

ABSTRACT

One of the factors limiting tomato production in Trinidad is poor fruit development during the 'wet' season. One field and three greenhouse experiments were conducted to investigate fruit growth and development in eight tomato lines. The diameters of developing fruit were measured at two-day intervals, from the time ovaries started to swell rapidly until maximum size was attained.

Mean equatorial diameters of mature fruit ranged from 30 mm. to nearly 70 mm. Typical sigmoid curves were found for all lines when diameters were plotted against the age of the fruit, but plotting weight of fruit against age gave a clearer picture of the relative rates of growth. Despite the wide range of fruit diameters, the duration of the fruit expansion period did not differ greatly between lines and was not correlated with final size. Differences in final diameters were attributed to differences in fruit growth rates. These differences were usually present near the beginning of the fruit expansion period. As a result of early differential expansion, final diameters of individual fruit could be predicted from measurements of diameter taken within the first eight days after the fruit were first measured.

In additional experiments, it was found that mature fruit weight was negatively correlated with percent dry matter of immature fruit. The leaf and root weights of a small-fruited line were significantly less than those of a line with medium-sized fruit. Average ovary diameters, measured at anthesis, were correlated with diameters of mature fruit.