Evaluation of brinjalgenotypes (*Solanummelongena* L.) for growth and fruit yield charactersinBundelkhandregionof U.P.

Comment [U1]: Growth, yield and quality characters in Bundelkhand region of U.P.

ABSTRACT

The experiment was conducted at Vegetable Research Farm, Banda University of Agriculture and Technology, Banda,210001, UP, India during the *Rab*i season in 2021and 2022to assess the performance of thirty-four genotypes of brinjal.The investigation was carried out in a Randomized Block Design with three replications. BUB-18-27 exhibited the best yield potential of all the genotypes evaluated, followed by BUB-18-12 BUB-18-4, BUB-18-24, BUB-18-20, BUB-18-22, BUB-18-25, KashiTaru, and BUB-18-17.The genotype BUB-18-27was also found positively best with respect to average fruit weight, total soluble solids, fruit diameter, fruit circumference, number of primary branches and leaf area index. Other genotypes showing better performance for fruit yield per plant were also better for most of fruit yield contributing traits. As a result, these genotypes can be utilized for further improvement of fruit yield and its contributing traits in brinjal.

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Keywords: *Solanummelongena*L., *Brinjal*, *genotypes*, *evaluation*, *Bundelkhand*

INTRODUCTION

The brinjal (*Solanummelongena* L.), often known as eggplant and aubergine, is a member of the Solanaceae family and possesses the chromosomal number 24 (2n=24). It is a non-tuberiferoussolanum species and generally day-neutral plant. It was first domesticated from the wild nightshade species thorn or bitter apple, *Solanumincanum*.South East Asia (India) is its original home. The delicate, tropical perennial plant known as the eggplant is additionally grown as a tender or semi-hardy annual in temperate conditions. (Loheet al., 2021) [1]. It is the cheapest and most profitable vegetable, has a highly nutritious content, and is in high demand on the market. Due to its numerous uses in Indian food, it is often known as the "king of vegetables." (Dhaka et al., 2017) [2]. It has high levels of calcium (0.02%), phosphorous (0.02%), iron (0.0013%), and other mineral matter (Jyothi et al., 2021) [3]. It also has high levels of carbohydrates (6.4%), protein (1.3%), and fat (0.3%). It is useful for decreasing blood cholesterol as well as treating diabetes, asthma, cholera, bronchitis, and diarrhea. (Bongo et al., 2020) [4]. With an annual production of 13.55 million tonnes and an average yield of 19.5 tonnes per hectare, brinjal is grown on 0.72 million hectares of land in India (NHB, 2018) [5]Brinjal is primarily self-pollinated, but it has been discovered to have up to 48% cross-pollination; still, it has been identified as a crop that has widespread cross-pollination. The presence of exerted stigma increases the chance of cross-pollination. The rate of natural cross-pollination can vary greatly based on the genotype, environment, and insect activity. Out-crossing in brinjal cultivars varies between 3 and 7% in China and between 0 and 8.2% in India (Chen. et al., 2000) [6]. The ideal growth and fruit set range is between 20 and 30 °C. However, the high night and day temperature range of 22-24°C to 33-35°C, greatly affects fruit set and production (Thapa, 2002) [7]. Increased production and productivity of brinjal are required to meet the demands of a growing population. Due to

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unique local preferences for color, shape, and flavor, certain types of genotypes are best suited for specific localities. (Kumar et al., 2012)[8].

While brinjal is grown throughout India, its productivity is very poor (17.5 t ha-1) compared to the global average of 26.1 t ha-1). (FAO STAT, 2016) [9]. It has still appeared that 17.8% of hybrid brinjal, 50.0 percent of OP/HYV brinjal, and 32.2% of local types of brinjal are grown in India. (Tripathy et al., 2020)[10].The superiority of local types and landraces may be due to local performance by consumers because of the quality properties. The higher degree of the heterozygous character of the regional landraces of brinjal provides a greater opportunity for the evolution of a superior type from the regional existing types, particularly under the conditions of Bundelkhand for commercialization because Bundelkhand has a greater diversity in brinjal. It is more accurate information than any other statistic to choose superior genotypes for a crop improvement program based on mean performance. In order to examine the growth and fruit yield characteristics, a determination was undertaken to collect and evaluate local brinjal landraces.

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Comment [U11]: deleten write, as we know some lines, varieties and collections can perform much better in some preferential locations. The objective of the present study was to find the suitability of some desirable lines for this particular region. this suitability includes earliness, yield and quality. So that some particular collections can be recommended for the Bundelkhand region after testing there stability.

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MATERIALS AND METHODS

The present experiment consisted 34 genotypes of brinjalincluding released varieties from IIVR, Varanasi and IARI, New Delhi and advanced breeding lines developed by the Department of Vegetable Science, Banda University of Agriculture and Technology, Banda(U.P.). The experiment was laid out in Randomized Block Design (RBD) with three replications at Vegetable Research Farm of the University(24º 53'-25º 55' N latitudes, 80º 07'-81º 34' E longitudes and 150 m above the mean sea level altitude) during the *Rabi* 2021 and 2022. Seeds of all the thirty-four brinjal genotypes were sown in nursery beds on 7th Septemberin 2021 and 10th September in 2022. All the recommended practices were adopted to raise healthy seedlings.The healthy seedlings with uniform height were selected for transplanting at 75 x 60 cm spacing. Five random plants were taggedin each genotype and replication to record data on sixteencharacters *viz.*days to 50% flowering, number of flowers per cluster, fruit setting percentage, days to first fruit picking, leaf area index (cm^2), number of primary branches per plant, Fruit length (cm), fruit circumference (cm), fruit diameter (cm), specific gravity of fruits (g/cm3), total soluble solid (ºBrix), plant height at last picking (cm), number of fruits per plant, average weight of the fruit (g) and fruit yield per plant (kg).

RESULT AND DISCUSSION

The data recorded on sixteen traits from the two-year experiments were subjected to statistical analysis individually as well as pooled over two years. Analysis of variance indicated that there were significant differences between 36 genotypes included in experiments for all the traits studies(Table 1).

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In the pooled two years of data, the days to 50% flowering ranged from (50.00) to (69.67) days with an overall average value of (28.25) days. Among 34 genotypes, six genotypes were found statistically significant viz., BUB-18-14 (50.00), PusaShyamal (50.00), BUB-18-16 (50.67), BUB-18-2 (50.86), BUB-18-20 (51.83), BUB-18-9 (52.00) for the earliness of this trait (days to 50% flower) over the rest genotypes. Similar results were cited by Nikithaet al., (2020) [11] and Nazir et al. (2022) [12].

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Two years of pooled data ranged value 28.08 to 45.73 cm with an average value of 38.73cm. After analysis revealed that nine genotypes viz., BUB-18-2 (28.08), BUB-18-14 (31.38)

BUB-18-21(31.61) KashiTaru (32.06), KashiHimani (33.47), BUB-18-17 (33.62), BUB-18-16 (34.38), BUB-18-17 (34.41) and KashiUttam (34.42) had been found positively significant forplant height at 50 % flowering over the rest of genotypes among the 34 genotypes of brinjal for the earliness of this character. Similar results were also reported by Sharma and Singh (2015) [13] and Madhavi et al. (2015) [14].

In the two years of pooled data, among the 34 genotypes maximum number of flowers per cluster was found in BUB-18-15 (24.09) followed by BUB-18-25 (8.24), KashiHimani (5.67), BUB-18-28 (5.30), BUB-18-16 (4.72), BUB-18-11 (4.27) and PusaAnkur (4.11) for this trait.Simalar results were found byBalsubramaniyam et al. (2021) [15] and Patel et al. (2015) [16].

Two-year pooled data analysis showed that thirteen viz., BUB-18-15 (92.41), PusaAnkur (87.82), BUB-18-25 (87.36), BUB-18-21 (81.02), BUB-18-19 (79.82), PusaShyamal (79.10), BUB-18-14 (71.82), PusaUpkar (71.64), KashiUttam (69.77), Kashi Prakash (69.05), BUB-18-17 (66.86), CHBR-2 (62.26), and BUB-18-4 (61.04) were found statistically significant for fruit setting percentage over rest of the genotypes for this trait. These results are in confirmation by Kumar et al. (2013) [17] and Vidhya et al. (2015) [18].

In the pooled data the mean was (73.14) days and ranged from (62.49) to (90.00) days, BUB-18-2 (62.49)days was found minimum positively significant to days to first fruit picking followed by BUB-18-14 (63.16)days, BUB-18-20 (64.83)days, BUB-18-18 (64.83)days, PusaShyamal (64.33)days, and BUB-18-15 (67.17)days for earliness among the rest of genotypes.Significant variations for days to first picking were observed among the genotypes under study. Similar results of earliness in the first harvest were reported by Nirmala et al. (2013) [19].

Two-yearpooled data showed that the mean was (1.85) and the range was (0.53) to (4.22). The highest leaf area index was found in CHBR-2 (4.22) followed by Kashi Green Round (3.10), BUB-18- 20-1 (3.00), BUB-18-4 (2.98), KashiTaru (2.89), BUB-18-22 (2.79), BUB-18-14 (2.43), PushaShyamal (2.38), BUB-18-19 (2.32), BUB-18-6 (2.30), and BUB-18-9 (2.12) among the genotypes for this character. Similar results are also reported by Resmika et al. (2014) [20].

Pooled analysis revealed that ten genotypes BUB-18-10 (11.86), KashiTaru (11.64), BUB-18-27 (11.55), Kashi Prakash (11.46), BUB-18-21 (11.34), BUB-18-28 (10.54), Kashi Green Round (9.72), PusaUpkar (9.62), PusaAnkur (9.46), and BUB-18-26 (9.37) were found higher number of primary branches per plant out of 34 genotypes for this trait. This was in accordance with the results of Vidhya& Kumar (2015) [21],Reshmika et al. (2015) [20] andNazir et al. (2022) [12].

Pooled data showed that the mean was (11.48 cm) and the range was (6.49 to 22.32cm). The highest fruit length observed in KashiTaru (22.32cm), followed by BUB-18-20-1 (18.06cm), PushaShyamal (17.12cm), Kashi Prakash (16.36cm), BUB-18-25 (16.54cm), BUB-18-24 (15.99cm), BUB-18-14 (15.20cm), KashiHimani (13.81cm), BUB-18-21 (13.32cm), BUB-18-22 (13.05cm), KashiUttam (12.86cm), and BUB-18-4 (12.68cm) for this trait over rest genotypes of brinjal. Fruit length was also reported by Tripathy et al. (2018), Yadav, et al. (2018),Nikitha et al., (2020) [11] andNazir et al. (2022) [12].

Pooled data showed that the mean was (16.92 cm) and the range was (10.73 to 28.53cm). Fruit circumference was maximum found in KashiUttam (28.53cm) followed by Kashi Green Round (26.04cm), BUB-18-12 (25.57cm), BUB-18-27 (25.55cm), CHBR-2 (25.29cm), BUB-18-2 (24.99cm), PusaUpkar (20.86cm), and BUB-18-22 (20.74cm) for this trait among 34 genotypes. Similar results were obtained by Yadav, et al. (2018) [21] and Balsubramniyam et al. (2021) [15].

Pooled data showed that the mean was (5.51 cm) and the range was (3.51 to 9.63 cm). Seven genotypes were found positively significant viz. BUB-18-2 (9.63), KashiUttam (9.20), BUB-18-27 (8.63), Kashi Green Round (8.09), BUB-18-12 (7.95), CHBR-2 (7.67), and BUB-18-22 (6.37) for fruit diameter over the rest genotypes.A similar trend of fruit diameter was observed in the genotypes studied byNikitha et al., (2020) [11] and Nazir et al. (2022) [12].

Pooled data showed that the mean was (0.90 g/cm^3) and the range mean value was (0.50 to 1.30 g/cm^3). Among the 34 genotypes, thirteen genotypes were found significant viz. BUB-18-4 (1.30 g/cm^3), BUB-18-11 (1.19 g/cm^3), BUB-18-3 (1.07 g/cm^3), PusaAnkur (1.03 g/cm^3), BUB-18-21 (1.03 g/cm^3) BUB-18-22 (1.00 g/cm^3) KashiTaru (0.97 g/cm^3), BUB-18-25 (0.95 g/cm^3), BUB-18-18 (0.95 g/cm^3), and BUB-18-20-1 (0.95 g/cm^3) overall its rest genotypes of brinjal for specific gravity of fruits. A similar result was also reported by ManjitKuma et al. (2022). [21].

Pooled data showed that the mean was (4.55) and the range was (3.18 to 5.60). The highest total soluble solids were noticed for genotypes BUB-18-16 (5.60) followed by BUB-18-12 (5.51), BUB-18-5 (5.48), BUB-18-25 (5.58), BUB-18-28 (5.53), `BUB-18-19 (5.40), BUB-18-10 (5.31), BUB-18-23 (5.27), BUB-18-27 (5.22), BUB-18-15 (5.17), BUB-18-20-1 (5.11), BUB-18-17 (5.15), BUB-18-26 (5.07), BUB-18-20 (5.06), BUB-18-11 (4.89), BUB-18-21 (4.83), and CHBR-2 (5.06) among 34 genotypes to this trait. Similar results were recorded by Tripathy et al. (2018) [24]

Pooled data showed that the mean was 75.93 cm and the range was 58.98 to 84.87 cm. Maximum plant height at last picking was recorded in BUB-18-5 (94.87 cm) followed by BUB-18-28 (92.47 cm), BUB-18-18 (89.53 cm), KashiTaru (89.10 cm), BUB-18-16 (83.74 cm), and BUB-18-9 (84.40 cm) over the rest genotypes for this trait. Similar results were reported by Sivakumar etal. (2016) [22],Nirmala et al. (2013) [19] and Vidhya et al. (2015) [18].

The number of fruits per plant is one of the most important component traits which is directly increased fruit yield per plant. Pooled data showed that the mean was (28.78) and the range was (11.02 to 138.45). Eleven genotypes were found statistically significant viz. BUB-18-16 (138.45), BUB-18-25 (40.33), BUB-18-20 (40.19), BUB-18-24 (40.14), BUB-18-2 (34.56), BUB-18-9 (33.12), BUB-18-23 (32.89), Kashi Prakash (32.86), BUB-18-28 (31.98), KashiTaru (31.32), and BUB-18-14 (31.21) for this trait over the rest genotypes. Similar resultswere reportedby Tripathy et al. (2018) [24],Yadav, et al. (2018) [21] and Nikitha et al., (2020) [11].

Pooled data showed that the mean was (116.65 g) and the range was (15.67 to 251.09g). Average fruit weight (g) was recorded maximum in KashiUttam (251.09) followed by BUB-18-12 (246.52 g), BUB-18-27 (233.22 g), CHBR-2 (224.08 g), Kashi Green Round (213.00 g), BUB-18- 4 (186.29 g), BUB-18-22 (170.86 g), PusaUpkar (173.13 g), and BUB-18-17

(154.40 g) for this trait among 34 genotypes. Similar results were recorded byYadav, et al. (2018) [21], Nikitha et al., (2020) [11] and Nazir et al. (2022) [12].

The data on the mean performance of genotypes are indicated in Table 2 for the first year, Table 3 for the second year and Table 4 for pooled two years.Fruit yieldper plant over two years of pooled data ranged from (1.45 kg)to (3.57 kg) with a population mean of 2.66 kg. In individual years as well as pooled over two years, maximum fruit yield per plant was recorded in BUB-18-27 (3.57 kg) followed by BUB-18-12 (3.53 kg), BUB-18- 4 (3.53 kg), BUB-18-24 (3.53 kg), BUB-18-20 (3.41 kg), BUB-18-22(3.42 kg), BUB-18-25 (3.32 kg) KashiTaru (3.38 kg) and BUB-18-17 (3.31 kg) with statistically *at par* values among all 34 genotypes. Comparable results on fruit yield per plant in brinjal have also been reported by Nirmala et al. (2013) [19],Tripathy et al. (2018) [24] and Nikitha et al., (2020) [11].

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CONCLUSION

From the current investigation, we conclude thatBUB-18-27wasthe highest yield potential followed by BUB-18-12 BUB-18-4, BUB-18-24, BUB-18-20, BUB-18-22, BUB-18-25, KashiTaru, and BUB-18-17.The genotype BUB-18-27was also foundpositively best with respect to average fruit weight, total soluble solids, fruit diameter, fruit circumference, number of primary branches and leaf area index.These genotypes can be subjected to future breeding programs or further selection to utilize the best of the hybrid vigor in brinjal.

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Table1Analysis of variance for different characters of brinjal

Comment [U18]: (*SolanumMelongena* L.)

Mean sum squares							
S.N.	Characteristics	Rabi 2021-22		Rabi 2022-23		Pooled	
		Treatment	error	Treatment	error	Treatment	error
1.	Days to 50% flowering	75.96**	16.60	104.73**	11.25	87.33**	8.09
2.	Plant height at 50 % flowering (cm)	72.60**	9.68	59.50**	16.40	63.53**	6.51
3.	Number of flowers per cluster	52.19**	0.07	39.39**	0.18	45.62**	0.05
4.	Fruit Setting Percentage	1262.76**	22.68	1332.39**	35.76	1265.07**	13.00
5.	Days to first fruit picking	96.22**	20.20	129.52**	14.03	110.60**	9.22
6.	Leaf Area Index (cm^2)	1.993**	0.016	2.04**	0.02	1.982**	0.010
7.	Number of primary branches per plant	9.12**	0.41	9.00**	0.87	8.94**	0.31
8.	Fruit length (cm)	42.32**	0.62	41.11**	0.65	41.53**	0.30
9.	Fruit circumference (cm)	80.73**	1.50	81.62**	3.08	74.03**	1.14
10.	Fruit diameter (cm	7.92**	0.18	8.09**	0.25	7.97**	0.10
11.	Specific gravity of fruits (g/cm3)	0.076**	0.002	0.081**	0.002	0.077**	0.001
12.	Total soluble solids (TSS)ºBrix	2.233**	0.045	Sola1.855**	0.038	1.984**	0.019
13.	Plant height at last picking (cm)	217.42**	25.05	236.96**	15.01	217.28**	11.76
14.	Number of fruits per plant	1314.48**	4.46	1330.13**	4.97	1322.01**	1.63
15.	Average fruit weight (g)	10869.83**	69.79	11101.64**	138.92	10961.84**	66.03
16.	Fruit yield per plant (kg)	1.509**	0.037	1.229**	0.066	1.347**	0.026

Table 2. Mean performance of thirty- four genotypes for sixteen characters during the first year 2021-22

Comment [U19]: Of brinjal (*Solanummelongena* L.)

Var	Genotypes	Days to 50% flowering (DAT)	Plant height at 50 % flowering (cm)	Number of flowers per cluster	Fruit Setting Percentage	Days to first fruit picking	Leaf Area Index (cm^2)	Number of primary branches per plant	Fruit length (cm)	Fruit circumference (cm)	Fruit diameter (cm)	Specific gravity of fruits (g/cm^3)	Total soluble solids (TSS)ºBrix	Plant height at last picking (cm)	Number of fruits per plant	Average fruit weight (g)	Fruit yield per plant (kg)
1	KashiHimani	59.33	33.65	5.68	33.90	75.33	1.89	8.40	13.48	11.81	3.76	0.87	3.35	69.97	18.18	103.40	1.95
2	Kashi Prakash	54.33	42.55	2.29	67.64	72.66	1.47	11.38	16.39	14.28	4.63	0.89	3.62	72.06	33.10	94.68	3.19
3	KashiUttam	56.00	34.78	1.54	65.10	72.33	1.75	8.34	12.93	28.75	9.15	0.71	4.12	68.38	12.51	251.52	3.26
4	KashiTaru	56.33	33.12	3.06	56.54	71.66	2.94	11.88	23.31	12.60	4.01	0.98	3.12	91.27	30.97	107.35	3.35
5	Kashi Green Round	69.39	41.72	3.23	31.11	85.33	3.14	9.98	10.11	25.32	8.06	0.92	4.64	77.27	11.11	210.00	2.70
6	PusaAnkur	55.33	45.68	4.19	88.54	74.00	1.67	9.58	9.92	17.70		0.99	3.85	68.72	21.69	120.48	2.39
7	PusaUpkar	62.78	43.65	2.54	71.26	76.66	1.82	9.56	11.32	20.65	6.35	0.84	3.35	70.68	15.96	169.59	2.58
8	CHBR-2	65.66	41.69	1.53	65.57	82.66	4.25	8.40	9.98	23.94	7.62	0.86	4.94	75.29	14.74	220.50	2.82
9	BUB-18-20-1	58.33	41.05	2.57	39.10	72.33	2.99	9.11	17.66	16.85	5.28	0.92	5.15	69.86	26.58	105.27	2.71
10	BUB-18-6	68.33	43.77	1.68	59.65	89.00	2.34	8.84	10.12	16.09	5.12	0.86	3.27	76.66	18.66	92.37	1.67
11	BUB-18-12	63.33	42.18	2.41	41.60	75.66	1.56	8.46	10.67	25.76	7.84	0.81	5.73	60.23	14.28	245.37	3.68
12	BUB-18-2	51.38	28.37	1.84	55.08	63.66	1.35	6.66	11.23	30.55	9.60	0.74	4.83	62.01	33.33	85.99	2.87
13	BUB-18-3	60.31	44.21	3.58	43.58	76.00	1.78	8.85	8.45	17.85	5.68	1.06	4.59	75.71	25.64	82.49	1.93
14	BUB-18-11	63.33	40.12	4.35	40.92	76.33	1.89	7.89	7.30	17.88	5.86	1.23	4.81	74.86	25.67	124.55	2.99
15	BUB-18-4	55.33	43.25	1.52	66.06	73.33	3.01	6.51	12.67	14.86	4.86	1.29	4.24	81.52	17.95	186.25	3.59
16	BUB-18-5	56.66	35.71	3.35	30.02	70.00	0.69	7.38	8.25	14.56	4.57	0.89	5.64	95.20	29.04	62.14	1.63
17	BUB-18-10	59.88	40.17	3.36	42.78	75.66	0.91	12.32	7.03	15.66	4.86	0.92	5.24	78.81	28.94	64.12	1.89
18	BUB-18-9	52.33	41.37	2.01	49.81	69.66	2.22	5.97	12.09	14.50	4.76	0.69	3.71	86.27	32.14	82.33	2.59
19	PusaShyamal	50.33	37.67	1.64	73.23	65.66	2.34	8.22	16.81	11.87	3.78	0.86	4.19	74.20	28.67	98.88	2.57
20	BUB-18-14	50.00	30.20	1.59	64.28	63.30	2.49	6.10	14.95	13.63	4.34	0.73	3.17	71.65	30.56	94.26	2.98
21	BUB-18-15	56.88	39.16	25.77	94.85	66.33	0.94	7.53	7.28	13.29	4.23	0.53	5.14	80.92	138.25	15.34	2.25
22	BUB-18-16	50.00	32.89	4.67	21.55	67.66	1.32	7.77	9.53	11.97	3.96	1.03	5.95	84.92	22.69	66.65	1.56
23	BUB-18-17	55.66	33.67	2.24	61.61	71.33	1.06	7.13	11.23	16.43	5.21	1.22	5.10	67.82	22.15	155.13	3.34
24	BUB-18-18	54.33	42.86	2.71	37.02	65.66	0.88	7.86	7.69	14.42	4.89	0.95	4.27	90.53	21.93	54.00	1.37
25	BUB-18-19	55.96	39.04	3.42	74.94	73.66	2.37	7.92	8.25	15.88	4.87	0.84	5.44	65.19	19.24	97.21	1.93
26	BUB-18-20	52.66	34.69	2.27	44.39	65.33	1.29	7.58	9.99	14.73	4.93	0.86	5.11	81.20	40.97	83.41	3.56

27	BUB-18-21	54.33	30.48	1.17	85.69	70.66	0.87	11.34	13.14	14.70	4.68	1.01	4.68	78.25	29.67	95.29	2.99
28	BUB-18-22	57.66	38.97	3.88	25.82	70.33	2.72	6.83	13.14	20.17	6.42	0.99	3.67	79.04	18.53	172.06	3.46
29	BUB-18-23	57.50	43.61	3.59	41.08	74.66	1.63	6.16	8.18	18.15	5.48	0.67	5.22	82.63	33.59	75.24	2.51
	BUB-18-24	62.66	35.11	2.37	42.34	75.33	1.49	7.50	16.05	12.94	4.12	0.84	3.26	74.78	40.15	87.35	3.57
31	BUB-18-25	60.33	44.44	8.27	90.08	71.66	1.97	9.55	16.37	11.06	3.81	0.96	5.64	83.71	39.52	80.47	3.37
32	BUB-18-26	64.80	37.94	3.73	26.94	77.66	1.74	9.53	8.27	18.35	5.84	0.94	4.98	80.87	28.00	87.58	2.59
33	BUB-18-27	60.33	46.79	1.68	59.81	76.00	1.58	11.84	10.17	26.20	8.81	0.72	5.29	69.20	17.89	230.11	3.67
34	BUB-18-28	60.32	44.58	5.36	18.70	74.66	0.57	10.65	6.28	10.67	3.43	0.83	5.68	91.94	30.52	42.31	1.42
	Mean	58.00	39.09	3.68	53.25	73.00	1.85	8.62	11.48	17.18	5.49	0.90	4.56	76.81	28.61	115.99	2.67
	Min	50.00	28.37	1.17	18.70	63.30	0.57	5.97	6.28	10.67	3.43	0.53	3.12	60.23	11.11	15.34	1.37
	Max	69.39	46.79	25.77	94.85	89.00	4.25	12.32	23.31	30.55	9.60	1.29	5.95	95.20	138.25	251.52	3.68
	SE(d) ±	3.33	2.54	0.22	3.89	3.67	0.10	0.53	0.64	1.00	0.35	0.03	0.17	4.09	1.73	6.82	0.16
	C.D. at 5%	6.66	5.08	0.44	7.78	7.34	0.21	1.05	1.28	2.00	0.69	0.07	0.35	8.18	3.45	13.65	0.31
	C.V. (%)	7.02	7.96	7.34	8.94	6.16	6.89	7.46	6.85	7.12	7.70	4.57	4.63	6.52	7.38	7.20	7.19

Table 3. Mean performance of thirty- four genotypes of brinjalfor sixteen characters during second year 2022-23

Comment [U20]: (*Solanummelongena* L)

Var	Genotypes	Days to 50% flowering (DAT)	Plant height at 50 % flowering (cm)	Number of flowers per cluster	Fruit Setting Percentage	Days to first fruit picking	Leaf Area Index (cm2)	Number of primary branches per plant	Fruit length (cm)	Fruit circumference (cm)	Fruit diameter (cm)	Specific gravity of fruits (g/cm3)	Total soluble solids (TSS)ºBrix	Plant height at last picking (cm)	Number of fruits per plant	Average fruit weight (g)	Fruit yield per plant (kg)
1	KashiHimani	61.33	33.30	5.67	28.86	76.67	1.86	7.67	14.13	12.07	3.80	0.91	3.24	64.52	19.99	102.33	1.97
2	Kashi Prakash	53.67	40.37	2.00	70.47	71.00	1.53	11.53	16.33	13.18	4.64	0.90	3.85	75.56	32.62	93.67	3.03
3	KashiUttam	57.00	34.07	1.40	74.44	74.00	1.69	7.93	12.80	28.31	9.26	0.69	4.08	70.13	12.53	250.67	3.21
4	KashiTaru	55.67	31.00	3.03	54.02	70.67	2.84	11.40	21.33	12.07	4.05	0.96	3.26	86.93	31.67	107.00	3.40
5	Kashi Green Round	69.00	41.93	3.77	27.26	86.33	3.07	9.47	9.77	26.75	8.11	0.95	4.65	77.67	10.93	216.00	2.41
6	PusaAnkur	56.67	44.17	4.03	87.08	73.33	1.72	9.33	10.04	18.45	5.89	1.07	3.21	68.07	23.53	123.67	2.84
7	PusaUpkar	65.00	40.83	2.43	72.03	77.67	1.77	9.67	10.87	21.07	6.83	0.83	3.22	66.13	15.40	176.67	2.44
8	CHBR-2	67.33	40.33	1.70	58.96	84.33	4.18	8.20	10.11	26.64	7.71	0.89	5.18	78.67	12.93	227.67	2.95
9	BUB-18-20-1	57.67	42.23	2.23	45.51	70.00	3.02	7.80	18.45	11.64	5.02	0.96	5.07	69.47	28.47	101.67	2.88
10	BUB-18-6	71.00	40.53	1.90	52.91	91.00	2.26	8.33	9.57	16.94	5.09	0.71	3.49	75.20	18.29	91.33	1.67
11	BUB-18-12	65.33	38.70	2.40	42.20	78.00	1.38	7.87	10.83	25.39	8.05	0.80	5.28	57.72	15.67	247.67	3.37

12	BUB-18-2	50.33	27.80	1.80	56.02	61.33	1.25	6.40	11.08	19.43	9.65	0.79	4.36	57.44	35.79	82.67	2.96
13	BUB-18-3	62.00	45.00	3.33	56.13	78.67	1.84	7.80	8.84	12.59	5.73	1.08	4.33	75.69	24.53	85.33	1.89
14	BUB-18-11	62.67	38.07	4.20	38.58	75.00	1.77	7.47	7.20	11.88	5.87	1.15	4.97	69.07	23.27	125.33	2.92
15	BUB-18-4	58.67	43.97	1.80	56.02	75.33	2.95	6.73	12.70	16.12	4.94	1.31	4.50	76.61	18.60	186.33	3.48
16	BUB-18-5	55.33	33.10	3.70	27.26	68.67	0.79	7.27	8.37	13.27	4.85	0.88	5.31	94.53	30.60	61.67	1.66
17	BUB-18-10	66.00	42.67	3.60	46.24	78.00	0.84	11.40	6.86	14.29	4.96	0.96	5.32	81.33	29.00	64.67	1.88
18	BUB-18-9	51.67	38.60	1.97	51.42	68.67	2.02	6.07	12.23	14.14	4.87	0.73	3.88	82.53	34.10	82.33	2.74
19	PusaShyamal	49.67	34.73	1.87	84.96	64.33	2.41	7.73	17.43	11.13	3.60	0.85	4.08	67.67	29.93	97.33	2.53
20	BUB-18-14	50.00	32.27	1.27	79.36	63.00	2.36	5.87	15.45	12.79	4.56	0.74	3.20	74.75	31.87	92.33	2.95
21	BUB-18-15	57.33	37.27	22.35	89.98	68.00	0.82	6.60	7.11	10.96	4.11	0.46	5.18	80.47	138.53	16.00	2.26
22	BUB-18-16	51.33	35.87	4.77	21.01	69.67	1.29	7.47	9.84	10.89	3.91	1.08	5.23	82.57	24.00	65.33	1.58
23	BUB-18-17	53.00	33.57	2.23	72.11	69.33	1.17	6.87	10.65	17.34	5.05	1.16	5.20	60.33	22.13	153.67	3.28
24	BUB-18-18	54.00	40.07	2.70	37.26	64.00	0.83	7.47	7.11	22.26	4.62	0.94	4.79	88.53	21.80	83.00	1.83
25	BUB-18-19	52.67	38.88	3.47	84.71	71.00	2.28	7.13	8.67	17.29	5.88	0.86	5.35	68.00	19.88	96.00	1.91
26	BUB-18-20	51.00	35.60	2.00	50.34	64.33	1.23	7.40	10.12	12.39	4.55	0.88	5.00	77.18	39.40	82.67	3.27
27	BUB-18-21	55.33	32.73	1.24	76.35	71.67	0.77	11.37	13.50	14.70	4.61	1.04	4.99	79.26	30.47	98.33	3.00
28	BUB-18-22	59.33	37.97	3.80	26.37	72.33	2.86	6.73	12.97	21.31	6.32	1.01	3.83	82.67	18.67	169.67	3.37
29	BUB-18-23	61.33	41.67	3.53	35.57	76.67	1.66	5.97	7.55	19.07	5.64	0.67	5.32	72.40	32.20	76.00	2.45
30	BUB-18-24	64.00	37.57	2.57	39.79	77.33	1.57	6.20	15.93	15.37	4.02	0.86	3.74	72.87	40.13	86.67	3.50
31	BUB-18-25	61.33	43.50	8.20	84.64	72.67	1.93	9.07	16.70	13.11	3.84	0.96	5.51	78.27	41.13	78.33	3.27
32	BUB-18-26	66.33	36.77	3.00	33.43	80.33	1.83	9.20	8.49	18.03	5.91	0.95	5.17	74.73	27.96	86.33	2.40
33	BUB-18-27	58.33	44.67	1.93	52.19	75.00	2.67	11.27	10.35	24.89	8.44	0.75	5.16	71.40	14.93	236.33	3.47
34	BUB-18-28	57.33	44.60	5.23	19.19	73.00	0.48	10.43	6.70	10.79	3.59	0.82	5.38	93.00	33.44	44.00	1.50
	Mean	58.49	38.36	3.56	53.90	73.27	1.85	8.21	11.47	16.66	5.53	0.90	4.54	75.04	28.95	117.31	2.65
	Min	49.67	27.80	1.24	19.19	61.33	0.48	5.87	6.70	10.79	3.59	0.46	3.20	57.44	10.93	16.00	1.50
	Max	71.00	45.00	22.35	89.98	91.00	4.18	11.53	21.33	28.31	9.65	1.31	5.51	94.53	138.53	250.67	3.50
	SE(d) ±	2.74	3.31	0.35	4.88	3.06	0.12	0.76	0.66	1.43	0.41	0.03	0.16	3.16	1.82	9.62	0.21
	C.D. at 5%	5.48	6.62	0.69	9.77	6.12	0.24	1.52	1.32	2.87	0.82	0.06	0.32	6.33	3.64	19.26	0.42
	C.V. (%)	5.73	10.56	11.90	11.09	5.11	7.95	11.35	7.04	10.53	9.11	4.36	4.32	5.16	7.70	10.05	9.67

Table 4. Mean performance of thirty- four genotypes for sixteen characters (pooled)

	Genotypes	Days to 50% flowering (DAT)	Plant height at 50 % flowering (cm)	Number of flowers per cluster	Fruit Setting Percentage	Days to first fruit picking	Leaf Area Index (cm2)	Number of primary branches per plant	Fruit length (cm)	Fruit circumference (cm)	Fruit diameter (cm)	Specific gravity of fruits (g/cm3)	Total soluble solids (TSS)ºBrix	Plant height at last picking (cm)	Number of fruits per plant	Average fruit weight (g)	Fruit yield per plant (kg)
1	KashiHimani	60.33	33.47	5.67	31.38	76.00	1.88	8.04	13.81	11.94	3.78	0.89	3.30	67.25	19.09	102.87	1.96
2	Kashi Prakash	54.00	41.46	2.14	69.05	71.83	1.50	11.46	16.36	13.73	4.64	0.90	3.74	73.81	32.86	94.17	3.11
3	KashiUttam	56.50	34.42	1.47	69.77	73.16	1.72	8.14	12.86	28.53	9.20	0.70	4.10	69.25	12.52	251.09	3.24
4	KashiTaru	56.00	32.06	3.05	55.28	71.16	2.89	11.64	22.32	12.33	4.03	0.97	3.19	89.10	31.32	107.18	3.38
5	Kashi Green Round	69.20	41.83	3.50	29.18	85.83	3.10	9.72	9.94	26.04	8.09	0.94	4.64	77.47	11.02	213.00	2.55
6	PusaAnkur	56.00	44.92	4.11	87.82	73.67	1.69	9.46	9.98	18.07	5.83	1.03	3.53	68.40	22.61	122.07	2.61
7	PusaUpkar	63.89	42.24	2.49	71.64	77.17	1.79	9.62	11.09	20.86	6.59	0.84	3.29	68.41	15.68	173.13	2.51
8	CHBR-2	66.50	41.01	1.62	62.26	83.50	4.22	8.30	10.04	25.29	7.67	0.88	5.06	76.98	13.84	224.08	2.89
9	BUB-18-20-1	58.00	41.64	2.40	42.31	71.17	3.00	8.46	18.06	14.24	5.15	0.95	5.11	69.67	27.53	103.47	2.80
10	BUB-18-6	69.67	42.15	1.79	56.28	90.00	2.30	8.58	9.84	16.51	5.11	0.79	3.38	75.93	18.47	91.85	1.67
11	BUB-18-12	64.33	40.45	2.40	41.91	76.83	1.47	8.16	10.75	25.57	7.95	0.81	5.51	58.98	14.97	246.52	3.53
12	BUB-18-2	50.86	28.08	1.82	55.54	62.49	1.30	6.53	11.15	24.99	9.63	0.77	4.59	59.73	34.56	84.33	2.92
13	BUB-18-3	61.15	44.61	3.46	49.85	77.33	1.81	8.33	8.65	15.21	5.71	1.07	4.46	75.70	25.09	83.91	1.91
14	BUB-18-11	63.00	39.09	4.27	39.75	75.67	1.83	7.68	7.25	14.88	5.87	1.19	4.89	71.96	24.47	124.94	2.96
15	BUB-18-4	57.00	43.61	1.66	61.04	74.33	2.98	6.62	12.68	15.49	4.90	1.30	4.37	79.07	18.28	186.29	3.53
16	BUB-18-5	56.00	34.41	3.52	28.64	69.33	0.74	7.33	8.31	13.91	4.71	0.88	5.48	94.87	29.82	61.91	1.64
17	BUB-18-10	62.94	41.42	3.48	44.51	76.83	0.88	11.86	6.94	14.97	4.91	0.94	5.28	80.07	28.97	64.39	1.89
18	BUB-18-9	52.00	39.98	1.99	50.62	69.16	2.12	6.02	12.16	14.32	4.82	0.71	3.79	84.40	33.12	82.33	2.67
19	PusaShyamal	50.00	36.20	1.75	79.10	64.99	2.38	7.98	17.12	11.50	3.69	0.86	4.14	70.93	29.30	98.11	2.55
20	BUB-18-14	50.00	31.23	1.43	71.82	63.16	2.43	5.98	15.20	13.21	4.45	0.74	3.18	73.20	31.21	93.30	2.96
21	BUB-18-15	57.11	38.21	24.09	92.41	67.17	0.88	7.07	7.20	12.12	4.17	0.50	5.17	80.69	138.45	15.67	2.25
22	BUB-18-16	50.67	34.38	4.72	21.28	68.66	1.31	7.62	9.68	11.43	3.94	1.06	5.60	83.74	23.35	65.99	1.57
23	BUB-18-17	54.33	33.62	2.24	66.86	70.33	1.11	7.00	10.94	16.89	5.13	1.19	5.15	64.08	22.14	154.40	3.31
24	BUB-18-18	54.17	41.46	2.70	37.14	64.83	0.86	7.66	7.40	18.34	4.76	0.95	4.53	89.53	21.87	68.50	1.60
25	BUB-18-19	54.31	38.96	3.44	79.82	72.33	2.32	7.53	8.46	16.59	5.38	0.85	5.40	66.59	19.56	96.60	1.92
26	BUB-18-20	51.83	35.14	2.13	47.36	64.83	1.26	7.49	10.06	13.56	4.74	0.87	5.06	79.19	40.19	83.04	3.41
27	BUB-18-21	54.83	31.61	1.20	81.02	71.16	0.82	11.35	13.32	14.70	4.64	1.03	4.83	78.76	30.07	96.81	2.99

Comment [U21]: Of brinjal (*Solanummelongena* L)

Comment [U22]: superscript

28	BUB-18-22	58.50	38.47	3.84	26.09	71.33	2.79	6.78	13.05	20.74	6.37	1.00	3.75	80.85	18.60	170.86	3.42
29	BUB-18-23	59.42	42.64	3.56	38.32	75.66	1.65	6.07	7.86	18.61	5.56	0.67	5.27	77.52	32.89	75.62	2.48
30	BUB-18-24	63.33	36.34	2.47	41.07	76.33	1.53	6.85	15.99	14.16	4.07	0.86	3.50	73.82	40.14	87.01	3.53
31	BUB-18-25	60.83	43.97	8.24	87.36	72.17	1.95	9.31	16.54	12.08	3.82	0.97	5.58	80.99	40.33	79.40	3.32
32	BUB-18-26	65.57	37.35	3.37	30.19	79.00	1.78	9.37	8.38	18.18	5.87	0.95	5.07	77.80	27.98	86.96	2.50
33	BUB-18-27	59.33	45.73	1.81	56.00	75.50	2.12	11.55	10.26	25.55	8.63	0.74	5.22	70.30	16.41	233.22	3.57
34	BUB-18-28	58.83	44.59	5.30	18.94	73.83	0.53	10.54	6.49	10.73	3.51	0.82	5.53	92.47	31.98	43.16	1.46
	Mean	58.25	38.73	3.62	53.58	73.14	1.85	8.41	11.48	16.92	5.51	0.90	4.55	75.93	28.78	116.65	2.66
	Min	50.00	28.08	1.20	18.94	62.49	0.53	5.98	6.49	10.73	3.51	0.50	3.18	58.98	11.02	15.67	1.46
	Max	69.67	45.73	24.09	92.41	90.00	4.22	11.86	22.32	28.53	9.63	1.30	5.60	94.87	138.45	251.09	3.57
	SE(d) ±	2.32	2.08	0.19	2.94	2.48	0.08	0.45	0.44	0.87	0.25	0.03	0.11	2.80	1.04	6.64	0.13
	C.D. at 5%	4.65	4.17	0.38	5.89	4.96	0.16	0.91	0.89	1.75	0.50	0.05	0.23	5.60	2.09	13.28	0.27
	C.V. (%)	4.88	6.59	6.39	6.73	4.15	5.35	6.58	4.73	6.32	5.60	3.36	3.05	4.52	4.44	6.97	6.09

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