EVALUATION OF DIFFERENT GENOTYPES OF SPONGE GOURD [*Luffa cylindrica* L.] UNDER PRAYAGRAJ AGRO CLIMATIC CONDITIONS

ABSTRACT

The present investigation entitled **Evaluation of different genotypes of Sponge Gourd (*Luffa cylindrica* L.) under Prayagraj agro climatic conditions** was carried out at Department of Horticulture, SHUATS, Prayagraj (U.P.) during *kharif* season of 2022, for evaluation of different genotypes of Sponge gourd with three replications in Randomized Block Design (RBD). Studies showed that, among all the genotypes, **IET 2021/SPGVAR-5** was observed to be performed the best in terms of Vine length(334.86 cm),Average yield per plant (0.69kg), Average yield per hectare (261.70q/ha), Fruit diameter (3.71cm), Gross returns(523400 INR/ha),Net returns(352657.2 INR/ha) and Benefit-Cost ratio (2.07).

Keywords: *Growth, Quality, Sponge gourd, Yield*

INTRODUCTION

In India sponge gourd and ridge gourd are grown as mixed crops in river bed cultivation and as sole crop in the arable land. Sponge gourd can be grown from tropical to subtropical climatic conditions; they thrive best in warm and humid conditions. Cool weather or low temperatures and frost conditions are not suitable for its growth. The sponge gourd is now widely cultivated in Malaysia, Korea, Japan, India, Central America, Thailand, Philippines, Indonesia, Taiwan and China for medicinal purpose. Japan is main exporter while, the main importers of sponge gourd are Brazil and U.S.A. In India the crop is widely grown in **Uttar Pradesh, Bihar, West Bengal, Orissa, Assam, Andhra Pradesh and Kerala (Arya and Prakash, 2002).**

Sponge gourd **[*Luffa cylindrica* L.]** is an important vegetable crop having chromosomes (2n=26). It is an annual climbing plant and cross pollinated in nature. It is difficult to assign with accuracy the indigenous area of *Luffa* species. They have a long history of cultivation in tropical countries of Asia and Africa. Indo-Burma is reported to be the center of diversity for sponge gourd and is originated in subtropical Asian region

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particularly India. ***Luffa cylindrica* L.**, commonly known as sponge gourd is a member Cucurbitaceous family. They have a long history of cultivation in the tropical countries of Asia and Africa. The vernacular names of sponge gourd are kali tori, ghia tori, torianemia, nenuwa, chiori, dundul, thuppaheerakayi, ghosaligilka, bhol or tarada and ghiraula in different parts of the world. The main commercial production countries are China, Korea, India, Japan and Central America. Many diversity of sponge gourd also exits in Nepal.

Sponge gourds are grown as mixed cropping in the river beds and as mono crop in the garden lands, Hence the exact area and production nevertheless the estimated area under all the gourds is 4.05 lakh hectares in our country. Sponge gourds are cultivated both on a commercial scale and in kitchen gardens throughout India. Both the species contain a gelatinous compound called luffein. The genus derives its name from the product 'loofah', which is used in bathing sponges, scrubber pads, doormats, pillows, and mattresses and also for cleaning utensils. Luffa requires a long warm season for best production. It also grows best during the rainy season. Due to its hard seed coat, there is a problem with seed germination when the temperature is low. In Chhattisgarh, sponge gourd is being grown on about 2597 ha. with an annual production of 23447 metric tonnes **(Anon 2019)** particularly in Mahasamund, Kanker, Jangir-chapa, Raigarh, Korba, Raigarh, Koria district. It is grown in variety of soil types. It gives best result when grown in sandy loam soil. Soil should have good moisture- holding capacity especially in summer season. The pH value of soil ranges from 6.5-7.0 or neutral to slightly alkaline soil is good for plantation. Temperature required for its growth is 25-28 degree centigrade. Generally, irrigation should be given based on soil type and weather conditions. In long dry weather conditions, irrigation should be carried twice a week and in rainy season, there is no need of irrigation. However, in extreme hot areas, mulching can be practiced to prevent the water loss or control the weeds. Farmers use living tree, dead branches, a wall or roof for supporting the climbing vines.

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The crop is cross-pollinated and therefore insect pollinator is necessary for better fruit production. The flowers are produced in the leaf axil with 4 to 20 staminate flowers and one pistillate flower in the same axil.

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The cross-pollination of sponge gourds is highly and naturally performed via bees, insects and wind. This type of pollination, however, probably causes degradation and adulteration in open sponge gourd farms. Traditional method of cultivation which utilizes random seeds from the previous crop makes it difficult to maintain valuable traits of this

crop. It is necessary to protect and maintain the valuable traits of sponge gourd varieties in order to meet the requirements/interest of the customers (i.e., sponge gourd fruits containing high sweetness, aroma and stickiness).

The field experiment on the **Evalution of different genotypes of Sponge gourd (*Luffa cylindrica* L.) under Prayagraj agro climatic conditions** was conducted at Horticulture Research Field, Department of Horticulture, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj during summer season March to June during the year 2022. The experiment was conducted in Randomized Block Design having 14 treatments which were replicated three times on 18th March,2022.The transplanting was done with the spacing of 3m×1.5m row to row and plant to plant.Adopting the recommended cultivation practices for raising a healthy crop.Data was recorded on all the present study.The cultural practices such as irrigation,weeding and plant protection measure were carried out uniformly as and when required.

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Table.1 List of Sponge Gourd Genotypes

RESULTS AND DISCUSSION

(A) GROWTH PARAMETERS.

1. NUMBER OF PRIMARY BRANCHES PER PLANT IN DIFFERENT GENOTYPES

NOTATION	NAME OF GENOTYPES	SOURCES
G1	AVT-II 2019/SPGVAR-1	IIVR, VARANASI
G2	AVT-II 2019/SPGVAR-2	IIVR, VARANASI
G3	AVT-II 2019/SPGVAR-3	IIVR, VARANASI
G4	AVT-II 2019/SPGVAR-4	IIVR, VARANASI
G5	AVT-II 2019/SPGVAR-5	IIVR, VARANASI
G6	AVT-II 2019/SPGVAR-6	IIVR, VARANASI
G7	AVT-II 2019/SPGVAR-7	IIVR, VARANASI
G8	AVT-II 2019/SPGVAR-8	IIVR,VARANASI
G9	IET 2021/SPGVAR-1	IIVR, VARANASI
G10	IET 2021/SPGVAR-2	IIVR, VARANASI
G11	IET 2021/SPGVAR-3	IIVR, VARANASI
G12	IET 2021/SPGVAR-4	IIVR, VARANASI
G13	IET 2021/SPGVAR-5	IIVR, VARANASI
G14	IET 2021/SPGVAR-6	IIVR, VARANASI

OF SPONGE GOURD.

Observation shows significant differences in the maximum number of primary branches per plant was recorded in AVT-II 2019/SPGVAR-1(19.3) followed by AVT-II 2019/SPGVAR-4(17.2) and the minimum number of primary branches was recorded in AVT-II 2019/SPGVAR-7(13.3).Similar findings were observed in **Shailesh Singh,VB Singh *et al.***

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2. NUMBER OF NODES PER PLANT IN DIFFERENT GENOTYPES OF SPONGE GOURD.

Significant differences in the number of nodes per plant were observed in different genotypes of sponge gourd with the maximum number of nodes observed in IET 2021/SPGVAR-1(48.00) followed by AVT-II 2019/SPGVAR-4(45.47) and the minimum number of nodes per plant were recorded in AVT-II 2019/SPGVAR-3(39.40).Similar findings were observed in **Shailesh Singh,VB Singh *et al1*.**

3. VINE LENGTH AT THE FINAL HARVEST IN DIFFERENT GENOTYPES OF SPONGE GOURD.

The significant differences was observed in length of vine in different varieties of sponge gourd, the maximum length of main vine was observed in IET 2021/SPGVAR-5(334.86 cm) followed by (325.08cm) in IET 2021/SPGVAR-1 and minimum length of main vine was observed in AVT-II 2019/SPGVAR-3 (204.11cm).Similar findings were previously reported by **Chauhan *et al.*,(2018).**

(B) FLORAL PARAMETERS.

1. DAYS TO FIRST EMERGENCE OF MALE FLOWERS IN DIFFERENT GENOTYPES OF SPONGE GOURD.

There was a significant difference in maximum days to first appearance of male flower in different varieties sponge gourd was observed in IET 2021/SPGVAR-1 (38.82) followed IET 2021/SPGVAR-2(36.70) and minimum days to first appearance of male flower was observed in the variety AVT-II 2019/SPGVAR-6. Similar findings were previously reported by **Narayan (2013)**

2. DAYS TO FIRST EMERGENCE OF FEMALE FLOWERS IN DIFFERENT GENOTYPES OF SPONGE GOURD.

According to the data, there was a significant difference in maximum days to first appearance of female flower in different varieties sponge gourd was observed in IET 2021/SPGVAR-4 (45.07) followed by the variety IET 2021/SPGVAR-5 (44.10)2 and minimum days to first appearance of female flower was observed in the AVT-II 2019/SPGVAR-2.Similar findings were previously reported by **Varalakshmi *et al.*, (2016)**

3. DAYS TO FIRST FLOWERING IN DIFFERENT GENOTYPES OF SPONGE GOURD.

There was a significant difference in maximum days to first flowering in different genotype of sponge gourd with maximum days to first flowering in the genotype IET 2021/SPGVAR-1 (32.88) followed by IET 2021/SPGVAR-2 (32.11) and minimum days to first flowering was observed in the AVT-II 2019/SPGVAR-5.Similar findings were previously reported by **Varalakshmi *et al.*, (2016)**

4. DAYS TO FIRST FRUIT PICKING IN DIFFERENT GENOTYPES OF SPONGE GOURD.

Significant difference in maximum days to first fruit picking was observed in IET 2021/SPGVAR-2(71.19) followed by AVT-II 2019/SPGVAR-7(70.81) and the minimum days to first fruit picking is observed in AVT-II 2019/SPGVAR-2(55.95).Similar findings were previously reported by **Narayan (2019)** and **sharma et al., (2010)**

5. NUMBER OF MALE FLOWERS IN DIFFERENT GENOTYPES OF SPONGE GOURD.

The number of male flowers in different genotypes of sponge gourd was recorded, statistically analysed and presented non-significantly were observed in the genotype AVT-II 2019/SPGVAR-4(36.53) followed by AVT-II 2019/SPGVAR-1 (35.80) and the minimum number of male flowers were observed in IET 2021/SPGVAR-4(32.80).The results are conformity with the findings of **(Daryono *et al.* 2018.**It is due to the inherent character and genetic makeup of the varieties and environmental conditions **(Poornima singh *et al.* 2020), Padmakshi Thakur *et al.* (2015).**

6. NUMBER OF FEMALE FLOWERS IN DIFFERENT GENOTYPES OF SPONGE GOURD.

The Number of female flowers in different genotypes of sponge gourd was recorded, statistically analysed and presented non-significantly were recorded in AVT-II 2019/SPGVAR-5(17.5) followed by AVT-II 2019/SPGVAR-8(16.8) and the minimum number of female flowers were recorded in IET 2021/SPGVAR-4(12.1).The results are conformity that more the female flowers get more number of fruits and it is due to the inherent character and genetic makeup of the varieties and environmental conditions it was

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findings of **Harika et al. (2012), Padmakshi Thakur *et al.* (2015), Poornima singh *et al.* (2020).**

7. SEX RATIO IN DIFFERENT GENOTYPES OF SPONGE GOURD.

The Male: female flowers ratio in different genotypes of SPONGE gourd was recorded, statistically analysed and presented non-significantly sex ratio was recorded in IET 2021/SPGVAR-4(2.80) followed by IET 2021/SPGVAR-5(2.71) and the minimum sex ratio was recorded in AVT-II 2019/SPGVAR-5(2.00).The Male: Female ratio is an important character which indicate earliness or lateness of the crop. It is due to the inherent character and genetic makeup of the varieties and environmental conditions. Similar result for ratio of male: female flower had been reported by **Nalawade et al. (2011), Harika et al. (2012), Muralidharan et al. (2014), Uddin et al. (2014), Rambabu et al. (2017), A. husna *et al.* (2011)**

(C) YIELD PARAMETERS.

1.TOTAL NUMBER OF FRUITS PER PLANT IN DIFFERENT GENOTYPES OF SPONGE GOURD.

Significant difference was observed in the data where maximum number of fruits per plant was recorded in the variety in IET 2021/SPGVAR-6(13.23) followed by IET 2021/SPGVAR-5(13.00) and the minimum fruits per plant were recorded in AVT-II 2019/SPGVAR-3(11.25),Higher fruit yield per plant was seen the genotype IET 2021 SPGVAR 4 is due to high number of fruits and fruit weight in this genotype.Similar findings were previously reported by **Krishnamoorthy and Ananthan (2017).**

2. AVEREAGE FRUIT WEIGHT IN DIFFERENT GENOTYPES OF SPONGE GOURD.

Theere was non-significant difference in the data where the maximum fruit weight was recorded in IET 2021/SPGVAR-5(52.96) followed by IET 2021/SPGVAR-1(52.81) and the minimum fruit weight was recorded in IET 2021/SPGVAR-6(50.38).Higher fruit weight was recorded in the genotype IET-2021/SPGVAR-5 is due to genetic behavior of the genotype to have higher fruit weight and having suitable environmental conditions. Similar findings were previously reported by **Kannan *et al*., (2015).**

3. FRUIT LENGTH IN DIFFERENT GENOTYPES OF SPONGE GOURD.

Non-significance in the data was observed with the maximum fruit length recorded in AVT-II 2021/SPGVAR-8(11.80) followed by AVT-II 2019/SPGVAR(11.56) and the minimum fruit length was recorded in IET 2021/SPGVAR-3(10.20)Higher fruit length was recorded in the genotype AVT-II 2021/SPGVAR-8(11.80) is due to the genetic behavior of the genotype to have higher fruit length and the environmental conditions which supported. Similar findings were previously reported by **Dubey *et al.* (2013).**

4. FRUIT DIAMETER IN DIFFERENT GENOTYPES IF SPONGE GOURD.

Non-significant difference in the data was observed with the maximum fruit diameter was recorded in the genotype IET 2021/SPGVAR-5(3.71) followed by AVT-II 2019/SPGVAR-8(3.68) and the minimum fruit diameter was recorded in AVT-II 22222019/SPGVAR-1(3.10).Higher fruit diameter was recorded in the genotype IET 2021/SPGVAR-5 is due to genetic behavior of the genotype to have higher fruit diameter and having suitable environmental conditions Similar findings were previously reported by **Hanumegowda *et al.*, (2012).**

5.FRUIT YIELD PER PLANT IN DIFFERENT GENOTYPES OF SPONGE GOURD.

There was non-significant data recorded among the genotypes of sponge gourd with maximum fruit yield per plant in IET 2021/SPGVAR-5 followed by IET 2021/SPGVAR-6 and the minimum fruit yield per plant was recorded in AVT-II 2019/SPGVAR-3(0.58).Similar findings were previously reported by **Ara *et al.*,(2012).**

6.TOTAL FRUIT YIELD IN DIFFERENT GENOTYPES OF SPONGE GOURD.

According to the data,there was a non-significant difference among the genotypes with regard to total fruit yield with the maximum fruit yield per hectare was recorded in IET 2021/SPGVAR-5(261.70) followed by IET 2021/SPGVAR-6(256.25) and the minimum fruit yield per hectare was recorded In AVT-II 2019/SPGVAR-3(219.01).Similar findings were previously reported by **Ara *et al.*,(2012).**

(D) QUALITY PARAMETERS.

1.TOTAL SOLUBLE SOLIDS (^{0}Brix) and ASCORBIC ACID (mg/100g) IN DIFFERENT GENOTYPES OF SPONGE GOURD.

According to the data,non-significant difference was seen among the genotypes with maximum total soluble solids was recorded in AVT-II 2019/SPGVAR-2(7.5) followed by

AVT-II 2019/SPGVAR-8(6.12) and the minimum total soluble solids was recorded in IET 2021/SPGVAR-4(3.03)The difference may be due to the inherent character and genetic makeup of the varieties and environmental conditions and the results are conformity with the finding of **(Chaurasiya *et al.*2016), (Harika *et al.* (2012)** and **(Muhammad Iqbal *et al.* 2018).**

There was a significant difference in different genotypes of sponge gourd with the maximum ascorbic acid content recorded in AVT-II 2019/SPGVAR-6(11.66) followed by AVT-II 2019/SPGVAR-8(11)TH and the minimum ascorbic acid content was recorded in AVT-II 2019/SPGVAR-4(7.36)The variation may be due to the inherent character and genetic makeup of the varieties and environmental conditions and the results are conformity with the finding of **(Harika *et al.* 2012) and (Muhammad Iqbal *et al.* 2018).**

(E) ECONOMIC ANALYSIS IN DIFFERENT GENOTYPES OF SPONGE GOURD.

The maximum gross return hectare was obtained by IET 2021/SPGVAR-5 i.e.,523400 INR and followed by IET 2021/SPGVAR-6 i.e., 512500 INR and the minimum gross return hectare was obtained by AVT-II 2019/SPGVAR-3 i.e., 438020 INR.The maximum net income per hectare was obtained by IET 2021/SPGVAR-5 i.e., 352657.2 INR and followed by IET 2021/SPGVAR-6 i.e. 341757.2 INR and the minimum net return per hectare was obtained by AVT-II 2019/SPGVAR-3 i.e., 267277.2 INR. Among the different spoonge gourd genotypes IET 2021/SPGVAR-5 has the highest cost benefit ratio (2.07) followed by IET 2021/SPGVAR-6 i.e. (2.0) and the minimum cost benefit ratio was showed by AVT-II 2019/SPGVAR- i.e. (1.57).

CONCLUSION

The results from the present investigation, it is concluded that SPONGE GOURD VARIETY IET-2021/SPGVAR-5 recorded maximum vine length(334.86cm);average yield per plant(0.69kg/plant);average yield per hectare(261.70 q/ha); and fruit diameter(3.71cm);gross return(523400 INR);net return(352657.2 INR).The highest benefit cost ratio (2.07) was recorded in IET-2021/SPGVAR-5 under Prayagraj Agro-climatic condition.

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Therefore from the results of research, the sponge gourd genotype IET-2021/SPGVAR-5 was found to be superior from other genotypes used in the research and therefore it can be recommended for the cultivation in Prayagraj agro-climatic condition for growth,quality and yield of sponge gourd.

Table.2 Cost Benefit Ratio of different genotypes of Sponge Gourd

NOTATION	NAME OF GENOTYPES	FRUIT YIELD (q/ha)	COST OF CULTIVATION (INR/ha)	GROSS RETURN (INR/ha)	NET RETURN (INR/ha)	B:C RATIO
G1	AVT-II 2019/SPGVAR-1	255.23	170742.8	510460	339717.2	1.99
G2	AVT-II 2019/SPGVAR-2	238.26	170742.8	476520	305777.2	1.79
G3	AVT-II 2019/SPGVAR-3	219.01	170742.8	438020	267277.2	1.57
G4	AVT-II 2019/SPGVAR-4	232.94	170742.8	465880	295137.2	1.73
G5	AVT-II 2019/SPGVAR-5	247.13	170742.8	494260	323517.2	1.89
G6	AVT-II 2019/SPGVAR-6	243.83	170742.8	487660	316917.2	1.86
G7	AVT-II 2019/SPGVAR-7	245.73	170742.8	491460	320717.2	1.88
G8	AVT-II 2019/SPGVAR-8	231.67	170742.8	463340	292597.2	1.71
G9	IET 2021/SPGVAR-1	249.46	170742.8	498920	328177.2	1.92
G10	IET 2021/SPGVAR-2	230.03	170742.8	460060	289317.2	1.69
G11	IET 2021/SPGVAR-3	252.40	170742.8	504800	334057.2	1.96
G12	IET 2021/SPGVAR-4	237.00	170742.8	474000	303257.2	1.78
G13	IET 2021/SPGVAR-5	261.70	170742.8	523400	352657.2	2.07
G14	IET 2021/SPGVAR-6	256.25	170742.8	512500	341757.2	2.00

Table.3 Mean Performance of different genotypes of Sponge Gourd on Growth and Floral parameter

NOTATION	NAME OF GENOTYPES	No. of Primary Branches per plant	No. of Nodes	Vine length at the time of final harvest(cm)	Days to 1st emergence of Male flowers	Days to 1st emergence of Female flowers	Days to first Flowering	Days to first Fruit Picking	No. of Male flowers	No. of Female flowers	Sex Ratio
G1	AVT-II 2019/SPGVAR-1	19.3	41.27	249.92	33.15	42.58	30.56	57.33	35.80	14.0	2.55
G2	AVT-II 2019/SPGVAR-2	16.2	40.80	263.48	36.43	36.84	31.22	55.95	35.53	15.5	2.29
G3	AVT-II 2019/SPGVAR-3	13.5	39.40	204.11	33.22	43.27	28.69	66.44	35.77	15.1	2.36
G4	AVT-II 2019/SPGVAR-4	12.4	45.47	227.02	35.32	38.14	32.65	62.56	36.53	15.0	2.43
G5	AVT-II 2019/SPGVAR-5	15.1	41.27	265.61	33.37	38.55	27.25	64.67	35.13	17.5	2.00
G6	AVT-II 2019/SPGVAR-6	13.4	44.60	265.23	30.89	43.47	32.26	64.52	35.83	14.3	2.50
G7	AVT-II 2019/SPGVAR-7	13.3	41.67	306.54	34.46	43.02	29.18	70.81	35.20	15.0	2.34
G8	AVT-II 2019/SPGVAR-8	16.3	41.37	258.33	34.67	35.51	31.88	60.59	35.03	16.8	2.31
G9	IET 2021/SPGVAR-	16.3	48.00	325.08	38.82	37.73	32.88	58.89	35.20	15.1	2.51

	1										
G10	IET 2021/SPGVAR-2	12.5	45.03	279.94	36.70	37.29	32.11	71.19	34.73	14.0	2.48
G11	IET 2021/SPGVAR-3	15.5	41.40	311.63	36.00	38.18	30.02	59.36	36.50	13.0	2.31
G12	IET 2021/SPGVAR-4	17.2	44.07	306.85	33.83	45.07	31.91	57.33	32.80	12.1	2.80
G13	IET 2021/SPGVAR-5	14.3	44.70	334.86	34.66	44.10	29.08	66.11	33.13	14.3	2.71
G14	IET 2021/SPGVAR-6	15.8	41.50	312.25	34.28	40.99	30.09	60.92	35.40	14.4	2.45
	F-TEST	S	S	S	S	S	S	S	NS	NS	NS
	S.Ed. (±)	1.01	0.90	36.24	1.08	1.14	0.87	4.14	2.60	1.75	0.38
	CD@5%	8.20	1.85	2.07	2.23	2.35	0.87	8.50	5.34	3.03	1.36
	CV	8.20	2.57	8.20	3.83	3.47	3.47	8.09	9.04	15.66	18.29

NOTATION	NAME OF GENOTYPES	No. of Primary Branches per plant	No. of Nodes	Vine length at the time of final harvest(cm)	Days to 1st emergence of Male flowers	Days to 1st emergence of Female flowers	Days to first Flowering	Days to first Fruit Picking	No. of Male flowers	No. of Female flowers	Sex Ratio
G1	AVT-II 2019/SPGVAR-1	19.3	41.27	249.92	33.15	42.58	30.56	57.33	35.80	14.0	2.55
G2	AVT-II 2019/SPGVAR-2	16.2	40.80	263.48	36.43	36.84	31.22	55.95	35.53	15.5	2.29
G3	AVT-II 2019/SPGVAR-3	13.5	39.40	204.11	33.22	43.27	28.69	66.44	35.77	15.1	2.36
G4	AVT-II 2019/SPGVAR-4	12.4	45.47	227.02	35.32	38.14	32.65	62.56	36.53	15.0	2.43
G5	AVT-II 2019/SPGVAR-5	15.1	41.27	265.61	33.37	38.55	27.25	64.67	35.13	17.5	2.00
G6	AVT-II 2019/SPGVAR-6	13.4	44.60	265.23	30.89	43.47	32.26	64.52	35.83	14.3	2.50
G7	AVT-II 2019/SPGVAR-7	13.3	41.67	306.54	34.46	43.02	29.18	70.81	35.20	15.0	2.34
G8	AVT-II 2019/SPGVAR-8	16.3	41.37	258.33	34.67	35.51	31.88	60.59	35.03	16.8	2.31
G9	IET 2021/SPGVAR-1	16.3	48.00	325.08	38.82	37.73	32.88	58.89	35.20	15.1	2.51

G10	**IET 2021/SPGVAR -2**	**12.5**	**45.03**	**279.94**	**36.70**	**37.29**	**32.11**	**71.19**	**34.73**	**14.0**	**2.48**
G11	**IET 2021/SPGVAR -3**	**15.5**	**41.40**	**311.63**	**36.00**	**38.18**	**30.02**	**59.36**	**36.50**	**13.0**	**2.31**
G12	**IET 2021/SPGVAR -4**	**17.2**	**44.07**	**306.85**	**33.83**	**45.07**	**31.91**	**57.33**	**32.80**	**12.1**	**2.80**
G13	**IET 2021/SPGVAR -5**	**14.3**	**44.70**	**334.86**	**34.66**	**44.10**	**29.08**	**66.11**	**33.13**	**14.3**	**2.71**
G14	**IET 2021/SPGVAR -6**	**15.8**	**41.50**	**312.25**	**34.28**	**40.99**	**30.09**	**60.92**	**35.40**	**14.4**	**2.45**
	F-TEST	**S**	**S**	**S**	**S**	**S**	**S**	**S**	**NS**	**NS**	**NS**
	S.Ed. (±)	**1.01**	**0.90**	**36.24**	**1.08**	**1.14**	**0.87**	**4.14**	**2.60**	**1.75**	**0.38**
	CD@5%	**8.20**	**1.85**	**2.07**	**2.23**	**2.35**	**0.87**	**8.50**	**5.34**	**3.03**	**1.36**
	CV	**8.20**	**2.57**	**8.20**	**3.83**	**3.47**	**3.47**	**8.09**	**9.04**	**15.66**	**18.29**

Table.4 Mean Performance of different genotypes of Sponge Gourd on Yield and Quality parameters

NOTATION	NAME OF GENOTYPES	No. of Fruit/Plant	Avg Fruit Weight for 10 fruits(g)	Fruit length(cm)	Fruit diameter (cm)	Fruit yield/plot (kg/ha)	Fruit yield/ha (q/ha)	TSS (°Brix)	ASCORBIC ACID (mg/100gm)
G1	AVT-II 2019/SPGVAR-1	12.83	52.36	10.93	3.10	0.67	255.23	4	8
G2	AVT-II 2019/SPGVAR-2	11.96	52.22	11.56	3.35	0.63	238.26	7.5	10
G3	AVT-II 2019/SPGVAR-3	11.25	52.33	11.30	3.28	0.58	219.01	3.3	9
G4	AVT-II 2019/SPGVAR-4	11.92	51.52	11.10	3.50	0.61	232.94	4	7.36
G5	AVT-II 2019/SPGVAR-5	12.62	51.47	11.13	3.32	0.65	247.13	5.1	8.21
G6	AVT-II 2019/SPGVAR-6	12.08	52.19	10.77	3.43	0.64	243.83	4.4	11.66
G7	AVT-II 2019/SPGVAR-7	12.39	52.23	11.80	3.31	0.65	245.73	7	10.66
G8	AVT-II 2019/SPGVAR-8	11.94	51.07	10.47	3.69	0.61	231.67	6.12	11
G9	IET	12.41	52.81	11.47	3.40	0.66	249.46	5	10

	2021/SPGVAR-1								
G10	**IET 2021/SPGVAR-2**	**11.67**	**51.92**	**11.65**	**3.14**	**0.61**	**230.03**	**4.9**	**9**
G11	**IET 2021/SPGVAR-3**	**12.77**	**52.04**	**10.20**	**3.43**	**0.66**	**252.40**	**4**	**9**
G12	**IET 2021/SPGVAR-4**	**12.00**	**51.99**	**10.87**	**3.54**	**0.63**	**237.00**	**3.03**	**7.66**
G13	**IET 2021/SPGVAR-5**	**13.00**	**52.96**	**11.13**	**3.71**	**0.69**	**261.70**	**4.1**	**8**
G14	**IET 2021/SPGVAR-6**	**13.23**	**50.38**	**10.93**	**3.20**	**0.68**	**256.25**	**5**	**11**
	F-TEST	**S**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**S**
	S.Ed. (±)	**0.87**	**0.96**	**0.95**	**0.34**	**0.05**	**18.07**	**0.70**	**1.00**
	CD@5%	**1.79**	**1.97**	**1.94**	**0.70**	**0.10**	**37.15**	**1.97**	**2.12**
	CV	**8.66**	**2.26**	**10.44**	**12.39**	**9.07**	**9.11**	**6.63**	**12.90**

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Comment [S11]: check again the rules for writing references according to the journal template

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