

# Mississippi Peanut Variety Trials, 2021

## PROCEDURES

Peanut variety trials were conducted at four locations in Mississippi in 2021. Trials were conducted on Experiment Station land to attempt to represent the different geographic regions of the state in which peanuts are grown. The same commercially available varieties of peanuts were tested at all four locations.

Plots consisted of two 38-inch-wide, 30-foot-long twin rows. Weeds were controlled by cultivation and/or herbicides. Only herbicides currently registered for use on peanuts were used in these studies, with strict adherence to all label instructions.

All varieties were treated with a fungicide seed treatment and an in-furrow insecticide. Experimental design

was a randomized complete block with four replications at each location.

All varieties were planted with a two-row, twin-drill, Monosem plot planter at a uniform seeding rate of six seeds per foot. Fertilizer was applied according to soil test recommendations.

The plots were dug with a KMC two-row peanut digger. After proper drying, the total plot area was harvested with a KMC two-row, pull-type, peanut combine fitted with a bagging attachment. The harvested plots were weighed, moisture was determined, and yields were converted to pounds per acre, following statistical analysis. All plots weights were adjusted to a standard moisture of 13%.

## USE OF DATA TABLES AND SUMMARY STATISTICS

The yield potential of a given variety cannot be predicted with complete accuracy. Consequently, replicate plots of all varieties are evaluated for yield, and the yield of a given variety is estimated as the mean of all replicate plots of that variety. Yields vary somewhat from one replicate plot to another, which introduces a certain degree of error to the estimation of yield potential. This natural variation is often responsible for yield differences among different varieties. Thus, even if the mean yields of two varieties are numerically different, they are not necessarily significantly different in terms of yield potential. In other words, the ability to measure yield is not precise enough to determine whether such small differences are observed purely by chance or because of superior performance. The least significant difference (LSD) is an estimate of the smallest difference between two varieties that can be declared to be

the result of something other than random variation in a particular trial. Consider the following example for a given trial:

Variety	Yield
Abe .....	6,000 lb/A
Bill .....	5,600 lb/A
Charlie .....	4,900 lb/A
LSD .....	500 lb/A

The difference between variety Abe and variety Bill is 400 pounds per acre ( $6,000 - 5,600 = 400$ ). This difference is **smaller** than the LSD (500 pounds per acre). Consequently, it is concluded that variety Abe and variety Bill have the same yield potential since the observed difference occurred purely due to chance. The difference between variety Abe and variety Charlie is 1,100 pounds per acre ( $6,000 - 4,900 = 1,100$ ), which is **larger**

than the LSD (500 pounds per acre). Therefore, it is concluded that the yield potential of variety Abe is superior to that of variety Charlie since the difference is larger than would be expected purely by chance. The coefficient of variation (CV) is a measure of the relative precision of a given trial and is used to compare the relative precision of different trials. The CV is generally considered to be an estimate of the amount of unexplained variation in a given trial. This unexplained variation could be the result of variation between plots with respect to soil type, fertility, insects, diseases, weather stress, etc. In general, the higher the CV is, the

lower the precision in a given trial. The coefficient of determination ( $R^2$ ) is another measure of the level of precision in a trial and is also used to compare the relative precision of different trials. The  $R^2$  is a measure of the amount of variation that is explained, or accounted for, in a given trial. For example, an  $R^2$  value of 90% indicates that 90% of the observed variation in the trial has been accounted for, with the remaining 10% being unaccounted. The higher the  $R^2$  value is, the more precise the trial. The  $R^2$  is generally considered to be a better measure of precision than the CV for comparison of different trials.

## TERMS USED

**SMKRS** count per pound (number per pound of sound, whole, mature kernels riding screen) — Number of sound whole mature kernels from 1 pound of the shelled sample riding a 15/64 x 1-inch slotted screen or a 16/64 x 3/4-inch slotted screen for Virginia or Runner varieties, respectively.

**Pct. SMKRS** (sound mature kernels riding screen) — Portion of shelled sample as described above.

**Pct. SS** (sound splits) — Portion of shelled sample split or broken but not damaged.

**Pct. TSMK** (total sound mature kernels) — Portion of the shelled sample comprised of sound mature kernels plus sound splits.

**Pct. OK** (other kernels) — Kernels that pass thorough a 15/64 x 1-inch slotted screen or 16/64 x 3/4-inch slotted screen for Virginia or Runner varieties, respectively.

**Pct. DK** (damaged kernels) — Kernels that are moldy, decayed, or affected by insects or weather conditions, resulting in seed coat or cotyledon discoloration or deterioration.

**Pct. TK** (total kernels) — All shelled sample kernels including TSMK, OK, and DK.

**Pct. Hulls** — All hulls from the shelled sample.

**Table 1. 2021 peanut variety trial location summary.**

Location	Soil type	Planting date	Digging date	Harvest date	Row spacing
Beaumont, Coastal R&E Center	McLaurin sandy loam	5/17	10/15	10/25	38" twin drill
Crystal Springs, Central MS R&E Center	Providence silt loam	5/20	10/15	10/26	38" twin drill
Stoneville, Delta R&E Center	Bosket very fine sandy loam	5/14	10/15	10/26	38" twin drill
Verona, North MS R&E Center	Leeper fine sandy loam	5/7	10/13	10/22	38" twin drill