EFFECT OF SUDAN GRASS AND OF SOYBEANS ON YIELD OF CORN

F. S. Wilkins and H. D. Hughes

It is a matter of common observation that under certain conditions crops following sudan grass and other species of the sorghum group yield less than when they follow other commonly grown farm crops. Furthermore, experimental evidence confirming this general observation is plentiful. Apparently, it is generally agreed that depressed yields following sorghum and related species are more likely to occur on soils deficient in nitrogen.

Also, experimenters are in agreement that less benefit to succeeding crops is to be expected when soybeans are grown and the crop removed than when such crops as red or sweet clover or alfalfa with larger root growths are included in the rotation.

This paper gives the yields of corn following sudan grass and soybeans as compared with yields following oats as check through a 14-year period at the Iowa Experiment Station. Comparative yields of corn after fall and after spring plowing of sudan grass stubble also are reported. Since but one soil type and one fertility level are represented in these tests, the literature is briefly reviewed.

REVIEW OF LITERATURE

SUDAN GRASS

The reason for depressed yields following sudan grass and related plants which occur under certain conditions and not under others is still being discussed and investigated. Breazeale (1) interpreted the results of his experiments as indicating that toxins, remaining temporarily in the soil following the sorghums, are responsible. Several other experimenters have rejected the toxin theory.

1 Contribution from the Farm Crops Subsection, Iowa Agricultural Experiment Station, Ames, Iowa. Project No. 188. Journal Paper No. 181 of the Iowa Agricultural Experiment Station. Received for publication June 28, 1934.
2 Research Assistant Professor and Professor of Farm Crops, respectively. Statistical calculations were made in the Statistical Laboratory, Iowa State College, under the direction of Professor George W. Snedecor, Statistician of the Iowa Agricultural Experiment Station. Analysis of variance methods as outlined by Fisher (6) and Snedecor (20) were used. The following men in order assisted in collecting the data from 1919 to 1933, inclusive: Ove F. Jensen, E. A. Hollowell, David Hensinkveld, H. L. Hyland, and L. D. Eagles.
3 Reference by number is to “Literature Cited,” p. 908.