

Peanut Breeding Research (Field 6G)

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The Peanut Breeding and Genetics Program planted material at the Helms Farm for the first time in 2003, and again in 2004. This location was chosen as a cooler-climate site to put peanuts under stress for early maturity, and also to examine the effects of drip irrigation on peanuts. Materials were grown with surface drip irrigation in 2003, and either surface or subsurface drip irrigation in 2004. In both years, supplemental flood irrigation was used prior to planting and digging.

The following experiments were grown in 2004:

West Texas Runner and Spanish Maturity Comparison Tests. This is part of a multiyear, multisite study to compare maturity and other agronomic traits for runners and Spanish varieties and breeding lines. Each test included 10 lines. The experiments include 3 replications each of 3 harvest dates, 2 weeks apart. Data are still being collected for 2004, but runner data for 2003 are presented below.

For the 2003 runner test, Tamrun OL02 had the highest yield (3778 lb/ac). Maturity (%BlkBrOr - percentage of pods with black, brown, or orange hulls) was low, even lower than elsewhere. Contributing factors were the unusual weather conditions in 2003 that resulted in poor maturity in West Texas, late planting date, and probably the cooler climate than at other locations. The unusually-high CV may have been the result of weed pressure, or perhaps an influence of drip irrigation. There were significant differences for percent total sound mature kernels (%TSMK), both for digging dates and genotypes, with Tamrun OL01 having the highest shelling percentage. Seed size (G100SMK, g/100 seed) was also small, an influence of immaturity.

Entry	Yield (Lb/Ac)	%Blk Br Or	%TSM K	G100SM K
Tamrun OL01	3778 a	7.1 nsd	68.9 a-c	56.5 cd
TX994380	3638 ab	13.6	69.4 a-c	59.1 bc
Tamrun OL01	3553 a-c	19.4	73.0 a	65.0 a
FlavRu458	3413 a-d	12.9	71.2 ab	55.6 d
Tamrun 96	2802 b-e	15.3	63.7 ad	54.8 d
Langley	2786 b-3	38.0	70.4 a-d	49.5 e
Tx884432	2674 c-e	30.1	68.0 bc	55.0 d
Tx971783	2669 de	20.9	67.9 b-d	61.1 b
Tx971738	2668 de	24.2	66.5 cd	59.9 b
Tx977239	2431 e	16.1	69.7 a-c	54.3 d
CV%	30.7	78.5	6.5	5.7
LSD	880		4.2	3.1

Runner/Virginia and Spanish/Valencia Drip Tests. The goal of this experiment was to compare effects of growth of peanuts under surface vs subsurface drip irrigation. For the Spanish/Valencia test, there was a statistically-significant effect of irrigation and genotype on plant width, with average row width being 70.3 cm for subsurface drip and 86.8 cm for surface drip. Irrigation had no significant effect on leaf color. Plants were harvested for yield; however, we only had enough bird netting to save 1 of the 3 replications; the others suffered significant loss due to bird damage. It is not clear whether the results indicated an actual difference between irrigation treatments, as visual observation of other experiments suggested that plots at lower elevations appeared to have larger plants (data from the maturity comparison test have not yet been analyzed.) For the Runner/Virginia test, bird damage meant that we will not have yield data for this experiment.



Fig. 1 Peanut plots in the peanut breeding and genetics program.