

SUMMARY.

Preliminary box and microplot trials at I.C.T.A. to investigate the effects of various herbicides on the control of weeds indicated that the following five herbicides might offer satisfactory control of weeds in maize, when used as a pre-emergence spray:

1. 3-(P-chlorophenyl 1, 1-dimethyl-urea), (CMU).
2. Ethyl Ester of 2-4-dichlorophenoxy-acetic acid
(DICOTOX 40).
3. Sodium salt of Trichloro acetic-acid (TCA).
4. Chloro-isopropyl-N- (3-chlorophenyl)carbamate (CIPC)
and
5. Sodium salt of α, α - dichloro-propionic acid (DALAPON).

The experiment was designed therefore to test the above herbicides in the field. A sixth herbicide, Dinitro-sec-butyl-phenol (DNBP) was included as a post-emergence spray. The effects of the latter herbicide on the maize led to supplementary trials:-

(a) to observe the effect of DNBP on maize at various stages of growth.

(b) to investigate the response of maize to

(i) early post-emergence,

(ii) pre-emergence, applications of DNBP using a micro-plot technique.

The supplementary trials indicated that

(a) the time of spraying of maize with DNBP was critical; the nearer the post-emergence spraying was to the time of planting the better able was the maize to withstand injury.

(b) pre-emergence spray caused less injury to maize than corresponding post-emergence application.

4. The six herbicides did control weeds to varying degrees with the exception of Dalapon which apparently stimulated the growth of both weeds and maize. CMU gave the best weed control, followed in order by DNBP, Dicotox, CIPC, TCA and Dalapon.
- The control of weed was however accompanied by a mortality of maize plants much higher than could be expected from the results of Microplot work.
5. Weed control appeared to be unessential to maize yields. In fact the degree of weed control bore an inverse relation to the yield., of maize - the more weeds there were the higher the yields.
6. Though the control of weeds with the object of increasing the yields of maize has shown to be of doubtful value under the conditions of this experiment - high rainfall, good nutrient status and negligible light competition, - the six herbicides afford a good range of degree of weed control in maize from which a judicious choice could be made to suit different circumstances, depending upon the weed control required.

Suggestions have been made for further work.