The beneficial effect of cocoa-bean husks (included in the experiment for the first time) in improving yield of tomatoes on the Institute soil was confirmed in three parallel tests which gave an average increase in yield of 0·4 lb. per plant.

Effect of Different Rates of Watering on Tomato Yield

As found in previous years, the heaviest rate (51 gallons per plant) of watering gave the highest yield, 10·0 lb. per plant. This was followed by the standard rate (35 gallons per plant) with 8·8 lb. per plant. The lowest rate (25 gallons per plant) gave 8·2 lb. per plant under similar steam and fertilizer treatment.

Tomato "Cloud"

The Dreadnought variety was grown under different conditions in the Institute glasshouse.

The percentage of "cloud" averaged over the whole of the house was 11 per cent., compared with 3·8 per cent. in the previous season. As treatments were the same, the difference must be attributed to the season.

"Cloud" was least in evidence on the unsterilized plots. Steam sterilization and the use of compost or cocoa-bean husks tended to raise the percentage of "cloud." Heavy supplements of potassic manures or the use of charcoal had little effect on the incidence of "cloud."

Heavy watering of the plants was associated again with a marked increase in the percentage of "cloud," confirming the results obtained in three previous seasons.

Tests with Steam and Soil Disinfectants on Outdoor Tomato Soil

Chloropicrin, steam, formalin, and D.D. have been tested for the treatment of outdoor tomato soil. The plants were retarded in growth during the early summer by exceptionally cold weather.

For the Kondine variety, results in the 1946–47 season confirm the value of chloropicrin for the treatment of outdoor tomato soil. Both steam and 2 per cent. formalin treatment gave improvement in yield, but the results were not as good as in the 1945–46 season.

The chemical, D.D., did not effect any improvement in yield, due possibly to soil conditions.

Over a period of three seasons steam sterilization of the soil and treatment with chloropicrin have given outstanding results in growth of plants and in yield of tomatoes.

Effect of Soil Amendments on Outdoor Tomato Soil

Tests with various soil amendments have been continued during the past season. Outstanding improvement in growth of plants and yield of tomatoes was obtained with sheep manure and cocoa-bean husks used at the rate of 30 tons per acre. Coarse sand at the rate of 300 tons per acre likewise appeared to be beneficial. Charcoal, and particularly sawdust, tended to lower the yield of tomatoes.

Tomato "Hard-core"

Investigations have comprised records under a great variety of conditions, including effect of fertilizers, of steam and soil disinfectants and of soil amendments on the incidence of "hard-core."

The use of chloropicrin, sheep manure, and cocoa-bean husks gave great reduction in the amount of "hard-core." This reduction in "hard-core" was associated with improvement in the growth of the plants and also with yield of tomatoes. Other treatments which had a beneficial effect in reducing "hard-core" were treble dose fertilizer, steam treatment, and the use of extra potash and nitrogen. Sawdust, charcoal, and sand gave no improvement in "hard-core" over the control plots.