INVESTIGATIONS WITH THE CASTOR BEAN PLANT: I. ADAPTATION AND VARIETY TESTS

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World War II increased the need for drying and nondrying oils at a time when most of the American importations of these oils were either curtailed or seriously threatened by military activities. Castor oil, which is extracted from seed of the castor bean plant, *Ricinus communis* L., and which had become increasingly popular for industrial uses in pre-war years, played an important role in meeting these requirements. New processes referred to as dehydration convert it into a drying oil which is an acceptable substitute for certain oils, is a valuable constituent in some coatings, and is preferable to other oils for particular finishes. The normal extracted oil possesses qualities which make it desirable for hydraulic mechanisms, and it is used in the manufacture of soap, linoleum and oil cloth, printing ink, leather, and textiles.

Commercial production of castor beans in this country in the years just prior to the war was negligible. Importations of beans, largely from Brazil, exceeded 164 million pounds in 1936 and more than twice that amount in 1941. As a matter of preparation for possible commercial production in this country, intensive work was initiated in 1941 to (a) determine the area in this country best suited to the production of castor beans; (b) collect, evaluate, and increase seed supplies of the available "strains"; and (c) determine the most effective cultural methods and what production problems might be encountered. The work was conducted by the Bureau of Plant Industry, Soils, and Agricultural Engineering cooperating with many state agricultural experiment stations and individuals. It is not possible to list here all of the cooperators; however, the mimeographed reports (9, 10, 11) summarizing the work annually from 1941 to 1943 give their names and the nature of their participation. This is the first of a series of three papers compiling those results according to phases of work.

METHODS AND RESULTS

ADAPTATION

Sketchy indications of adaptation of this species to conditions in the United States are furnished by very inadequate records of previous production and field tests. Mention has been made of cultivation in Kentucky and New York in 1803. Production in the early 19th century centered in Oklahoma, Missouri, Kansas, and Illinois. The 1850 census indicated the existence of 23 extraction mills from Illinois to Pennsylvania in the north to Arkansas and Alabama in

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[Numbers in parenthesis refer to “Literature Cited”, p. 761.]