PLANT DENSITY AND CROP ESTABLISHMENT STUDIES WITH TOMATOES FOR MECHANICAL HARVEST

A THESIS PRESENTED IN PARTIAL
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E R R A T A

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and	2.5.1	Results and Discussion	47-55

are out of sequence. They should be renumbered 3.5, and 3.5.1, and be placed between p 99 and p 100.

ABSTRACT

Using three cultivars, chitting tomato seed and priming tomato seed with P. E. G. was found to have no effect on the early relative growth rate of the seedlings, when compared with untreated seed. However, because chitted seeds emerged earlier than primed seeds, which in turn emerged earlier than untreated seed, at any one time, the plants from chitted seed were larger than those from primed seed, and both were found to be larger than those from untreated seed.

The seed treatments along with a high quality transplant treatment were compared in a field study to determine plant weight and fruit yield at four plant densities (62,500, 160,000, 200,000 and 591,716 plants per hectare).

Castlong was found to give heavier total fruit yields than either VF 145-B7879 or Fireball. This is attributed to the higher proportion of fruit total plant weight that this variety develops. Castlong also produced a higher proportion of ripe total fruit at all harvests, this is considered to be due to this cultivar's early maturity combined with its excellent field storage characteristics.

Transplanted plants in all cases yielded heavier and matured earlier than any of the three seed treatments. The yields and maturity characteristics were not significantly different from any of the three seed treatments.

Increasing the plant density from 62,500 plants per hectare to 591,716 plants per hectare increased fruit number and yield per unit area and also tended to increase the proportion of the fruit that was ripe. The number of fruit per plant decreased as plant density increased.

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INTRODUCTION

An essential prerequisite for the successful mechanical harvesting of tomatoes is that, at the time of harvest, a high proportion of the fruit is ripe. There are a number of ways in which the uniformity of maturity within a tomato crop can be modified -

(1) by the choice of cultivar,

(2) by the method of establishment,

(3) by the use of chemical ripening agents,

(4) by management practices such as irrigation, plant population, weed control and protection against pests and diseases.

The objective of this study was to examine the effect of seed treatment, cultivar, method of establishment and plant population on the yield of tomatoes grown for mechanical harvesting.