

EVALUATING THE EFFECT OF CHILLING TREATMENT ON GROWTH, YIELD AND QUALITY OF STRAWBERRY PLANTS

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Frigo plants, bare-rooted strawberry plants stored at low temperatures to delay growth, present a novel approach for optimizing strawberry cultivation. Due to reliance on imported Frigo plants and their high cost, there is a need to explore alternative techniques for producing planting materials with enhanced growth and yield. The effects of varying chilling durations on vegetative and reproductive growth of strawberry plants were investigated during the current study using the 'Festival' cultivar. Bare-rooted strawberry plants were exposed to four chilling storage treatments: four, three, and two weeks at 2°C, and a control that received no chilling. The number of stolons, flowers, flower size, fruit set, and Brix values were recorded to assess the impact of chilling on plant development. Results indicated that chilling duration significantly influenced ($p < 0.05$) stolon production, flower width, and fruit set, but not the number of flowers nor the brix value ($p > 0.05$). The 4-week chilling treatment yielded the highest number of stolons per plant (2.81), which was significantly higher ($p < 0.05$) than other treatments and the control. The 3-week chilling treatment resulted in significantly highest fruit set of 3.7 fruits per plant and the highest flower number of 4.1 flowers per plant, while the 4-week chilling treatment produced significantly larger flowers (2.2 cm width). The control group exhibited the lowest fruit set (1.6) and runner production (0.02), highlighting the critical role of chilling in vegetative and reproductive growth. Brix values remained similar across treatments. Accordingly, a 3-week chilling period can be recommended for plants intended for cultivation due to enhanced fruit set and number of flowers, while a 4-week chilling period is advisable for nursery plantlets aimed at producing planting material with enhanced stolon production. This study highlighted the importance of localized chilling treatments for enhancing both vegetative and reproductive growth of strawberry cultivar 'Festival' and offers insights for optimizing chilling protocols in strawberry production.

Keywords: Chilling duration, Frigo plants, Reproductive growth, Stolons, Vegetative growth