

EFFECTS OF FORMS AND LEVELS OF NITROGEN FERTILIZER ON  
GROWTH AND YIELDS OF TOBACCO (Nicotiana tabacum. L)

By

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Thesis

Submitted in partial fulfilment of the requirements

for the degree of

MASTER OF PHILOSOPHY

in the

POSTGRADUATE INSTITUTE OF AGRICULTURE

of the

UNIVERSITY OF PERADENIYA

SRI LANKA

March 1994.

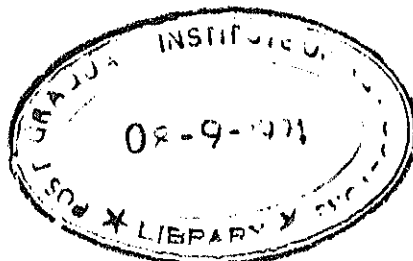
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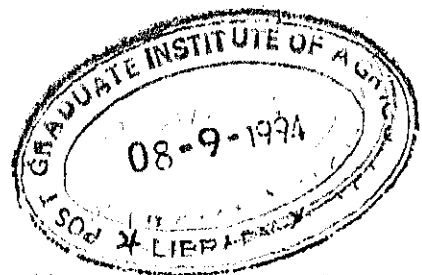
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## ABSTRACT



A study was undertaken to elucidate the response of flue cured tobacco to rates of nitrogen and proportions of ammonium to nitrate fertilizers in two regions of tobacco cultivation in Sri Lanka. Two experiments were carried out in each region for four consecutive seasons commencing in Yala 1987. The nitrogen rates and the proportions of ammonium to nitrate fertilizers were developed to incorporate the current recommendations as well as higher and lower rates. Nitrogen levels tested were changed in the second Yala and Maha experiments based on the results of the first two seasons. The second Maha experiment was limited to nitrogen levels.

The first Yala season (1987) had a significantly lower quantum of rainfall. This affected the growth of the crop. All measured parameters in this season were lower than in the second Yala season (1988). The study highlighted the significance of rainfall in obtaining a successful crop and in determining the response of tobacco to nitrogen fertilizer.

Rainfall received during the two Maha seasons was comparable with the 10-year mean. However, the patterns of distribution in both seasons were uneven. Hence, the crop response was poor and the results of the two Maha seasons

showed the importance of even distribution of rainfall for a successful crop.

Crop establishment, survival and leaf numbers per plant were not affected by the rate of nitrogen or proportions of ammonium to nitrate nitrogen fertilizers. However, both leaf area per plant and yields (green and cured leaf) responded positively to the adopted rates of nitrogen in all four experiments, except for the declining trend shown by the cured leaf yields beyond 100 kg N/ha in Maha 1988/89. These parameters also showed a positive response to increased proportions of nitrate nitrogen. However, green and cured leaf yields declined beyond 20% nitrate nitrogen in Maha 1987/88.

Percentage bright grades and monetary returns were highest at 50 kg N/ha in Yala, and 100 kg N/ha in the Maha seasons under suitable rainfall conditions. These two parameters increased progressively with increasing rates of nitrate nitrogen under dry conditions. Maximum percentage bright grades and monetary returns were achieved with 20% nitrate nitrogen under wet conditions.

