

Digital growth response maps for assessment of cooling requirement in greenhouse production of tomato

ABSTRACT

The objective of this work was to generate a series of digital growth response maps that address specific times of cooling requirement for tomato production in a tropical lowland greenhouse. Collected data from a net-screen covered greenhouse were processed by a computer model that utilized a mathematical approach to simulate tomato's growth responses (GR) to air temperature at early growth and development growth stages. Orthogonal projection was applied on three-dimensional GR plots to create top-view sketch to demonstrate variations with respect to changes in hours and days. Results indicated that air temperature inside the greenhouse was 65% optimal at the early growth stage and 72% optimal at the development growth stage of tomato.

Keyword: Greenhouse; tomato; growth response map; temperature; tropical lowland; cooling requirement, computer simulation