ABSTRACT

Experiments were carried out in the late wet season of Trinidad to determine the heritability of the character of high heat tolerance, in certain crosses of Lycopersicon esculentum.

The planting material used in this study consisted of 4 parents selected for low and high heat tolerance and their crosses.

The association of the character of high heat tolerance with flower production fruit set and fruit size was studied and expressed by the reactions and the inheritance of these yield components under the high night temperatures (over 72°F.) of the wet season.

It was found that heat tolerance was related to varieties with high flower production, high fruit set, and small fruit size. The heritability of the character of high fruit set in the progenies was 63.1% in the field and 84.8% in the greenhouse. The heritability of the characters of high flower production and small fruit size was low.

Observations on the behaviour of the yield components among varieties revealed that although the relationship between the characters of flower production, fruit set, and fruit size was close, that between the character of total yield and the components was non-significant.

A reasonable explanation of the variation in yield response among varieties is that an environmental influence such as short day length and other factors may have influenced fruit development subsequent to fruit set.

It was concluded that the term "heat tolerance" had a wider application than the character of high fruit set and that this was not the sole cause of reduced wet season yields of tomatoes.