THE INFLUENCE OF "MOTES" ON THE YIELD AND BOLL-SIZE OF THE COTTON PLANT

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The occurrence of "motes," or aborted ovules, in many of the upland varieties of cotton is rather common. These motes fail to produce any lint or seed of commercial value and it would appear that an abundance of motes would tend to lower the yield of the cotton plant. In order to determine the relationship between yield of seed cotton and the size of boll per plant to the percentage of motes produced per plant, a series of correlation studies were made involving these characteristics.

A random sample of each of 16 varieties of cotton grown in the regular variety test at Substation No. 5, Temple, Texas, was secured in 1925 to be used in this study. The yield of seed cotton, the average weight of seed cotton per boll, and the percentage of motes characteristic of each of 50 individual plants within the several varieties were determined. The yield is reported in grams of seed cotton produced per plant and the size of boll in the average number of grams of seed cotton produced per boll. The percentage of motes is given as a ratio of the total number of motes to the total number of ovules. Similar data were obtained for 1926.

The correlation coefficients between yield and percentage of motes are presented in Table 1. A study of this table will reveal that of 32 coefficients listed only 3 show significant relationships. The varieties Sunshine, Truitt, and Anton have coefficients that were significant in 1925. In this connection attention is called to the fact that a very large number of factors necessarily affect the yield of the cotton plant and it would be rather preposterous to expect many single factors to show significantly high correlations with yield. Numerous attempts to analyze the yield of the cotton plant have failed to bring out a very close relationship between yield and many of the other individual characteristics of the plant. Although few of the coefficients in Table 1 are statistically significant, it is rather striking that 26 of the 32 coefficients show negative relationship. This preponderance of negative coefficients indicates distinctly the tendency of motes to reduce yield.

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