

Impact of within-row plant spacing and fixed fruit setting on yield and quality of rockmelon fruit cultivated by drip irrigation in a greenhouse

ABSTRACT

Experiments were conducted in a ventilated greenhouse located in a commercial farm (2° 56"N, 101°54"E) at Broga, Malaysia from 2014 to 2015. The objective of this study was to evaluate the interaction between within-row plant spacing and fruit-set position on the yield and quality of 'Glamour' rockmelon fruit. Rockmelon was grown at 1.57 m between rows with 0.15 m, 0.30 m, and 0.60 m of within-row plant spacing. The plants were fixed to set fruit at T1 (one fruit, 1-7 lateral branches), T2 (one fruit, 8-14 lateral branches), T3 (two fruits, 1-7 lateral branches), and T4 (two fruits, 8-14 lateral branches). As within-row plant spacing decreased from 0.30 m to 0.15 m, yield per ha was increased by 58.1%, and a 3.7-fold increase in yield was seen from 0.60-m to 0.15-m spacing. Total soluble solids (11.96° Brix) and total carbohydrate content (86.60 g GE 100 g DW) were highest at a plant spacing of 0.60 m. Our results demonstrated that the interaction between 0.30-m within-row plant spacing with two fruits set at 8-14 lateral branches showed the most commercially viable outcome in fresh fruit weight as these conditions produced two fruits with an average fruit weight of 2.20 kg per fruit.

Keyword: Biochemical assay; Commercial; Fresh fruit weight; Fruit quality; Glamour rockmelon; Lateral branch