

Short Communications

Relationship Between Growth Characteristics and Yield Potential in Pomegranate

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In recent past, pomegranate has come up as a major fruit crop in Maharashtra. However, the cultivation is based on a few commercial cultivars. Therefore, cultivar improvement programme has been taken up by this University. Besides, clonal selection, hybridization programme is also being attempted. It has been observed that hybrid seedlings flower within 3 years (Kale 1986). The tree also has small stature. The flower size is large and there is no conspicuous fruit drop. It makes pomegranate hybridization programme easier than any other fruit crop. It generates large progeny per cross or per fruit. However, for a successful hybridization programme with efficient utilization of the resources, knowledge of association of different characteristics is the most useful requisite. This will help to screen the progeny at early stage, which is substantially large in pomegranate. But no work has been reported in this respect. This communication reports the findings in respect of association of growth characteristics with yield.

The investigation consisted of 29 diverse genotypes of pomegranate collected from different parts of India and also the exotic cultivars intro-

duced for other countries. They were grown, in three replications with two plant units, at the Experimental Orchard of Department of Horticulture, Mahatma Phule Agricultural University, for the assessment. The observations for different characteristics (Table 1) were recorded adopting standard procedures. The foliage nature was described as evergreen, semi deciduous and deciduous assigning the score 3, 2 and 1 respectively. Using the score, correlation (r) was worked out as described by Panse and Sukhatme (1967).

It was observed that plant height was positively and significantly correlated with tree volume and number of stems (Table 1) but exhibited no significant relationship in either way, with yield characteristics. However, the plant spread was positively and significantly correlated with the yield attributes and needs to be given importance in parent selection and progeny screening. Plant spread was also positively associated with evergreen expression. The tree volume was positively associated with yield attributes, which is obvious. It was also positively related with evergreen nature. The latter was further significantly and

Table 1 Correlation coefficient (r) for growth characters and yield attributes in pomegranate.

Character	Plant height	North-South	East-west	Tree volume	Stems plant ⁻¹	Foliage nature	Fruits plant ⁻¹	Yield plant ⁻¹	Avg. fruit wt.
Plant height	+1.000	+0.543**	+0.410	+0.665**	+0.550**	-0.030	+0.121	+0.045	-0.146
NS-spread		+1.000	+0.812**	+0.862**	-0.034	+0.607**	+0.743**	+0.682**	+0.614**
EW-spread			+1.000	+0.0884**	-0.079	+0.640**	+0.662**	+0.615**	+0.647**
Tree volume				+1.00	+0.138	+0.498**	+0.676**	+0.614**	+0.545**
Stems plant ⁻¹					+1.000	-0.473**	-0.463*	-0.473**	+0.238
Foliage nature						1.000	+0.700**	+0.610**	+0.710**
Fruits plant ⁻¹							+1.000	+0.952**	+0.871**
Yield plant ⁻¹								+1.000	+0.921**

*, ** significant at 5 and 1% respectively.

positively associated with yield attributes. The stems per plant was negatively correlated with yield attributes. Jagtap (1989) reported that pomegranate can produce 2 to 11 stems depending upon the genotypes. In light of cultivation practices genotypes producing 4-5 stems be considered appropriate. The fruit number and the fruit weight showed significant and positive relationship with yield (kg plant^{-1}). Besides, interestingly, the fruit number and fruit size were also positively correlated. It indicates that in pomegranate the cultivars producing more fruits have also genetical potential to give bigger fruits. More fruit number gives scope for fruit thinning to further improve the fruit grade, which is not possible with less fruit load. This relationship is, therefore, a boon for pomegranate breeders.

Thus, in selecting the parents for hybridization programme in pomegranate, and for further screening of the progeny for higher yield, spreading types with evergreen foliage and tendency to produce less stem should be given higher weightage to obtain high yielding genotypes.

References

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