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RESEARCH ARTICLE

Genetic Variabilty, Characters Association and Path Coefficeint Analyisis of Brinjal (*Solanummelongena* l.) Genotypes Under Foothill Condition of Nagaland

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Abstract

A field experiment was conducted during *kharif*, 2017 at the Experimental Farm of Department of Horticulture, School of Agricultural Sciences and Rural Development, Medziphema Campus, Nagaland University. Eighteen genotypes of brinjal were evaluated inthree replications using Randomized Block Design (RBD). Study on the genetic divergence was carried out to assess the variability, association, direct and indirect effects on yield in eighteen genotypes of eggplant (*Solanummelongena* L.). High PCV and GCV were recorded by the number of fruit per plant (79.71 and 77.47) followed by fruit yield per plant (67.23 and 65.49). High heritability per cent of mean was registered for yield per plant (94.88) followed by number of fruit per plant (94.47), fruit length (90.25) and number of branches per plant (90.20) with high genetic advance number of fruit per plant (155.12) followed by yield per plant (131.41), fruit weight(65.18) and fruit diameters (52.63). High heritability with high genetic advance indicated the presence of additive gene effect. The correlation studies revealed strong positive association of fruit yield with number of fruits per plant (0.885), fruit length (0.684), percent infestation of shoot and fruit borer (0.625), number of branches (0.559) at genotypic level and number of fruits per plant (0.877), fruit length (0.668), number of branches per plant (0.523), percent infestation of shoot and fruit borer (0.399) and number of leaves per plant (0.363) at phenotypic level. The result of path analysis indicated that maximum positive direct effect on yield per plant was exhibited by fresh weight (1.362) followed by number of branches per plant (0.728), LAI (0.625) and percent incidence of bacterial wilt (0.295).

High order of negative direct effect on yield per plant was exerted by fruit diameter (-1.707) followed by percent incidence of phomopsis blight(-1.034), TSS (-0.941) and number of seeds per fruit (-0.771).The present study suggested that while selection, emphasis should be given on characters having positive direct effect for increasing the yield of brinjal genotypes.

Key words: Brinjal, Genetic variability, PCV, GCV, Correlation, Genetic heritability, Genetic Advance and Path analysis.

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Introduction

Brinjal (*Solanummelongena* L.*)* belongs to family Solanaceae. Brinjal is native to India and it has been in cultivation in India since ancient times. India stands 2ndin brinjal production after China.It is typical day neutral plant and often cross pollinated due to heterostyle. *Mimosa pudica* plant should be planted in vicinity of brinjal to encourage pollination and visit of bees. It is rich in minerals Ca, Mg, P, K, and Fe. It is good source of vitamin B. Purple variety has higher copper content and polyphenol oxidase activity whereas iron and catalase activity is highest in the green cultivars. Pigmented, dark- purple brinjal has more vitamin C than those with white skin. Anthocyanin pigment present in the fruit is responsible for purple colour of fruit skin. Amino acid content is higher in purple variety (Kanaujia *et al.*, 2017).It has also been recommended as an excellent remedy for liver complaint. The estimated area, production and productivity of brinjal plants in India are about 0.6 mha, 1.2mt and 18.5 t/ ha respectively.

The potential of brinjal as fresh vegetable is not exploited and is still insufficient to meet the domestic needs of the people. Extensive variability found in many landraces/varieties are being cultivated in different parts of India and some of the variations are so localized that their cultivation beyond the particular zone is completely unknown. Extensive collection and evaluation of germplasm to identify superior types having desirable horticultural traits, conservation, and utilization of diversity, are important in improvement of this crop. Genotypes of eggplant have been characterized (Begum *et al.*, 2013).Both genetic and environmental factors together cause variability. Most important aspect of the genetic constitution of the breeding material is to understand the heritable variability more particularly its genetic component which has a close connection on its response to selection. High yield can be achieved by selection of characters that have high

heritability coupled with genetic advance. Selection of one trait invariably affects a number of associated traits which evokes the necessity of determining inter-relationships of various yield components among them and with yield. Yield is a composite character and dependent upon a number of ascribes. For an effective selection, it is essential to have the association of various attributes with yield and yield attributing characters. Estimation of correlation coefficient among the yield contributing characters is necessary to understand the direction of selection and maximize yield in the shortest period. Path co-efficient provides an efficient way of entangling direct and indirect causes of association of selection and measures the relative importance of each causal factor.

Varietal performance of brinjal varies from place to place due to the varied agro-climatic conditions do not remain same for all the regions. Considering all the above mentioned facts, a pertinent need was felt to undertake an experiment on the performance of brinjal genotypes by calculating the genotypic correlations and determining the indirect effects of component characters on yield in brinjal under foothill condition of Nagaland so the present study was conducted as to identify, the best genotype suited for the agro-climatic condition of foothill of Nagaland.

Materials And Methods

The present investigation was carried out at Experimental cum Research farm of Horticulture, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema Campus, Nagaland during February to July, 2017. The experimental site is located at an altitude of 310 m above mean sea level, with geographical location of $25^0$45'43"N latitude and $93^0$33'04"E longitude. The experimental material comprised genetically diverse eighteen lines BRRVAR-1, BRRVAR-2, BRRVAR-3, BRRVAR-4, BRRVAR-5, BRRVAR-6, BRRVAR-7, BRRVAR-8, BRLVAR-9, BRLVAR-10, BRLVAR-11, BRLVAR-12, BRLVAR-13, BRLVAR-14, BRLVAR-15, BRLVAR-16, Manipur Local and Azad Brinjal. All the eighteen genotypes were evaluated. The seedlings were transplanted in a randomized block design with three replications. Under polyhouse condition, nursery beds of 1mx1mx15cm was raised and seed were line sown at the distance of 6-8cm with 1-2cm depth. Sowing of seeds was done on 10th Feb, 2017. The experimental field was ploughed thoroughly and was harrowed and levelled properly. The seedlings are ready for transplanting after 30 days of sowing. Healthy and uniform seedlings free from insect pests and diseases having good root system of about 10-15 cm height having 3-4 true leaves were transplanted to the prepared beds in the main field of plot size 1.8x1.8m spacing 60x60cm.Irrigation was given at 6-7 days interval after full establishment of plant. Three to four hoeing and weeding are done for effective control of weeds, proper aeration and growth of plants. Harvesting was done 100 days after transplanting when the fruits developed good colour and marketable size but still immature. Hand picking was done with proper care by twisting the stalk. Fruits were harvested usually in the afternoon to avoid sun scalding. Growth, yield and quality parameters studied and observation were recorded on five randomly sampled plants in each replication for plant height (cm), number of leaves per plant, number of branches per plant, LAI, fruit length (cm), fruit diameter (cm), number of fruits per plant, fresh weight of fruit (g), yield per plant (g), yield per plot (kg), projected yield per hectare (q), number of seeds per fruit, vitamin C content (mg/100g of fruit). TSS ($^\circ$B). Major pest and disease infestation (%) are shoot and fruit borer, bacterial wilt and phomopsis blight. The data recorded for investigation were analysed by analysis of variance (Panse and Sukhatme, 1978). Heritability (broad sense) was estimated. Genotypic and phenotypic correlation coefficients for all possible comparisons were computed as per formulae. The partitioning of genotypic correlation coefficient of traits into direct and indirect effects was carried out.

Results And Discussion

Genetic variability, heritability and genetic advance

The analysis of variance revealed significant differences among the genotypes for all characters studied indicating a high degree of variability in the material. The estimates of phenotypic coefficient of variation (PCV) were higher than those of genotypic coefficient of variation (GCV) for all the traits indicating environmental factors influencing the characters (Table 1).It is estimated that highest genotypic and phenotypic coefficient of variation was observed for number of fruits per plant (77.47) and (79.71), respectively followed by yield per plant (65.49) and (67.23) indicating presence of ample variation for these traits in the present material while lowest GCV and PCV were recorded for plant height (10.62) and (11.85), respectively. It is not always true that high heritability would always exhibit high genetic advance. Hence, that heritability in combination with genetic advance would be more reliable for predicting effects of selection because genetic advance depends on amount of genetic variability; magnitude of masking effect of genetic expression (environmental influence), and intensity of selection. In present study, high estimates of heritability was exhibited by yield per plant (94.88) followed by number of fruit per plant (94.47) and highest genetic advance were obtained from number of fruits per plant (155.12) followed by yield per plant (131.41).High heritability, along with high genetic advance as per cent over mean, indicated inheritance of those characters is controlled mainly by additive genes, and selection based on phenotypic performance may prove useful which will further help in improvement of their performance and these traits may be used as selection criteria in brinjal breeding program.

Mean Performance of genotypes for different traits

In the present study, mean performance of different genotypes are mentioned in Table 2. The maximum plant height (101.63 cm) was recorded in genotype BRLVAR-15 at 120 DAT followed by genotypeBRLVAR-14is 88.03 cm. The genotype BRLVAR-12recorded maximum number of leaves per plant (85.37 cm), number of branches per plant (24.77 cm), number of fruit per plant (52.20) and yield per plant (2690.67 g) while The genotype BRLVAR-13revealed maximum LAI (3.34), fruit diameter (7.89 cm), fresh weight of fruit per plant

Table 1:Genetic parameters on growth attributeof fifteen (15) characters in various brinjal genotypes.

Characters	Mean	Range	Coefficient of variation			Heritability (h^2) Broad sense (%)	Genetic advance (% of mean)
			Genotypic (GCV)	Phenotypic (PCV)	Environment (ECV)		
Plant height (cm)	77.67	68.20- 101.63	10.62	11.85	5.26	80.32	19.61
No. of leaves/ plant	68.94	51.50- 85.37	14.27	14.75	3.73	93.59	28.45
No. of branches/ plant	18.65	11.20- 24.77	15.94	16.78	5.25	90.20	31.18
Leaf area index (LAI)	2.04	1.28- 3.34	26.36	29.24	12.66	81.24	48.94
Fruit length (cm)	12.42	7.89- 17.01	23.78	25.03	7.81	90.25	46.54
Fruit diameters (cm)	5.14	2.89- 7.89	27.46	29.51	10.81	86.58	52.63
No. of fruits/ plant	18.80	4.17- 52.20	77.47	79.71	18.75	94.47	155.12
Fresh weight of fruit (g)	149.04	66.20- 299.51	34.34	37.27	14.48	84.91	65.18
No. of seeds/ fruit	892.89	654.60- 1364	17.81	19.83	8.72	80.67	32.96
Vitamin C content (mg/ 100g of fruit)	5.36	2.85- 8.57	26.23	29.39	13.27	79.61	48.21
TSS (°B)	4.22	3.00- 5.19	12.35	14.26	7.13	75.00	22.04
Shoot and fruit borer (%)	26.54	7.41- 51.85	32.28	50.37	38.66	41.08	42.63
Bacterial wilt (%)	25.92	7.41- 40.74	29.19	40.99	28.78	50.71	42.83
Phomopsis blight (%)	22.63	7.41- 37.03	24.84	46.45	39.25	28.59	27.36
Yield/ plant (g)	1151.93	355.33- 2690.67	65.49	67.23	15.21	94.88	131.41

(299.51 g), number of seed per fruit (1364.00) and vitamin C (8.57mg/100g). Whereas highest fruit length (17.01 cm) was observed in genotype BRLVAR-11 and maximum TSS (5.19ºB) was recorded in Azad Brinjal followed by genotypeBRLVAR-13 (4.70ºB).

Correlation coefficient

It is necessary to know the correlation of yield with its economically important component for making selection in a breeding. It provides advantages of adequate selection i.e. more than one character at a time in advance generations. Correlations between character pairs are due to the linkage of genes or pleiotropy of genes. Therefore, selection of one trait influences the other linked or pleiotropically affected traits. Hence, direct selection for yield may not be effective. So, it would be necessary to have an adequate knowledge about the correlation studies in the plant improvement because they are helpful in making an effective selection. In general, the magnitude of genotypic correlation coefficient was higher than the corresponding values of the phenotypic correlation coefficient. This indicates that the expressions of character associations had not been appreciably influenced by the environment and the apparent association may be largely due to genetic reason. The difference between genotypic and phenotypic correlation was in general low, indicating that the environmental effects did not have much influence on these characters. The current study revealed that at genotypic level, number of fruits per plant (0.885), fruit length (0.684), percent infestation of shoot and fruit borer (0.625), number of branches (0.559), number of leaves (0.399) and plant height (0.331) exhibited significant positive correlation with yield per plant. Maximum significant negative correlation with yield per plant was revealed in fruit diameter (-0.637) followed by percent incidence of phomopsis blight (-0.362), TSS (-0.318) and fresh weight of the fruit (-0.299) as shown in **Table** 3. The results were in close harmony with Patel *et al.* (2015). The higher magnitude of positive, direct effects, for number of fruits/plant, fruit length and marketable yield/plant on total yield/plant indicates true, positive, and significant association (**Table** 3). Direct selection for these traits would be useful for improving yield. High direct effects of number of fruits/plant, fruit length on total yield/plant were obtained with dissimilar genotypes and variable climate by Samlindsujin *et al.* (2017).

Table 2: Mean performance of eighteen genotypes of brinjal for different characters.

Characters	Plant height (cm)	No. of leaves/ plant (cm)	No. of branches/ plant (cm)	LAI	Fruit length (cm)	Fruit diameter (cm)	No. of fruit/ plant	Fresh wt. of fruit/ plant	No. of seeds/ fruit	Vit. C content (mg/100 g of fruit	TSS (°B)	Shoot & fruit borer (%)	Bacterial wilt (%)	Phomopsis blight (%)	Yield/ plant (g)
BRRVAR-1	75.23	78.23	18.80	2.15	11.33	6.42	5.87	181.92	1073.33	5.71	4.68	18.52	22.22	14.81	697.33
BRRVAR-2	71.90	78.53	18.83	2.27	11.87	6.19	7.57	203.62	1049.73	5.71	4.53	25.92	22.22	22.22	484.00
BRRVAR-3	77.93	77.90	19.10	2.57	12.41	7.06	6.57	172.96	1029.73	4.95	3.63	7.41	40.74	29.63	397.33
BRRVAR-4	71.53	58.40	18.90	1.47	11.45	5.81	6.89	190.52	955.33	5.71	3.69	33.33	25.92	22.22	722.00
BRRVAR-5	70.03	55.13	11.20	1.81	8.33	4.72	8.37	132.91	701.00	7.14	4.07	14.81	7.41	33.33	355.33
BRRVAR-6	82.17	69.37	20.00	1.28	7.89	4.53	16.80	66.20	654.60	5.33	3.96	29.63	25.92	18.52	622.67
BRRVAR-7	68.53	51.50	13.97	1.33	8.31	5.68	7.33	154.06	846.67	5.04	4.23	11.11	29.63	37.03	413.67
BRRVAR-8	80.03	72.97	19.10	1.58	11.07	5.59	16.47	151.19	878.67	3.42	4.25	25.92	14.81	29.63	911.29
BRLVAR-9	86.37	71.73	21.73	1.45	11.52	5.41	18.53	105.10	746.33	3.71	4.68	33.33	25.92	25.92	1038.14
BRLVAR-10	71.10	71.33	19.57	2.01	9.10	5.29	24.73	95.32	838.43	5.33	4.64	33.33	22.22	14.81	1345.87
BRLVAR-11	68.20	81.70	17.87	2.96	17.01	2.89	43.50	159.80	777.33	5.90	3.33	25.92	29.63	25.92	1953.87
BRLVAR-12	76.10	85.37	24.77	2.09	15.83	3.27	52.20	114.85	847.47	3.71	4.24	33.33	25.92	25.92	2690.67
BRLVAR-13	80.53	54.83	18.90	3.34	14.90	7.89	4.17	299.51	1364.00	8.57	4.70	14.81	37.03	22.22	756.67
BRLVAR-14	88.03	58.93	19.57	2.39	13.31	6.11	26.73	152.30	970.00	5.71	4.07	29.63	25.92	11.11	2144.00
BRLVAR-15	101.63	67.73	21.73	1.78	15.97	3.57	21.47	153.77	832.67	6.57	4.67	51.85	33.33	22.22	1962.67
BRLVAR-16	78.27	74.40	19.20	2.34	15.92	3.19	44.50	100.62	877.07	7.14	3.00	25.92	11.11	18.52	2510.67
Manipur Local	68.40	68.83	14.60	1.73	16.49	3.17	19.60	98.58	765.33	4.00	4.36	29.63	37.03	25.92	1028.00
Azad Brinjal	82.17	63.87	17.93	2.15	10.88	5.79	7.13	149.51	864.00	2.85	5.19	33.33	29.63	7.41	700.67
Mean	**77.67**	**68.94**	**18.65**	**2.04**	**12.42**	**5.14**	**18.80**	**149.04**	**892.89**	**5.36**	**4.22**	**26.54**	**25.92**	**22.63**	**1151.93**
SEM±	2.35	1.47	0.56	0.15	0.56	0.32	2.03	12.46	44.96	0.41	0.17	5.92	4.31	5.12	101.15
CD 5%	6.78	4.28	1.62	0.43	1.61	0.92	5.85	35.80	129.16	1.18	0.49	17.02	12.38	14.74	290.72

Table 3: Estimates of genotypic correlation coefficient between different contributing characters in brinjal.

Characters	Plant height (cm)	No. of leaves/ plant (cm)	No. of branches/ plant (cm)	LAI	Fruit length (cm)	Fruit diameter (cm)	No.of fruits/ plant	Fresh wt. of fruit	No.of seeds/ fruit	Vit.C content (mg/100gof fruit	TSS (°B)	Shoot &fruit borer (%)	Bacterial wilt (%)	Phomopsis blight (%)	Yield/plant (g)
Plant height (cm)	1.00	-0.056	0.580**	-0.027	0.187	0.051	0.017	-0.002	0.033	0.062	0.286*	0.772**	0.187	-0.497**	0.331*
No. of leaves/ plant		1.00	0.563**	0.204	0.404**	-0.384**	0.531**	-0.269*	-0.109	-0.333*	-0.181	0.194	-0.021	-0.093	0.399**
No. of branches/ plant			1.00	0.111	0.353*	-0.067	0.375**	-0.058	0.167	-0.207	0.119	0.662**	0.223	-0.490**	0.559**
Leaf area index (LAI)				1.00	0.575**	0.256	0.223	0.635**	0.706**	0.507**	-0.170	-0.383**	0.329*	-0.267	0.248
Fruit length (cm)					1.00	-0.448**	0.598**	0.189	0.224	0.158	-0.252	0.380**	0.363**	-0.113	0.684**
Fruit diameters (cm)						1.00	-0.795**	0.677**	0.759**	0.147	0.408**	-0.622**	0.289*	-0.198	-0.637**
No. of fruit/ plant							1.00	-0.458**	-0.390**	-0.027	-0.541**	0.420**	-0.189	-0.086	0.885**
Fresh weight of fruit (g)								1.00	0.936**	0.511**	0.186	-0.449**	0.391**	0.025	-0.299*
No. of seeds/ fruit									1.00	0.481**	0.178	-0.398**	0.351**	-0.288*	-0.150
Vitamin C content (mg/ 100g of pulp)										1.00	-0.338*	-0.274*	-0.140	0.077	0.055
TSS (°B)											1.00	0.391**	0.319*	-0.425**	-0.318*
Shoot and fruit borer (%)												1.00	0.000	-0.449**	0.625**
Bacterial wilt (%)													1.00	0.088	-0.131
Phomopsis blight (%)														1.00	-0.362**

Note: Values in the column are genotypic correlation coefficients

*, **: Significant at 5 % and 1% level of significance respectively

Table 4: Path coefficient analysis showing direct (bold) and indirect effects of different contributing characters at genotypic level in brinjal.

Characters	Plant height (cm)	No. of leaves/ plant (cm)	No. of branches / plant (cm)	LAI	Fruit length (cm)	Fruit diameter (cm)	No. of fruit/ plant	Fresh wt. of fruit/ plant	No. of seeds/ fruit	Vit. C content (mg/100g of fruit)	TSS (°B)	Shoot & fruit borer (%)	Bacterial wilt (%)	Phomopsis blight (%)	Yield/ plant (g)
Plant height (cm)	**-0.294**	0.016	-0.170	0.008	-0.055	-0.015	-0.005	0.000	-0.009	-0.018	-0.084	-0.212	-0.055	0.146	0.331*
No. of leaves/ plant	0.017	**-0.312**	-0.176	-0.063	-0.126	0.120	-0.166	0.084	0.034	0.104	0.056	-0.060	0.006	0.029	0.399**
No. of branches/ plant	0.422	0.410	**0.728**	0.081	0.257	-0.048	0.273	-0.042	0.122	-0.151	0.087	0.482	0.162	-0.357	0.559**
Leaf area index (LAI)	-0.017	0.127	0.069	**0.625**	0.360	0.160	0.140	0.397	0.442	0.317	-0.106	-0.240	0.205	-0.167	0.248
Fruit length (cm)	-0.142	-0.307	-0.268	-0.438	**-0.760**	0.341	-0.455	-0.144	-0.170	-0.120	0.191	-0.289	-0.276	0.086	0.684**
Fruit diameters (cm)	-0.088	0.657	0.114	-0.438	0.765	**-1.707**	1.359	-1.156	-1.297	-0.252	-0.697	1.062	-0.494	0.338	-0.637**
No. of fruit/ plant	-0.010	-0.317	-0.224	-0.133	-0.357	0.475	**-0.597**	0.273	0.233	0.016	0.323	-0.251	0.113	0.051	0.885**
Fresh weight of fruit (g)	-0.002	-0.367	-0.079	0.866	0.258	0.922	-0.624	**1.362**	1.275	0.697	0.253	-0.611	0.533	0.035	-0.299*
No. of seeds/ fruit	-0.025	0.084	-0.129	-0.544	-0.172	-0.585	0.301	-0.721	**-0.771**	-0.371	-0.137	0.307	-0.271	0.222	-0.150
Vitamin C content (mg/ 100g of pulp)	-0.018	0.097	0.060	-0.147	-0.046	-0.043	0.008	-0.148	-0.140	**-0.291**	0.098	0.079	0.040	-0.022	0.055
TSS (°B)	-0.269	0.170	-0.112	0.160	0.237	-0.384	0.509	-0.175	-0.167	0.318	**-0.941**	-0.368	-0.301	0.400	-0.318*
Shoot and fruit borer (%)	0.189	0.051	0.174	-0.100	0.100	-0.163	0.110	-0.118	-0.104	-0.072	0.102	**0.262**	0.000	-0.118	0.625**
Bacterial wilt (%)	0.055	-0.006	0.066	0.097	0.107	0.085	-0.056	0.115	0.104	-0.041	0.094	0.000	**0.295**	0.026	-0.131
Phomopsis blight (%)	0.514	0.096	0.507	0.277	0.117	0.205	0.089	-0.026	0.298	-0.079	0.440	0.465	-0.091	**-1.034**	-0.362**

Note: Values in the column are genotypic path coefficients

*, **: Significant at 5 % and 1% level of significance respectively

Residual effect = 0.357

Path coefficient analysis

Path coefficient analysis has been carried out to analyse the direct and indirect effect of causal factors which affect the yield. It is simply standardized partial regression coefficient which splits the correlation coefficient into the measures of the direct and indirect effects of a set of independent variables on the dependent variable. The present study on path coefficient analysis revealed that the maximum positive direct effect on yield per plant was exhibited by fresh weight (1.362) followed by that of number of branches per plant (0.728), LAI (0.625) and per cent incidence of bacterial wilt (0.295).High order of negative direct effect on yield per plant was exerted by fruit diameter (-1.707) followed by percent incidence of phomopsis blight (-1.034), TSS (-0.941) and number of seeds per fruit (-0.771). Similar observations were also recorded by Shende *et al.* (2015), Patel *et al.* (2015) and Kumar and Arumugam (2016). Whereas, maximum positive indirect effect on yield per plant *via* percent incidence of phomopsis blight (0.146) and maximum negative indirect effect on yield per plant *via* percent infestation of shoot and fruit borer (-0.212).The residual effect was low (0.357) indicating that traits under study are not sufficient to account for variability and there might be few pertinent characters other than those studied for investigation. As shown in Table 4. Thus material studied would help in designing the selection methodology which further be used in breeding program. Hence, purposeful and balanced selection based on these particular characters would be rewarding for improvement in brinjal genotypes.

Conclusions

The present study has shown significant variability and diversity in the brinjal germplasm for yield and yield related characters. Based on the experimental findings the genotype BRLVAR-12proved to be potential yielder having highest number of branches, number of leaves, yield per plant, yield per plot and yield per hectare. The genotype BRLVAR-13and Azad Brinjal showed best quality. It is suggested that emphasis should be given while selection for yield per plant, number of leaves per plant, number of branches per plant, LAI, vitamin C content and TSS. An overall observation of qualitative and quantitative characters it is suggested that these genotypes BRLVAR-12and BRLVAR-13need to be critically analysed as it performed much better under foothill condition of Nagaland. It would therefore, be rewarding to lay stress on these characters in in hybridization programme for further improvement of yield and related characters in brinjal.

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