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Short Communication

Growth and yield attributes of guava (*Psidium guajava* L.) genotypes under Chhattisgarh plains

Yogendra Singh and Ashutosh

Abstract
An investigation was made on 18 guava cultivars viz., BSPG-1, BSPG-2, BSPG-3, BSPG-4, BSPG-5, BSPG-6, BSPG-7, BSPG-8, BSPG-9, RJMG-1, RJMG-2, RJMG-3, RJMG-4, RJMG-5, RJMG-6, RJMG-7, RJMG-8 and RJMG-9 under Chhattisgarh plains. Different guava genotypes performed significantly different. The tree height was recorded maximum (4.43 m) in RJMG-9, trunk girth recorded maximum (55.44 cm) in BSPG-8. Plant spread in North-South direction was found maximum (7.78 m) in RJMG-3, while, plant spread in East-West direction was observed maximum (7.84 m) in RJMG-4. Maximum number of fruits per tree (121) was observed in genotype RJMG-4 and highest yield per tree (21.32 kg) was recorded in genotype RJMG-1 were found to be suitable for further improvement.

Keywords: Guava, growth, yield, genotypes

Introduction
Guava (*Psidium guajava* L.) popularly known as "Apple of Tropics" is a tropical fruit but also grows well under sub-tropical condition. It is one of the most common fruits in India and considered the fifth most important fruit in area and production after mango, citrus, banana and apple. Guava is a hardy, prolific bearer and highly remunerative fruit.). It is believed to be introduced in India early in the 17th century, it belongs to family Myrtaceae and genus *Psidium* contains about 150 species (Hayes, 1970) [9]. Underneath the skin is a layer of flavorful sweet and tangy flesh with colour varying from white, yellowish, light pink, dark pink or red. When immature, the fruit is green, hard, and very astringent. When ripe, some varieties have custard like consistency while others are crispy like apple. Pulp is juicy and normally filled with very hard and yellowish seeds (Mortan, 1987) [14]. In India, guava occupies an area of 2.51 Lakh ha and production of 40.83 Lakh M.T. with productivity 16.3 M.T./ha (Anon., 2015). Chhattisgarh covered an area of 0.21 Lakh ha and annual production of 1.74 Lakh M.T. with productivity 8.56 M.T./ ha (Anon., 2015). Guava being a cross-pollinated crop has large variability in size of fruit as well as colour of pulp.

The details of the experimental material used, methods followed and techniques adopted during the course of investigation entitled "Collection and Evaluation of Guava (*Psidium guajava* L.) Genotypes in Chhattisgarh plains" was undertaken during the year 2016-2017. The survey was conducted in two District viz., Bilaspur and Dhamtari to identify superior guava genotypes in Chhattisgarh plains. Bilaspur district is situated between 22.09° North Latitudes and 82.15° East Longitudes. The district is surrounded by Korea in the North, Anuppur and Dindori Districts of Madhya Pradesh on the west, Kawardha on the South-West and Durg and Raipur on the South and Korba and Janjgir-Champa on the East. The survey work was conducted in village Kodasar of Takhatpur block. The experiment consists of 18 guava genotypes aged about 8- 10 years from two district Bilaspur and dhamtari in Chhattisgarh plains. Eighteen genotypes of guava viz., BSPG-1, BSPG-2, BSPG-3, BSPG-4, BSPG-5, BSPG-6, BSPG-7, BSPG-8, BSPG-9, RJMG-1, RJMG-2, RJMG-3, RJMG-4, RJMG-5, RJMG-6, RJMG-7, RJMG-8 and RJMG-9 were selected for the experiment. The experiment was laid out in completely randomized block design with 18 treatments each of which replicated 3 times. Growth and yield study was made in terms of tree height (m), trunk girth (cm), canopy spread (m), number of fuits per tree, yield (kg/tree). The experimental data of all the parameters was subjected to statistical analysis for proper interpretation. The statistical analysis of the data in respect of the yield and quality components of fruit and plant was done according to the statistical procedure. Data recorded on various characters were subjected to statistical analysis of variance technique as given by Gomez (1985) [8]. Data showed (Table 1) that genotypes differed significantly with respect to their growth and yield

attributes. Plant growth was recorded in terms of plant height, trunk girth, canopy spread. The maximum tree height (4.43 m) was recorded in RJMG-9 followed by genotype BSPG-8 (4.40 m) and BSPG-3 (4.30 m) whereas, the minimum tree height (3.50 m) was recorded in RJMG-6. The maximum trunk girth (55.44 cm) was recorded in BSPG-8 followed by BSPG-3 (55.32 cm) and RJMG-9 (53.66 cm) whereas, the minimum trunk girth (39.25 cm) was recorded in RJMG-6. The maximum plant spread in North-South direction was observed in genotype RJMG-3 (7.78 m) followed by BSPG-3 (7.43 m) and BSPG-8 (7.33 m) whereas, minimum plant spread in North-South direction was observed in BSPG-9 (5.11 m). The maximum plant spread in East-West direction was observed in genotype RJMG-4 (7.84 m) followed by RJMG-7 (7.55 m) and RJMG-1 (7.37 m) whereas, minimum plant spread in East-West direction was observed in BSPG-6 (5.10 m). The maximum number of fruits per plant was observed in the genotype RJMG-4 (121) followed by BSPG-3 (106) and RJMG-3 (102) whereas, minimum number of fruits per plant was found in the genotype BSPG-6 (55). The highest fruit yield per plant was observed in the genotype RJMG-1 (21.32 kg) followed by BSPG-2 (20.81 kg) and BSPG-1 (18.92 kg) whereas, lowest yield per plant found in the genotype BSPG-6 (8.16 kg).

Table 1: Growth and yield parameters of *in-situ* guava genotypes

Genotypes	Tree height (m)	Trunk Girth (cm)	Canopy spread N-S (m)	Canopy spread E-W (m)	Number of fruits per Tree	Fruit yield per plant (kg)
BSPG-1	3.66	42.15	6.10	6.55	89	18.92
BSPG-2	3.80	44.25	7.32	5.98	96	20.81
BSPG-3	4.30	55.32	7.43	5.80	106	13.78
BSPG-4	3.90	45.45	5.66	6.10	71	13.95
BSPG-5	3.70	42.10	6.03	5.47	66	10.07
BSPG-6	3.60	40.33	5.45	5.10	55	8.16
BSPG-7	4.10	51.26	5.76	6.20	62	11.05
BSPG-8	4.40	55.44	7.33	5.66	98	18.01
BSPG-9	4.00	47.15	5.11	5.30	58	9.70
RJMG-1	3.95	45.55	5.93	7.37	93	21.32
RJMG-2	3.55	40.13	6.55	5.36	86	13.33
RJMG-3	4.05	48.20	7.78	5.38	102	17.77
RJMG-4	3.85	45.10	5.90	7.84	121	15.94
RJMG-5	3.94	47.00	5.14	5.77	61	10.94
RJMG-6	3.50	39.25	6.77	5.49	91	14.80
RJMG-7	4.15	53.22	6.23	7.55	95	17.87
RJMG-8	3.76	44.13	6.38	5.44	82	12.24
RJMG-9	4.43	53.66	5.43	6.12	74	13.40
Range	3.50-4.40	39.25-55.44	5.11-7.78	5.10-7.84	55-141	8.16-21.32
Mean	3.92	46.64	6.23	6.02	83.66	14.55

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