EVALUATION OF GUAVA CULTIVARS FOR THEIR PERFORMANCE UNDER MID HILL ALTITUDE OF MEGHALAYA

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Guava (Psidium guajava L.) " The people of tropics" is one of the most important fruit crops commercially grown throughout India. Guava is quite hardy, prolific bearer and highly remunerative crop. It thrives well in a variety of soil types having a pH range 4.5 to 8.2 (Rushie, 1948). The north eastern hilly region of India which is bestowed with high rainfall has itsown tremendous potentialities for raising guava (Singh, 1983). In general, the tendency of the farmers is to go for raising high yielding varieties so as to reap lucrative net returns while the consumers' attraction is for delicious and seedless fruitsmof optimum size. Seedlessness, a desirable trait of guava readily attracts the attention of farmers and condumers. Hence, it becomes essential to screen the vast varietal wealth of guava for the yield and quality characters for its wide acceptance and better preference among the farmers and consumers respectively.

Ten guava cutivars of about seven years old trees at ICAR Research Complex for North Easter Hilly Region, Barapani, Meghalaya were screened for their yield performance and quality characters of the rainy season crop during October, 2000. three trees of uniform growth and bearing habit were selected in each cultivars. Five fully ripe fruits were collected from each tree for yield and quality analysis. The yield related parameters studied were yield (kg/tree/year), number of fruit/tree, fruit weight (g), fruit length (mm) and fruit diameter (mm). The quality related traits observed were skin colour, flesh colur, seed content, number of seeds/cut surface, seed texture, total soluble slolid (TSS %), titrable acidity (%) and ascorbic acid content (mg/100g)/. TSS was measured using hand refractometer at 200C. Titrable acidity (citric acid) of the fruit juice was estimated by titrating against 0.1N Naoh (Ranganna, 1977). Ascorbic acid content was determined by following the procedure of A.O.A.C.) 1975).

Among the yield parameters studied (Table 1)., there was a significant difference between the cultivars for yield (kg/tree/year) and it ranged from 8.15 to 15.95 kg. The maximum yield was obtained from Lucknow-49 (17.92kg) closely followed by Allahabad Safeda (17.55kg). This was followed by the Pink flesh cultivar Selection -1 (15.97kg) and Selection-7 (14.97 kg). The yield increased was about 38.80 % in Lucknow -49 and 35.94 % in Allahabad Safeda over the mean annual yield/tree (12.91). it is to be noted that the high yielder Selection -1 which follow Lucknow-49 and Allahabad Safeda for yield potential is a pink flesh cultivars.

The number of fruits/tree ranged from 66.67 to 162.33 and there was a significant different among the cultivars evaluated for number of fruits/tree. The mean number of fruits/tree was 108.90. the maximum number of fruits/tree was recorded in Selection-1(162.33) followed by Selection -10 (160.67). Selection -1 performed statistically on par with Selection-10. Despite the maximum with respect to yield/tree. This might be due to the relatively Lucknow -49 and Allahabad Safeda with respect to yield/tree. This might be due to the relatively lesser fruit weight of Selection -1 when compared to Lucknow-49 and Allahabad Safeda.

The fruit weight ranged from 86.60 to 142.00 g and differed significantly among the cultivars. The mean weight of the fruit was 121.40 g. the fruit weight was maximum in Selection-11 (142.00g). the fruit weight of Lucknow -49 (140.00g) was found at par with Selection -11. The maximum yield in Lucknow -49 (17.92kg/tree/year) might be due to the relatively heavy fruit weight and more number of

fruits/tree. Hence, it is inferred that fruit weight as well as the number of fruits/tree are equally important in deciding the yield/tree.

Fruit length varied from 50.02 to 62.74 mm and differed significantly among the cultivars. The mean fruit length was 56.80 mm. Allahabad Safeda recorded the maximum fruit length (62.74mm) and the pink flesh cultivar Selection -1 recorded the minimum fruit length (50.02 mm). Fruit diameter variety from 55.48 to 66.24 mm and the maximum fruit diameter was recorded by Allahabad Safeda (66.24 mm). Selection -1 registered the minimum fruit diameter of 55.48 mm.

A perusal of data on quality parameters (Table 2) revealed that the skin colour varied from light green to greenish yellow. Among the ten cultivars, 4 were yellowish green in colour. Flesh colour indicated that Selection -1 was pink in colour while others were white fleshed.

Seed content of the fruits, is a key factor that decides the fruit quality and acceptability among consumers. In general, consumer's preference is always for seedless varieties. Fruits were exactly cut into two halves and the number of seeds in the surface was counted. The cultivars were classified into 4 groups viz. very low (less than 5 seeds), low (6-15 seeds), medium (16-25 seeds), and high (26 seeds and above) on the basis of the number of seeds on the fruit. The seed content was the least in Selection -11 making it ideal for ready consumption. Lucknow-49 and Selection -1 possessed less seed content. The high seed content in Selection-7 is the major bottleneck for this variety. On the basis of seed textured the cultivars were classified into 4 classes such as soft, soft to medium and hard textured. Selection -11 and Allahabad Safeda were found to belong soft seeded category. Daulta et.al. (1988) also classified guava cultivars into various classes on the basis of seed texture.

Total soluble solids (TSS) varied from 8.40 to 11.00 % and there was a significant difference among the cultivars. Selection-11 registered the highest TSS (11.00) followed by selection -7 (10.60 %). Similar reports on TSS content of guava cultivars were made by earlier workers (Chundawat et.al.,1976). The titrable acidity varied from 0.26 to 0.72 % and the pink flesh cultivar Selection -1 recorded the highest acidity (0.72 %) followed by Selection -12 (0.67 %) . the ascorbic acid content ranged from 100.20 to 210.40 mg/100g. the ascorbic acid content was maximum in selection -11 (210.40 mg/100 g) followed by Selection -7 (192.50mg/100 g). this is in line with the findings of Tandon et.al. (1983) who determined the ascorbic acid content of guava cultivars.

In this study, the guava cultivars, Lucknow -49, Allahabad Safeda, Selection -1 and Selection -7 were identified as high yielder. The cultivars Selection -11, Selection -7, Lucknow-49 and Allahabad safeda were identified as the cultivars with quality fruits. Lucknow -49, Allahabad Safeda, Selection-11 and Selection -7 possessing both superior yield and quality standard were identified as ideal cultivars for commercial cultivation. Lucknow-49 and Allahabad Safeda has been suggested for cultivation on commercial scale in low hills of Sikkim on the basis of yield and quality traits (Gurung and Singh, 1980). Hence, the study concludes that the guava cultivars Selection -11 and Selection -7 are the ideal varieties for commercial orcharding in mid hills of Meghalaya and other north eastern states besides Lucknow-49 and Allahabad Safeda.

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Table 1. Evaluation of guava cultivars for yield attributing parameters

Variety	Yield (kg/tree/year)	Number of fruits/tree(g)	Fruit weight	Fruit length (mm)	Fruit diameter (mm)
Selection -1	15.97	162.33	98.40	50.02	55.48
Selection -6	9.94	72.00	138.20	58.40	62.46
Selection -7	14.97	116.67	128.40	52.64	62.62
Selection -9	9.54	82.33	115.80	54.40	59.80
Selection -10	13.91	160.67	86.60	50.86	58.02
Selection -11	21.12	85.33	142.00	60.60	62.66
Selection -12	9.05	80.33	112.60	54.40	57.04
Selection -13	8.15	66.67	122.20	62.52	64.50
Lucknow-49	17.92	128.00	140.00	61.40	65.22
Allahabad safeda	17.55	134.67	130.20	62.74	66.24
Mean	12.91	108.90	121.44	56.80	61.24
S. Ed	1.15	6.39	2.48	1.55	1.15
CD (p=0.05)	2.34	12.98	5.04	3.15	2.34

Table 2. Evaluation of guava cultivars for quality attributing parameters

Variety	Skin colour	Flesh colour	Seed content	Seed No.	Seed Texture	TSS (%)	Acidity (%)	Ascorbic acid (mg/100g)
Selection -1	Light green	Pink	low	10-12	Soft - medium	8.40	0.72	96.20
Selection -6	Greenwish Yellow	White	Medium	18-20	Soft - medium	10.40	0.29	100.40
Selection -7	Greenwish Yellow	Creamy White	High	42-48	Medium	10.60	0.44	192.50
Selection -9	Greenwish Yellow	White	Medium	20-22	Hard	10.00	0.28	150.60
Selection -10	Creamy Yellow	Creamy White	Medium	20-22	Medium	9.00	0.26	100.20
Selection -11	Green	White	Very low	2-4	Medium	11.00	0.38	210.40
Selection -12	Greenwish Yellow	White	Medium	18-20	Sort - medium	9.50	0.67	140.80
Selection -13	Pale green	Creamy White	Medium	18-20	Soft	8.50	0.54	145.50
Lucknow - 49	Green	White	Low	10-12	Medium	10.50	0.40	158.40
Allahabad Safeda	Yellowish green	Creamy white	Medium	18-20	Soft	10.30	0.44	151.40
Mean						9.80	0.44	144.64
SEd						0.17	0.03	12.10
CD (P=0.05						0.35	0.06	25.63