

FLUSHING, FLOWERING, FRUIT-SET AND YIELD CHARACTER STUDIES

IN PEPPER (*Piper nigrum*)

By

PARAKRAMA De ALWIS GURUSINGHE, B.Sc.Agric., (Sri Lanka)

Thesis

Submitted in partial fulfilment of the requirements

for the degree of

MASTER OF PHILOSOPHY

in

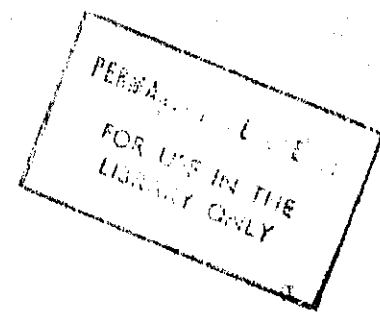
Agriculture

in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA, SRI LANKA



Approved.

b. s. Altes
W. K. Sumanasara
D. S. Jayasinghe

Examination Committee

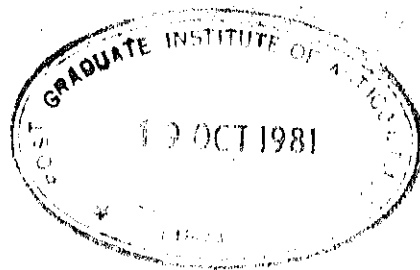
C 633.83
G76



341294

AGRICULTURE LIBRARY
UNIVERSITY OF PERADENIYA

341294



ABSTRACT

Growth and flowering patterns and several yield components of pepper were studied in three varieties (Panniyur-I, Kuching and a local) during the Yala and Maha seasons of 1978 and 1979. The local variety was studied at three locations, Matale, Haloya and Narawatte, while the introduced varieties were studied only at Matale.

The proportion of buds that gets activated in a given season is higher in Kuching than in Panniyur-I and appeared to be much affected by the season. Panniyur-I took a longer time from the activation of a bud to the emergence of the first leaf in that bud, than for the same development (ie. of a given bud) in Kuching, but the flushing phase of (all) the buds of a vine as a whole, was shorter in Panniyur-I than for Kuching. Among the three varieties, the number of nodes and number of buds were significantly less in Panniyur-I than in Kuching and local. There was a wide varietal difference in the number of nodes between Panniyur-I and Kuching the latter having almost four times the number of buds compared to the former and fifty per cent more of the buds get activated in Kuching. The rate of node production from activated buds was therefore much faster in Kuching.

The internodal length, spike length, wet weight of spike, wet weight of good berries and hundred berry dry weight were the highest in Panniyur-I, thus exhibiting hybrid vigour for three characters. The number of spikes, (which also has a direct relationship with yield), was found to be seven times more in Kuching as compared to Panniyur-I.

The higher yield obtained in Kuching appeared to be related to this character inspite of the lower values obtained for spike length, low berry weight, number of berries per spike and hundred berry dry weight. The potential for improvement of pepper through selection for specific yield components, and through hybridization to combine the more desirable characters are discussed.

A large proportion of bisexual flowers and relatively low proportion of female and very low proportion of male flowers were characteristic of all three varieties. The arrangement of the bisexual flowers was found to be such that it appeared to promote self pollination to a great extent. It seemed to be advantageous to select varieties with a large proportion of bisexual flowers for getting higher yields. Some factors affecting fruit set in pepper have been discussed. The yield trends showed evidence for the existence of an alternate bearing tendency in pepper. Supplementing natural pollination by hand pollination was not helpful in enhancing fruit set. In the present study there was no evidence of parthenocarpic development of fruits in pepper.