COTTON WILT IN ALABAMA AS AFFECTED BY POTASH SUPPLEMENTS AND AS RELATED TO VARIETAL BEHAVIOR AND OTHER IMPORTANT AGRONOMIC PROBLEMS

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COTTON wilt, a soil-borne disease caused by *Fusarium vasinfectum* Atk., has been spreading gradually to new areas since it was discovered by Atkinson in 1892. Although damage from wilt has been minimized by growing wilt-resistant varieties, the authors do not know of any case where the disease has been completely eradicated. Hence, the breeding of cotton for wilt resistance will be a specialized problem for years to come.

One major difficulty confronting the breeder is the lack of specific and comprehensive information regarding the causes of the peculiar behavior of the cotton wilt organism in relation to its environment. It is known that such factors as seasons, fertilizers, and varieties of cotton affect the development of wilt symptoms. It is believed by many cotton growers that the severity of wilt damage is increased in cotton following such crops as okra, sweet potatoes, cucumbers, and cowpeas. Some workers have observed that a variety of cotton may be quite resistant to wilt at one location and comparatively susceptible at another location. This has recently led to some speculation as to the possibility of the existence of highly specialized physiologic strains of the wilt organism.

A practical method for developing and maintaining a thoroughly and uniformly wilt-infested soil area to facilitate breeding cotton for wilt resistance might be evolved if the causes of these confusing manifestations of the wilt disease were known. Some workers (3, 5, 8, 9, 10) have reported promising results from the use of cultures of the wilt organism in the inoculation of soil for testing the differential response of varieties of cotton to the wilt disease. These indicate varying success and serve to emphasize the need for fundamental investigations relative to the nature of wilt resistance in cotton and to the interaction of hereditary and environmental factors.

A number of investigators (2, 3, 4, 9, 12) agree that cotton wilt can be controlled by the use of suitable varieties together with the use of fertilizers containing adequate amounts of potash. Prior to the...