RICE is the second agricultural crop in importance in Louisiana, being grown on about half a million acres. The greater part of the rice acreage is in the southwest prairie area of the state, but some rice is grown in the Bayou Teche and the lower Mississippi River sections in areas where it is possible to flood the fields.

The primary purpose of the early flooding of rice is to control grass and other weeds. The usual practice is to drill the seed in a well-prepared seedbed and then to flood 10 to 20 days after the seedlings emerge. The initial water is held 2 to 6 inches deep and this usually drowns out the greater part of the weeds that are smaller than the rice. While flooding is generally effective in controlling weeds, in certain areas and under certain conditions other measures must also be used. Frequently rain follows closely on planting and weeds get such a start that the water will not control them.

The most important weeds other than grasses are indigo, Sesbania macrocarpa Muhl., curly or frizzly indigo, Aeschynomene virginica (L) B.S.P., and Mexican weed or birdeye, Caperonia castaneaefolia (L) St. Hil. There are a number of other broad-leaf weeds that are of less importance, some of which do not grow in water but are troublesome when growing on the levees. Indigo and curly indigo can be controlled by hand pulling, but this costs from $1 to $10 per acre and is dependent upon a relatively cheap source of labor. Mexican weed, on the other hand, cannot be pulled economically. In some instances the rice and weeds are mowed. This injures the rice but not to the extent that the weeds would if left in the field. The losses to the Louisiana rice farmer caused by weeds is difficult to estimate, but it probably is well over a million dollars annually.

Chemicals for weed control have been sought for a long time, but it is only in recent years that much progress has been made in the development and use of differential herbicides. Sinox, a contact herbicide, introduced to this country in 1938, has been found useful under some conditions. The real impetus to the chemical control of weeds came with the discovery that certain of the hormone-like chemicals, such as 2,4-D (2,4-dichlorophenoxy-acetic acid), when used at relatively low concentrations, kill certain broad-leaf plants without materially injuring some of the cereals and other grasses.

The purpose of the present investigations was to determine the feasibility of using selective herbicides in the control of certain rice weeds. Following a preliminary test in 1945, a rather large number of

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