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A COMPARATIVE STUDY OF POLYTHENE LINE-FURROW  
AND BASIN IRRIGATION METHODS ON  
WATER USE EFFICIENCY OF MAIZE (Zea maize)

By

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A Research Report

Submitted in Partial Fulfilment for  
the Requirments of the Advanced Course

In

AGRICULTURAL ENGINEERING

For the Degree of

BACHELOR OF SCIENCE IN AGRICULTURE

Eastern University, Sri Lanka

1987

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## ABSTRACT

A field experiment in sandy regosols with maize was conducted at the Eastern University, Sri Lanka, Chenkalady to study the effect of polythene lining in furrows on water use efficiency of maize during the dry season of 1987 (June-October).

The results indicate that the dry matter production and height of plants were considerably higher in basin plots than that of furrow plots. The differences in growth pattern between replicates were mainly due to the differences in soil fertility status of which the difference between treatments or sub-blocks were found to be non-significant at 95% confidence level.

The average soil moisture determined at a depth of 0-15 cm was found to be high and the growth of weeds was significantly reduced in furrow plots. These were mainly due to the effect of polythene lining in furrows which reduces the evaporation losses and the growth of weeds. Soil temperature measured at a depth of 10 cm was higher in furrows than that of basins and this difference showed a marked increase towards noon.

The average yield of maize was greater in furrows (2320 kg dry weight/ha) than that of basins (1970 kg dry weight/ha) and this was also same when furrow and basin plots of equal soil fertility were compared. The total amount of water needed for irrigation by basin method was higher than that of furrow method which in turn results in a high water use efficiency of maize in furrow plots. This indicates the possibility of saving a

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