EFFECTS OF FERTILIZERS ON YIELDS AND BREAKING STRENGTHS OF AMERICAN HEMP, CANNABIS SATIVA

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AMERICAN hemp, Cannabis sativa, became a strategic crop with the outbreak of war. Production was increased from a prewar average of about 2,000 acres to 175,000 acres in 1943, and approximately 62,000 acres were grown in 1944. The prewar production centered largely in Wisconsin and Kentucky; and the acreage was increased in those states as well as in Illinois, Indiana, Iowa, and Minnesota.

The experience of prewar producers served as a general guide to production practices, but widely differing soil and climatic conditions presented many problems in the newer areas. This stimulated considerable research in production and processing methods. This paper describes experiments in which the effects of fertilizers on yields and breaking strengths of hemp fiber were studied.

The fiber of American hemp is a bast fiber, or soft fiber, and it has many desirable characters. When well retted, it is soft and readily spinnable. Acre yields are about twice those of flax, which is the other principal domestic soft fiber. Another important quality of hemp is its high breaking strength. Since adequate harvesting machinery and processing facilities are now available these characters may permit hemp to retain a more important place among the domestic fibers than it occupied in the prewar period. Such a result may well be predicated on improvements in production and processing methods which will result in larger yields of better quality fiber.

LITERATURE REVIEWED

Studies dealing with the effects of fertilizers on the yields and quality of hemp fiber are largely of European origin. Herzog (5) summarized the results of these studies and showed that yield responses varied with soil and climatic conditions. Herzog states that in general fiber from hemp grown on peat soils was inferior in strength to that grown on mineral soils. Various fertilizers were not consistent in their effects on quality of fiber. In general, however, soil conditions are said by Herzog to have less influence on strength of fiber than other factors, particularly maturity of the plant and the extent of fiber processing.

The literature relating to the effects of fertilizers on hemp as it was produced and handled in this country prior to 1942 is meager. Several papers dealing with this subject have appeared recently.

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3Figures in parenthesis refer to "Literature Cited", p. 563.