

The Effect of Low Quality Cotton Seed on Lint Yield

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Summary

Comparison of 23 low quality upland cotton seed lots with high quality lots in 19 tests over 4 years showed consistent lint yield reduction from low quality seed. The low quality seed lots produced an average of 226 pounds less lint/acre than high quality seed. At \$0.60/pound of lint that is \$135.37/acre. By analysis of covariance, which adjusted lint yield for equal stand, poor stand explained 162 pounds of lint loss (\$97.20/acre) and apparent reduced seedling vigor accounted for 64 pounds of lint loss or \$38.16/acre.

Twenty-three comparisons having high and low quality upland cotton seed of the same cultivar have been completed in Arizona in the last 4 years. Tests were planted early in the planting season except where otherwise indicated. Yield, stand and seed quality data are presented in Table 1.

The low quality seed lot produced lower lint yield than the high quality seed lot in all comparisons. The difference between seed lots ranged from 15 to 1001 pounds of lint per acre. Reduced yield from poor seed quality was statistically significant at the 0.05 confidence level in eleven comparisons. Yield reduction from poor quality seed averaged 226 pounds of lint per acre. At \$0.60 per pound of lint that is an income loss of \$135.37 per acre.

By use of covariance analysis with plant population and plant population squared, we determined the effect of low quality seed on lint yield if stands had been comparable from low and high quality seed. Yield reduction caused by lower stand from lower quality seed was estimated by subtracting "adjusted" from "difference." Stand on an average explained 162 pounds of lint per acre yield reduction, or at \$0.60 per pound of lint, \$97.20 per acre.

Factors not explained by differences in stand we believe are related to the reduced vigor of plants in the low quality seed. These differences accounted for 64 pounds of lint per acre on an average or for an average income loss of \$38.16 per acre.