

ABSTRACT

The growth and yield of cabbage (Brassica oleracea var. capitata) were studied in the field under different soil management practices during wet and dry seasons in Trinidad. In the wet season, four different bed types : Double-row ridges, Single-row ridges, Cambered beds and Raised-Flat beds were compared with and without mulch. In the dry season, the effects of mulching were evaluated at two levels of irrigation (irrigation at 3-day and 7-day intervals) and without irrigation. Four different mulches (Bagasse, Bay-leaves, Coffee-husks and Grass) were compared. The relevant soil physical and chemical properties were measured in both experiments.

It was found, from the wet season studies (Experiment I) that bed configuration significantly affected plant growth, earliness of heading and of maturity, head size (Mean Head Diameter), head density and the final yield per plant and per hectare. The ridges particularly the Double-row ridges, gave significantly better crop performance and yield per plant due to the better soil physical environment, than the Cambered and Raised-Flat beds. The smaller number of plants per unit area on the Single-row ridges resulted in a lower yield per hectare than the Double-row ridges and the other bed types. The Cambered beds gave the poorest crop performance and yields. Mulching slightly increased plant growth, earliness of heading and of maturity, and yield but the results were not statistically significant.

The dry season studies (Experiment II) showed that both irrigation and mulching significantly increased growth and yield of cabbage. This was attributed to the increase in soil moisture content, decrease in soil temperature and improvement in soil chemical properties, particularly the increase in potassium content of the soil caused by irrigation and by mulching. The nutrient content of the mulches influenced the nutrient content of the soil which in turn influenced the nutrient content of the cabbage plant tissue. Growth and yields, particularly on mulched plots were higher for the 3-day irrigation level than the 7-day irrigation level but the differences were not significant. Coffee-husks which had the highest NPK contents, gave the highest while Bagasse gave the lowest yields on irrigated plots. Bagasse had the lowest nutrient content and the lowest influence on nutrient content of the soil and plants. Without irrigation however, the reverse situation was noted. Bagasse gave the highest while Coffee-husks gave the lowest yields. This was attributed to the lower soil temperature and better soil physical conditions under Bagasse than under the other mulches, in particular Coffee-husks. The results for Bay-leaves and Grass mulches were intermediate between Bagasse and Coffee-husks in all plant and soil factors.