

Influence of Different Methods of Hardening-Off Of Tomato Seedlings on Re-Establishment and Subsequent Growth

Wanyonyi Nasimiyu Mitchelle

Abstract

Hardening-off refers to a process where nursery plants are gradually introduced to environmental conditions that are similar to the ones they are expected to encounter in the field when they are transplanted. Hardening-off of tomato seedlings reduces transplanting shock which may be caused by windburns, sunburns, and interrupted water uptake by the roots and breakages. The process also helps tomato to toughen up and reduce chances of injury. Hardening significantly contributes to increased productivity, this, in turn increase farmers' income and thus economic development of the county and country at large. The proposed study was aimed at investigating the effect of hardening-off on re-establishment and subsequent growth of tomato. The study was carried out in the University of Embu Horticultural farm from January to April, 2018. The experiment was laid out in a Randomized Complete Block Design (RCBD) but hardening treatments on tomato seedling was applied in the nursery bed. The treatments were as follows: T1 - Watering daily until transplanting (control experiment); T2 - Watering daily until 4th week, no watering on the 5th week; T3 - Reduced watering frequency from the 3rd week (skipping 1 day during the 3rd week, 2 days during the 4th week and no watering on the 5th week); T4 - Reduced watering frequency from the 4th week (skipping 1 day during the 4th week and 2 days during the 5th week). Data was collected on plant height, number of branches and days to flowering. Data collected was subjected to analysis of variance (ANOVA) using XLSTAT version 2016 to test for significant effects between treatments and means was separated using Student's Newman- Keuls (SNK) at 95% level of confidence. Treatment 3 (reduced watering frequency from 3rd week skipping 1 day during the 3rd week, 2days during the 4th week and no watering on the 5th week) and treatment 4 (reduced watering frequency from the 4th week skipping 1 day during the 4th week and 2 days during the 5th week) recorded the highest rate of seedling survival after transplanting, plant height, number of branches and days to flowering.