A REGIONAL STUDY OF THE RELATIONSHIP OF POTASH TREATMENTS TO THE DEVELOPMENT OF COTTON WILT UNDER WIDELY VARYING CONDITIONS OF SOIL AND ENVIRONMENT

Abstract

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A REGIONAL cooperative investigation was initiated in 1937 at 13 locations in nine states to be conducted for three seasons for determining the effect of potash level, 0, 32, and 64 pounds of K₂O per acre, on wilt and yield of 12 varieties of cotton varying widely in wilt resistance. The analysis of the data for the third season is not yet available.

A combined summary of all locations indicates a significant reduction in total infected plants at both the 32- and 64-pound applications. A significant increase in yield is shown at the 32-pound level with a further but not statistically significant increase at the 64-pound level. The response in yield and wilt reduction varies greatly with individual locations. At most locations the yield response is roughly proportional to reduction in wilt.

The response of susceptible varieties to potash treatments is similar in direction to that of the resistant ones, although there is some indication of variety-potash interaction. However, the yield response of susceptible varieties is not sufficient to overcome losses occasioned by wilt and consequently varietal resistance is of greater importance from the standpoint of maintaining yield.

A comparison of cotton harvested from healthy and diseased plants indicates reduced staple length, reduced seed weight and increased lint percent from diseased material.

Relative differences in varietal susceptibility to wilt at different locations appears to be partly attributable to varying nematode infestations and differences in varietal reaction to a combination of wilt and nematodes. Field evidence is not very strong for supporting the belief that this condition may be due to the occurrence of variation and host specialization of the pathogen at different locations.

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