

Original Research Article

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Genetic Variability in Ridge Gourd (*Luffa acutangula* (L.) Roxb.)

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ABSTRACT

An experiment was conducted on Genetic variability in the eighteen genotypes of Ridge Gourd during 2019-20 at the Research Field of Department of Horticulture, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj. The observations were recorded on various yield and yield contributing characters. The results from the present investigation revealed that On the basis of Based on mean performance for fruit yield per plant (2.720 kg) and fruit yield ((24.480t/ha⁻¹), genotypes 2017/RIGHYB-5 were considered suitable genotypes in Prayagraj climatic condition. Coefficient of variation revealed that high magnitude of GCV and PCV were recorded for Fruit yield/ ha (ton) and Average fruit weight (g). The heritability estimates were found to be high (more than 60%). The genetic advance and genetic advance as percent of mean estimates were found to be high (more than 20%). Genotypic correlation coefficient analysis revealed that fruit yield plant⁻¹ (kg) showed positive significant association with Fruit length (cm) (0.598**), Fruit diameter (cm) (0.741**), Rind thickness (mm) (0.514**), Flash thickness (mm) (0.523**), Number of fruit per plant (0.666**), Vine length (cm) at 90 DAS (0.275*) and Average fruit weight (g) (0.944**) at genotypic level. Whereas Phenotypic correlation coefficient analysis revealed that fruit yield plant⁻¹ (kg) showed positive significant association with Fruit length (cm) (0.573**), Fruit diameter (cm) (0.709**), Rind thickness (mm) (0.509**), Flash thickness (mm) (0.504**), Number of fruit per plant (0.607**), Average fruit weight (g) (0.924**) and Vine length (cm) at 90 DAS (0.270*) at phenotypic level.

Keywords

Ridge gourd,
Genotypes, Genetic
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Introduction

Ridge gourd [*Luffaacutangula* (L.)Roxb.], popularly known as Kalitori and also called as angled gourd, angled loofah, Chinese okra, silky gourd and ribbed gourd, belongs to genus *Luffa* of “Cucurbitaceae” family and has chromosome number $2n = 26$.

India has the credibility of producing 169.478 million tonnes of vegetables covering an area of 9.542 million hectares in 2014-15 (NHB, 2014-15) securing the second status among the vegetable producing countries of the world but the per capita availability of vegetables in India is as low as 160 gm as against the recommended 300 g per day by FAO.

Fruit contain moisture 92.5g, protein 0.5g, fat 0.5g, carbohydrate 3.4g, energy 17 k cal, calcium 18mg, vitamin C 5mg, riboflavin 0.01mg, phosphorous 26mg, iron 0.5mg and carotene 33µg per 100 g of edible portion (Sheshadri and Parthasarthy, 1980). Besides their use as vegetables, it is also used for various purposes. The fiber obtained from the mature dry fruit is used in industry for filters of various sorts, good pot holders, table mats, bath room mats, slipper and shoe soles. The fiber is also proved to be a good insulator for various purposes. Sometimes the dry fruits which gave good storability are used for ornamental purposes also. It is emetic and traditionally used for the treatment of stomach ailment and fever (Chakravarthy, 1959).

The success of any crop improvement programme largely depends upon the nature and magnitude of genetic variability existing in the breeding material. This study on genetic variability and divergence elucidates information on genetic parameters. Further, path- coefficient technique provides the information on the direct and indirect contribution of individual characters towards yield. Based on these studies, the importance of individual character is marked to facilitate the selection programme for larger gains. Generally, diverse germplasm are expected to give high hybrid vigour. Hence, it necessitates studying the genetic divergence among the existing genotypes for identification of parents for hybridization programme.

Materials and Methods

The present research work entitled, “Genetic variability in Ridge Gourd (*Luffa acutangula* (L.) Roxb.)” was conducted to study the variability, heritability, genetic advance, and correlation and their effect on yield and yield contributing traits. On 18 genotypes of Ridge Gourd collected from different institutes, research stations and private seed companies.

Experimental site

The study was conducted in the Research Field, Department of Horticulture, Naini Agriculture Institute, SHUATS, Prayagraj, located between 25.87° North latitude 81.15° East latitude. The altitude is 78 meters above the mean sea level.

Soil type

The soil type of experimental field was sandy loam with average fertility level and pH in the range of 7.0 to 8.0.

Climate

Department of Horticulture, Naini Agricultural Institute, SHUATS, Prayagraj, falls under the humid subtropical zone. Maximum rainfall received during the period between July and the end of September. However, occasional showers are also very common in the month of June, December and January. The winter month will usually cool and dry. The summer is hot and dry western hot wind start from April and end at onset of monsoon.

Results and Discussion

Analysis of variance showed significant differences among the genotypes for the eighteen characters studied. Analysis of variance showed significant difference among the genotypes for the different characters at 0.1% and 5% significance.

Similar finding for variance have also been reported by Ramakant *et al.*, (2008), Parameshwarappa *et al.*, (2008), Kumar *et al.*, (2012), Reddy *et al.*, (2013), Rani and Kumar (2013) and Narayanan and Murugan (2013), Singh *et al.*, 2015 and Paul *et al.*, 2015 reported significant mean sum of square for various quantitative and quality traits in cow pea (Table 1–7).

Table.1 List of genotypes were used in the present investigation

Sl. No.	Genotype Symbol	Genotypes
1	G ₁	2018/ RIG HYB-1
2	G ₂	2018/ RIG HYB-2
3	G ₃	2018/ RIG HYB-3
4	G ₄	2018/ RIG HYB-4
5	G ₅	2018/ RIG HYB-5
6	G ₆	2018/ RIG HYB-6
7	G ₇	2018/ RIG HYB-7
8	G ₈	2017/ RIG HYB-1
9	G ₉	2017/ RIG HYB-2
10	G ₁₀	2017/ RIG HYB-5
11	G ₁₁	2017/ RIG HYB-6
12	G ₁₂	2017/ RIG VAR-1
13	G ₁₃	2017/ RIG VAR-2
14	G ₁₄	2017/ RIG VAR-3
15	G ₁₅	2017/ RIG VAR-4
16	G ₁₆	2017/ RIG VAR-5
17	G ₁₇	2017/ RIG VAR-6
18	G ₁₈	Rekha

Table.2 Analysis of variance for 18 characters in 18 genotypes of ridge gourd

Sl.No.	Character	Mean sum of square		
		Replications (df = 2)	Treatments (df = 17)	Error (df = 34)
1	Vine Length (cm) at 90 DAS	104.18	3956.21	69.81
2	Days to first female flower	0.339	33.79	2.78
3	Days to first male Flower	0.643	28.62	2.75
4	Node to first male flower	0.076	1.488	0.004
5	Node to first female flower	0.84	29.64	0.85
6	Days to 50% flowering	3.622	40.44	2.55
7	Days to first harvest	0.218	33.07	2.94
8	Days to last harvest	4.149	50.03	1.909
9	Fruit length (cm)	1.28	118.69	1.034
10	Fruit diameter (mm)	2.804	130.54	1.55
11	Rind thickness (mm)	0.0154	1.465	0.0276
12	Flesh thickness (cm)	0.0136	1.530	0.025
13	Number o fruits p plant	1.182	10.90	0.50
14	Average fruit weight (g)	6.85	67.21	1.96
15	Fruit yield per plant (kg)	142.77	2083.24	55.21
16	Fruit yield/ ha (ton)	0.084	0.829	0.024
17	TSS	0.158	0.096	0.157
18	Vitamin C (mg)	0.77	0.255	0.232

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

Table.3 Mean performance of eighteen genotypes of ridge gourd

Genotypes	Vine Length (cm at 90 DAS)	Days to first female flower	Days to first male Flower	Node to first male flower	Node to first female flower	Days to 50% flowering	Days to first harvest	Days to last harvest	Fruit length (cm)
1 2018/RIGHYB - 1	319.64	41.02	36.11	3.26	9.72	44.04	51.28	82.64	23.03
2 2018/RIGHYB - 2	297.8	42.94	38.31	3.33	12.15	45.89	56.02	85.95	17.55
3 2018/RIGHYB - 3	305.2	44.93	40.42	4.45	15.01	48.13	56.69	86.28	27.68
4 2018/RIGHYB - 4	326.1	39.8	34.89	3.04	7.87	42.45	49.88	79.78	27.99
5 2018/RIGHYB - 5	233.07	48.94	44.56	5.15	18.9	50.48	59.37	89.51	21.71
6 2018/RIGHYB - 6	239.69	45.87	41.36	4.61	15.97	49.78	57.43	90.67	29.08
7 2018/RIGHYB - 7	219.69	47.57	43.12	4.2	12.68	50.39	56.44	88.53	24.6
8 2017/RIGHYB - 1	278.01	48.82	43.78	5.19	17.48	51.91	59.21	91.75	30.65
9 2017/RIGHYB - 2	284.54	47.06	42.9	4.7	17.15	50.77	58.4	90.46	31.75
10 2017/RIGHYB - 5	241.98	49.36	45	4.28	14.73	53.48	60.38	94.21	14.53
11 2017/RIGHYB - 6	290.8	48.75	43.76	4.25	13.2	52.34	60.62	92.2	17.93
12 2017/RIGVAR - 1	270.08	46.87	47.42	4.31	13.83	53.97	60.22	93.46	16.3
13 2017/RIGVAR - 2	207.48	49.43	44.65	4.29	16.26	51.77	59.52	89.2	19.11
14 2017/RIGVAR - 3	236.3	47.88	43.44	4.94	17.02	52.31	58.67	88.61	21.12
15 2017/RIGVAR - 4	280.55	48.18	43.72	4.32	14.65	51.8	59.55	91.43	16.02
16 2017/RIGVAR - 5	267.27	46.22	46.86	4.39	16.38	54.55	62.15	93.26	16.44
17 2017/RIGVAR - 6	257.97	49.4	45.31	4.43	17.24	52.72	60.04	92.32	17.12
18 Rekha	192.18	52.15	47.45	5.74	20.44	57.86	63.48	96.26	16.8
Mean	263.7972	46.955	42.9478	4.3822	15.0378	50.8133	58.2972	89.8067	21.6339
C.V.	2.5863	3.3511	3.7566	1.5874	6.0737	3.1265	3.1926	1.4277	4.139
S.E.	3.9391	0.9085	0.9315	0.0402	0.5273	0.9172	1.0746	0.7402	0.517
C.D. 5%	11.321	2.6109	2.6771	0.1154	1.5155	2.6362	3.0883	2.1274	1.4858
Range Lowest	192.18	39.8	34.89	3.04	7.87	42.45	49.88	79.78	14.53
Range Highest	326.1	52.15	47.45	5.74	20.44	57.86	63.48	96.26	31.75

Table.4 Mean performance of eighteen genotypes of ridge gourd

Genotypes	Fruit diameter (mm)	Rind thickness (mm)	Flesh thickness (cm)	Number of fruit per plant	Average fruit weight (g)	Fruit yield per Plant (kg)	Fruit yield/ ha (ton)	TSS	Vitamin C (mg)
1 2018/RIGHYB - 1	43.370	3.560	3.630	13.240	140.050	1.850	16.650	4.060	3.100
2 2018/RIGHYB - 2	42.860	4.600	4.650	13.970	126.510	1.770	15.930	3.940	4.070
3 2018/RIGHYB - 3	38.710	3.190	3.140	14.210	143.160	1.990	17.910	3.980	3.880
4 2018/RIGHYB - 4	45.360	3.370	3.570	13.660	154.630	2.120	19.080	3.890	4.350
5 2018/RIGHYB - 5	41.120	3.250	3.190	12.990	116.190	1.510	13.590	4.330	4.090
6 2018/RIGHYB - 6	39.170	3.040	2.920	14.010	133.470	1.870	16.830	4.050	4.050
7 2018/RIGHYB - 7	53.850	4.830	4.830	13.140	164.040	2.150	19.350	4.150	4.170
8 2017/RIGHYB - 1	47.510	3.380	3.350	12.280	152.140	1.860	16.740	3.810	4.020
9 2017/RIGHYB - 2	59.780	4.140	4.030	14.950	182.820	2.720	24.480	4.070	4.010
10 2017/RIGHYB - 5	48.550	5.140	5.100	12.520	160.480	2.000	18.000	4.200	4.260
11 2017/RIGHYB - 6	44.490	3.240	3.260	13.450	147.310	1.970	17.730	4.100	4.370
12 2017/RIGVAR - 1	45.370	3.440	3.710	10.480	116.690	1.210	10.890	3.870	4.480
13 2017/RIGVAR - 2	48.780	4.040	4.140	9.600	117.430	1.100	9.900	3.690	4.170
14 2017/RIGVAR - 3	36.940	2.630	2.580	12.170	98.540	1.190	10.710	4.070	4.010
15 2017/RIGVAR - 4	43.680	3.450	3.690	10.640	105.130	1.110	9.990	4.160	4.280
16 2017/RIGVAR - 5	41.620	3.540	3.300	11.310	107.320	1.210	10.890	4.120	4.090
17 2017/RIGVAR - 6	40.380	3.350	3.310	10.740	111.640	1.200	10.800	3.790	4.150
18 Rekha	44.660	3.510	3.580	6.980	108.600	0.760	6.840	3.770	3.870
Mean	44.789	3.650	3.666	12.241	132.564	1.644	14.795	4.003	4.079
C.V.	2.973	2.540	5.040	5.252	2.538	5.432	5.432	12.105	12.073
S.E.	0.769	0.054	0.107	0.371	1.943	0.052	0.464	0.280	0.284
C.D. 5%	2.210	0.154	0.307	1.067	5.584	0.148	1.334	-	-
Range Lowest	36.940	2.630	2.580	6.980	98.540	0.760	6.840	3.690	3.100
Range Highest	59.780	5.140	5.100	14.950	182.820	2.720	24.480	4.330	4.480

Table.5 Estimation of genetic variability, GCV, PCV, Heritability, genetic advance and genetic advance as per cent of mean for 18 characters in ridge gourd genotypes

Sl. No.	Character	Genotypic coefficient of variation	Phenotypic coefficient of variation	Heritability in broad sense (h^2b)	Genetic Advance	Genetic Advance as % of mean
1	Vine Length (cm) at 90 DAS	13.57	13.97	94.90	72.22	27.24
2	Days to first female flower	6.26	7.19	75.80	5.26	11.22
3	Days to first male Flower	7.53	8.49	78.70	5.87	13.77
4	Node to first male flower	15.783	15.854	99.100	1.442	32.36
5	Node to first female flower	20.133	21.013	91.80	6.11	39.73
6	Days to 50% flowering	7.020	7.699	83.20	6.67	13.188
7	Days to first harvest	5.449	6.197	77.30	5.73	9.869
8	Days to last harvest	4.459	4.717	89.400	7.80	8.68
9	Fruit length (cm)	27.177	27.533	97.400	12.73	55.260
10	Fruit diameter (mm)	14.33	14.58	96.50	13.27	29.003
11	Rind thickness (mm)	18.523	19.050	94.500	1.387	37.102
12	Flesh thickness (cm)	19.006	19.475	95.200	1.424	38.211
13	Number o fruits p plant	14.868	15.907	87.400	3.585	28.629
14	Average fruit weight (g)	29.499	30.802	91.700	9.201	58.196
15	Fruit yield per plant (kg)	18.802	19.554	92.400	51.498	37.240
16	Fruit yield/ ha (ton)	29.499	30.802	91.700	1.002	58.196
17	TSS	3.539	9.171	14.900	0.114	2.813
18	Vitamin C (mg)	2.153	12.075	3.200	0.032	0.791

Table.6 Genotypic correlation (rg) between yield and yield attributes for eighteen characters in Ridge Gourd genotypes

	Vine length (cm) at 90 DAS	Days to first female flower	Days t first male flowering	Node to first male flowering	Node to first female flowering	Days to 50% flowering	Days to first harvest	Days to last harvest	Fruit length (cm)	Fruit diameter (cm)	Rind thickness (mm)	Flash thickness (mm)	Number of fruit per plant	TSS	Vitamin C	Average fruit weight (g)	Fruit yield (t ha ⁻¹)	Fruit yield plant ⁻¹ (kg)
Vine length (cm) at 90 DAS	1.00	-0.756**	-0.656**	-0.670**	-0.687**	-0.672**	-0.605**	-0.583**	0.287*	-0.08	-0.15	-0.10	0.583**	-0.24	0.23	0.436**	0.07	0.275*
Days to first female flower		1.00	0.892**	0.892**	0.904**	0.921**	0.986**	0.896**	-0.329*	0.13	-0.05	-0.11	-0.597**	0.24	-0.22	-0.423**	-0.18	-0.26
Days t first male flowering			1.00	0.796**	0.791**	0.993**	0.852**	0.971**	-0.498**	0.05	-0.05	-0.15	-0.691**	0.471**	-0.21	-0.560**	-0.11	-0.407**
Node to first male flowering				1.00	0.956**	0.820**	0.867**	0.792**	-0.02	-0.05	-0.295*	-0.366**	-0.460**	0.04	-0.07	-0.361**	-0.07	-0.26
Node to first female flowering					1.00	0.803**	0.901**	0.781**	-0.09	-0.08	-0.21	-0.334*	-0.463**	0.21	0.07	-0.424**	-0.07	-0.367**
Days to 50% flowering						1.00	0.845**	0.962**	-0.515**	0.01	-0.04	-0.13	-0.738**	0.410**	-0.25	-0.571**	-0.07	-0.398**
Days to first harvest							1.00	0.854**	-0.503**	-0.05	-0.09	-0.18	-0.640**	0.392**	-0.551**	-0.512**	-0.07	-0.375**
Days to last harvest								1.00	-0.456**	0.08	0.06	0.01	-0.559**	0.21	-0.557**	-0.377**	-0.04	-0.22
Fruit length (cm)									1.00	0.295*	-0.17	-0.15	0.636**	-0.538**	0.26	0.678**	0.15	0.598**
Fruit diameter (cm)										1.00	0.655*	0.700**	0.16	-0.09	-0.12	0.569**	0.07	0.741**
Rind thickness (mm)											1.00	1.00	0.13	-0.10	-0.21	0.382**	-0.02	0.514**
Flash thickness (mm)												1.00	0.11	-0.15	-0.26	0.381**	0.06	0.523**
Number of fruit per plant													1.00	-0.617**	-0.03	0.871**	0.393*	0.666**
TSS														1.00	0.05	-0.678**	-0.12	-0.621**
Vitamin C															1.00	-0.08	-0.01	-0.13
Average fruit weight (g)																1.00	0.23	0.944**
Fruit yield (t ha ⁻¹)																	1.00	0.07
Fruit yield plant ⁻¹ (kg)																		1.00

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

Table.7 Phenotypic correlation (rp) between yield and yield attributes for eighteen characters in Ridged gourd genotypes

	Vine length (cm) at 90 DAS	Days to first female flower	Days t first male flowering	Node to first male flowering	Node to first female flowering	Days to 50% flowering	Days to first harvest	Days to last harvest	Fruit length (cm)	Fruit diameter (cm)	Rind thickness (mm)	Flash thickness (mm)	Number of fruit per plant	TSS	Vitamin C	Average fruit weight (g)	Fruit yield (t ha ⁻¹)	Fruit yield plant ⁻¹ (kg)
Vine length (cm) at 90 DAS	1.00	-0.6907 ***	-0.5823 ***	-0.6480 ***	-0.6147 ***	-0.5798 ***	-0.5545 ***	-0.5546 ***	0.27	-0.07	-0.16	-0.11	0.5245 **	-0.20	-	0.4192 *	0.02	0.270*
Days to first female flower		1.00	0.8604 ***	0.7990 ***	0.7671 ***	0.8187 ***	0.8465 ***	0.8047 ***	-0.32	0.13	-0.03	-0.09	-0.5406 ***	0.24	0.09	-0.3917 *	-	-0.23
Days t first male flowering			1.00	0.7345 ***	0.7406 ***	0.9221 ***	0.8866 ***	0.8300 ***	-0.4819 **	0.03	-0.05	-0.10	-0.5853 ***	0.4111 *	0.19	-0.5039 **	-	-
Node to first male flowering				1.00	0.9136 ***	0.7571 ***	0.7525 ***	0.7413 ***	-0.02	-0.05	-0.29	-0.3386 *	-0.4289 **	0.05	0.07	-0.3538 *	-	-0.26
Node to first female flowering					1.00	0.7605 ***	0.7496 ***	0.6755 ***	-0.10	-0.08	-0.22	-0.29	-0.3830 *	0.17	0.06	-0.3798 *	-	-0.341*
Days to 50% flowering						1.00	0.8840 ***	0.8912 ***	-0.4725 **	0.02	-0.06	-0.13	-0.6008 ***	0.33	0.11	-0.5050 **	-	-
Days to first harvest							1.00	0.8403 ***	-0.4362 **	0.00	-0.08	-0.16	-0.5027 **	0.19	-	-0.4372 **	-	-0.329*
Days to last harvest								1.00	-0.4158 *	0.10	0.06	-0.01	-0.4878 **	0.18	0.11	-0.3488 *	0.03	-0.20
Fruit length (cm)									1.00	0.27	-0.18	-0.16	0.5974 ***	-0.5166 **	-	0.6567 ***	0.18	0.573*
Fruit diameter (cm)										1.00	0.6315 ***	0.6265 ***	0.15	-0.09	0.00	0.5397 ***	0.03	0.709*
Rind thickness (mm)											1.00	0.9650 ***	0.11	-0.04	0.08	0.3673 *	0.01	0.509*
Flash thickness (mm)												1.00	0.08	-0.03	0.10	0.3523 *	-	0.504*
Number of fruit per plant													1.00	-0.5650 ***	-	0.8599 ***	0.24	0.607*
TSS														1.00	0.01	-0.5980 ***	-	-
Vitamin C															1.00	0.02	0.08	0.04
Average fruit weight (g)																1.00	0.15	0.924*
Fruit yield (t ha ⁻¹)																	1.00	0.04
Fruit yield plant ⁻¹ (kg)																		1.00

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

The genotype 2017/RIGHYB-5 was recorded high Fruit yield (2.72 kg/plant and 24.48 ton/ha), whereas minimum Fruit yield per plant and per hectare was observed in genotype Rekha with (0.76 kg/plant and 6.84 ton/ha).

The study on genotypic and phenotypic coefficient of variation revealed that Higher magnitude of genotypic coefficient of variance (GCV) was recorded for Fruit yield/ ha (q) (29.499), Average fruit weight (g) (9.499) and Fruit length (cm) (27.177) Node to first female flower (20.133). Higher magnitude of phenotypic coefficient of variance (PCV) was recorded for Fruit yield/ ha (q) (30.083), Average fruit weight (g) (30.083) and Fruit length (cm) (27.533) Node to first female flower (20.013). The present findings are in accordance with the findings of Nath *et al.*, (2009).

The heritability estimate were found to be high (>60) for almost all the characters *viz.*, Vine Length (cm) at 90 DAS (94.90), Days to first female flower (75.80), Days to first male Flower (78.70), Node to first male flower (99.100), Node to first female flower (91.80), Days to 50% flowering (83.20), Days to first harvest (77.30), Days to last harvest (89.400), Fruit length (cm) (97.400), Fruit diameter (mm) (96.50), Rind thickness (mm) (94.500), Flesh thickness (cm) (95.200), Number o fruits p plant (87.400), Average fruit weight (g) (91.700), Fruit yield per plant (kg) (92.400) and Fruit yield/ ha (ton) (91.700).

The estimation of genetic advance for all the characters are presented in Genetic advance as percent mean was categorized as low (0-10%), moderate (10-20% and $\geq 20\%$) as given by Johnson *et al.*, (1955) and Falconer and Mackay (1996). Genetic advance as mean was highest for Vine Length (cm) at 90 DAS (72.22) and Fruit yield per plant (kg) (51.498). Genetic advance as per cent of mean was highest for Vine Length (cm) at 90 DAS (27.24), Node to first male flower (32.36), Node to first female flower (39.73), Fruit length (cm) (55.260), Fruit diameter (mm) (29.003), Rind thickness (mm)

(37.102), Flesh thickness (cm) (38.211), Number o fruits p plant (28.629), Average fruit weight (g) (58.196), Fruit yield per plant (kg) (37.240) and Fruit yield/ ha (ton) (58.196)

Genotypic correlation coefficient analysis revealed that fruit yield plant⁻¹ (kg) showed positive significant association with Fruit length (cm) (0.598**), Fruit diameter (cm) (0.741**), Rind thickness (mm) (0.514**), Flash thickness (mm) (0.523**), Number of fruit per plant (0.666**), Vine length (cm) at 90 DAS (0.275*) and Average fruit weight (g) (0.944**). While as negative significant association was observed with Days t first male flowering (-0.407**), Node to first female flowering (-0.367**), Days to 50% flowering (-0.398**), Days to first harvest (-0.375**) and TSS (-0.621**)

Phenotypic correlation coefficient analysis revealed that fruit yield plant⁻¹ (kg) showed positive significant association with Fruit length (cm) (0.573**), Fruit diameter (cm) (0.709**), Rind thickness (mm) (0.509**), Flash thickness (mm) (0.504**), Number of fruit per plant (0.607**), Average fruit weight (g) (0.924**) and Vine length (cm) at 90 DAS (0.270*). While as negative significant association was observed with Days t first male flowering (-0.368**), Node to first female flowering (-0.341*), Days to 50% flowering (-0.365**), Days to first harvest (-0.329*) and TSS (-0.514**).

On the basis of mean performance of eighteen genotypes of Ridge Gourd, genotype, 2017/RIGHYB-5 (2.72 kg/plant and 24.48 ton/ha) was found superior in terms of Fruit yield/ha (ton). On the basis of Analysis of variance significant difference was recorded for all the quantitative and qualitative traits indicating presence of large amount of variability in the genotypes.

Hence it can be concluded that Ridge Gourd Genotype 2017/RIGHYB-5 having highest yield can be utilized further for crop improvement programs.

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