AGRONOMIC CONSTRAINTS ON YIELDS OF COWPEA, GROUNDNUT, CHILLI AND ONION GROWN IN NORTH - WEST SRI LANKA

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Thesis

Submitted in partial fulfilment of the requirements for the degree of

MASTER OF PHILOSOPHY

in

Agriculture

in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA, SRI LANKA

Approved.

Examination Committe

July 1984

ABSTRACT

Trials were conducted in farmers' fields at Vanathavillu major colonisation scheme in the north western dry zone of Sri Lanka to evaluate the agronomic constraints responsible for the yield gap. Cowpeas and groundnuts were grown rainfed in the maha and irrigated chillies and onions in the yala. The treatments were: varieties, fertilizer, pest and disease control for cowpeas, chillies and onions and variety, pest and disease and weed control for groundnuts.

The yields in each experiment were affected both by treatments and other uncontrolled factors in different farms such as irrigation, date of planting and spacing. For cowpeas, the recommended level of fertilizer, pest and disease control and variety gave 32%, 31% and 31% higher yields, respectively, over the farmer's levels of those factors. For groundnuts, recommended levels of pest and disease control and variety resulted in 35 and 43% higher yields, respectively. Similarly, 53 and 79% higher yields were observed in chillies with recommended levels of pest and disease control and fertilizer. The chilli yield increased by 73% due to interactions of the recommended level of fertilizer with pest and disease control. Similarly, the interactions of the improved fertilizer level with varieties increased yield by 19%. In onion, yields with the recommended varieties and fertilizer were 36 and 36% higher than at farmers levels. However, the interaction of recommended pest and disease control with fertilizer levels resulted in a 30% higher yield.

The most important uncontrolled factor, irrigation, was responsible for farm to farm yield difference in the yala onion experiment, but did not play a significant role for chillies because the varieties, farmer's as well as recommended, were drought tolerant.