Plant Production Session

Performance of watermelon grafted onto different rootstocks

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Abstract:

The influence of using different rootstocks on the success of grafting, plant growth, fruit yield and quality of two watermelon cultivars was studied. The evaluation was conducted in open field trial in Bardalla. The cultivars used as scions were ‹watermelon cv. ‹ACC.5› and cv.‹9›, and as rootstock; Pumpkin (*Cucurbita moschata*), Gladioter watermelon(*Citrullus lanatus* var. Gladioter), Al-kamari squash (*Cucurbita pepo* var. Melopepo), and Ein-senna squash(*Cucurbita maxima*)›. One cotyledon (splice/slant-cut) grafting method was used. The two scion cultivars were grafted into the four rootstock in addition to self grafted and non grafted plants. The non grafted watermelon plants were used as a control. The results indicated a high percentage (90-100%) of plant survival for both cultivars grafted onto the different rootstocks. The total fruit yield of grafted plants was significantly higher than that of non-grafted plants. The highest total production was obtained when both Pumpkin and Gladioter rootstocks (15.1 and 14.2 kg/plant respectively) were used. On the other hand, both Ein-senna and self-grafted plants resulted in the lowest production (10.4 and 11.3kg/plants respectively). Grafted plants in both Pumpkin and Gladioter rootstocks were more vigorous than that grafted onto Ein-senna rootstock. Plants grafted onto ‘Pumpkin’ and ‘Gladioter’ produced (8363 gm/plant and 8050 gm/plant vegetative fresh weight, however, plants grafted onto Ein-senna rootstock and self-grafted produced less vegetative fresh weight (4263 gm/plant and5293 gm/plant), respectively, whereas, non-grafted (control) plants had the lower vegetative fresh weight in both cultivars. Both control and self-grafted plants showed earliness in their production, grafting improved stem length, number of lateral branches per plant, number of leaves per branch, root length, vegetative fresh and dry weights of stem, leaves and root weight. An in increase in fruit Brix value was obtained in all grafting combination excepted with Ein-senna rootstock (4.5), the higher brix value was obtained when Gladioter rootstock was used (12.5%). These results indicated that, in addition of controlling soil pathogens, grafting watermelon plants onto certain rootstock can improve their growth, production and fruit quality.

Key words: Grafting, watermelon, rootstock