

PERMANENT REFERENCE

EVALUATION OF TOMATO (*Lycopersicon esculentum*) VARIETIES IN SANDY REGOSOLS DURING DRY SEASON

BY
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ABSTRACT

The tomato is commercially an important vegetable through out the world both for fresh fruit market and processed food industry.

Tomato is the third (with chillies and onions) important crop in Sri Lanka. Production of tomato (*Lycopersicon esculentum* Mill.) in the Eastern region of Sri Lanka is less profitable as a result of low yield. The low hectare yield is due to abscission of flowers caused by high temperature (30⁰ C-35⁰ C) and pest and disease problems prevailing in *yala* season. The farmers in this district do not have a desire to cultivate tomato, due to the following reasons; only local varieties, which are inherently with low yield are available and the varieties grown are susceptible to *Fusarium* wilt and Leaf curl virus. These varieties in most cases failed to produce flowers when grown during the *yala* season. These are the serious limitations in the expansion of the crop. In view of the above seen facts, an evaluation was made with selected tomato varieties to identify the potential variety/varieties for this production environment.

Six tomato varieties were tested on light sandy soil (regosols) during the *yala* season at the Eastern University, Sri Lanka, located in the agro ecological zone of the Low country dry zone (DL₂) during the period of May 2000 to September 2000. The experiment was conducted in Randomized Complete Block Design (RCBD) with four replicates managed in accordance to recommended practices of the Department of Agriculture (DOA); in order to study yield and yield related characteristics. The data collection commenced with the transplanting of the seedlings and continued up to the last harvest. The collected data were statistically analyzed by using "SAS" (Release:

6.12) and “MINI TAB” (Release: 7.2) packages to determine the level of significance and correlation analysis was also conducted in this investigation.

The results revealed that there was significant differences among varieties in days to 50% flowering, days to 100% flowering, days to emergence of first fruit, days to maturity, days to first harvest, number of fruits per plot, average fruit weight, fruits per Kilo gram, yield per plot, production, and final plant height. Number of fruits per plot, final plant height, days to 50% flowering, and average fruit weight were positively correlated with yield, while days to 100% flowering, days to emergence of first fruit, and days to first harvest were negatively correlated with the yield.

Among six tested tomato varieties the variety T146 (18.75 Mt/ha) produced the highest yield and differed significantly from other varieties. Next to the T146, variety KC1 (12.60 Mt/ha) produced higher yield when comparing with other varieties. These two varieties showed better performance in total yield, yield per plot, and number of fruits per plot than the rest of the varieties. All varieties are susceptible to *Fusarium* wilt except the variety Roma while all the others are susceptible to Leaf curl virus except the variety T245. The marketable yields of varieties were highly affected by *Fusarium* wilt and Leaf curl virus.

Thus the varieties T146, and KC1 appear suitable for cultivation during *yala* season in the Eastern region of Sri Lanka. However, further studies are needed to confirm the results of this study.

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