybrid. The early season test contained hybrids that had maturity <114 days after planting (DAP); the medium season test contained hybrids with maturity of 114-116 DAP; and the full season test contained hybrids with maturities >116 DAP. All corn hybrid trials were planted to uniform populations at each location using a precision seeding planter. Trials were planted with a goal of 36,000 plants per acre for irrigated plots and 34,000 plants per acre for non-irrigated plots, although final populations varied by location (Table 1). Tests were conducted using 30-inch row spacing. The tests were fertilized with approximately 230 lbs N/a. A portion of the nitrogen was applied prior to planting (e.g. 80 lbs/a) and the remainder was applied as a side-dress (e.g. 150 lbs/a). The plot size was two, 30-ft. rows. Plots were replicated three times at each location. A randomized complete block design was used at each location to reduce the within field variation.

County Standard Tests: The County Standard Corn Tests were conducted in 18 counties in Tennessee. The number of counties varied by test. The County Standard Tests were divided into **early-, medium-, and full-season glyphosate resistant and Bt stacked trait tests** (same DAP criteria as listed above). Each hybrid was evaluated in a large strip-plot at each location, thus **each county test was considered as one replication of the test** in calculating the overall average yield and in conducting the statistical analysis to determine significant differences. At each location, plots were planted, sprayed, fertilized, and harvested with the equipment used in the cooperating producer's farming operation. The width and length of strip-plots were different in each county; however, within a location in a county, the strips were trimmed on the ends so that the lengths were the same for each variety, or if the lengths were different then the harvested length was measured for each variety and appropriate harvested area adjustments were made to determine the yield per acre.

Growing Season: Corn grain official variety trials were planted in mid to late-April at the University of Tennessee AgResearch and Education Center (REC) locations. Statewide planting was below the 5-yr average due to wet conditions, with 41% of corn planted by late April. June and July were marked by very hot and dry conditions. Locations in the central and southern part of the state suffered more from a lack of timely rainfall, with conditions ranging from abnormally dry to extreme drought. According to the National Agricultural Statistics Service, yield is projected to be 175 bu/ac in Tennessee. This is an increase of 22 bu/ac from the 2024 state average (153 bu/ac) and 30.8 bu/ac lower than the 2024 national average (179.3 bu/ac). By mid-August 58% of corn rated good to excellent with some early maturation beginning. By mid-September, 48% of corn had been harvested which was 25% above the 5-yr average. In 2025, an estimated 870,000 acres were harvested for corn grain in Tennessee. This is an increase of 210,000 acres compared to 2024, which had 660,000 acres harvested. Graphs illustrating the temperature and precipitation across the growing season for each REC location are presented below (Figure 1).

Figure 1. Minimum, maximum, and average temperature and total precipitation by AgResearch and Education Center location across the 2025 corn growing season (April through September).



Interpretation of Data:

The tables on the following pages have been prepared with the entries listed in order of yield performance, the highest-yielding entry being listed first. Mean separation was performed using the **Fisher's Protected LSD (Least Significant Difference) test**. The mean trait value of any two entries being compared must differ by at least the LSD amount shown to be considered significantly different at the 5% level of probability. Tests with an LSD value of N.S. indicate there were no significant differences in entry performance within that test. To simplify interpretation, **Mean Separation Letters** have been listed next to traits evaluated across locations. Hybrids that have any letter in common are not significantly different at the 5% level of probability based on the LSD test. Hybrids with performance statistically equivalent to the top performing hybrid will have an "A" included in the list of mean separation letters next to that entry.

The **coefficient of variation (C.V.)** values are also shown at the bottom of each table. This value is a measure of the error variability found within each experiment. It is calculated as the ratio of the square root of error variance to the mean yield. For example, a C.V. of 10% indicates that the size of the error variation is about 10% of the size of the test mean. Similarly, a C.V. of 30% indicates that the size of the error variation is nearly one-third as large as the test mean. A goal in conducting each yield test is to keep the C.V. as low as possible, preferably below 20 percent.

Results

Yield and Agronomic Traits. Forty corn hybrids were evaluated in the 2025 **AgResearch and Education Center (REC)** tests in Tennessee. There were 14 hybrids in the early- (Tables 7-8), 15 hybrids in the medium- (Tables 12-13), and 11 hybrids in the full-season (Tables 17-18) tests. These hybrids represent 11 different brands (Table 5). The **County Standard (CS)** tests consisted of an early-season glyphosate resistant and Bt stacked trait test (5 hybrids at 10 locations, Table 9), a medium-season glyphosate resistant and Bt stacked trait test (12 hybrids at 19 locations, Table 14), and a full-season glyphosate resistant and Bt stacked trait test (8 hybrids at 13 locations, Table 19) for a total of 25 hybrids. Common to both the REC and CS tests were 3 early-season, 2 medium-season, and 4 full-season hybrids (Tables 10, 15, 20). Similarly to the REC tests, all hybrids in the CS tests were placed in the maturity test for which they fit, regardless of other traits associated with each entry.

Of the 40 hybrids evaluated in REC tests, five were conventional and thirty-five were transgenic. Transgenic hybrids contained genetic modification for herbicide tolerance and insect tolerance (see table 4 for full descriptions of traits).

Irrigated vs. Non-irrigated Yields. Duplicate tests were conducted with and without irrigation at Milan and Springfield. At the Milan location, all non-irrigated tests out-yielded irrigated tests, while the reverse was true at the Springfield location. Non-irrigated yields at Milan exceeded irrigated yields by 9, 10, and 33 bu/ac in the Early, Medium, and Full test, respectively. At Springfield, irrigated yields exceeded non-irrigated yields by 66, 29, and 31 bu/ac in the Early, Medium, and Full test, respectively.