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RJ Chaudhary

Associate Research Scientist,
Cotton Research Centre,
Junagadh Agricultural
University, Kukada
Ta. Muli, Dist. Surendrnagar,
Gujarat, India

MM Talpada

Assistant Research Scientist,
Cotton Research Centre,
Junagadh Agricultural
University, Kukada
Ta. Muli, Dist. Surendrnagar,
Gujarat, India

HK Patel

Agriculture Officer, Cotton
Research Centre, Junagadh
Agricultural University, Kukada
Ta. Muli, Dist. Surendrnagar,
Gujarat, India

Studies and analysis on different parameters on *Gossypium herbaceum* cotton in rain fed condition

RJ Chaudhary, MM Talpada and HK Patel

Abstract

Cotton is an important fiber crop of global significance. Cotton is the major cash crop of our country which plays a key role in the national economy in terms of generation of direct and indirect employment in the Agricultural and Industrial sectors. As per ICAC publication 'Cotton This Month – August 2019', Global production for 2019/20 is currently forecasted to increase 6% from the previous season, while global cotton consumption is estimated at 26.9 million tonnes, representing a 1.7% increase. Production for the 2019/20 season will continue to be revised and adjusted as the season progresses, however, global production appears to be outpacing consumption at a time when forecasts for global consumption growth are slowing and global stocks are growing.

The trial was conducted at Cotton research station, JAU, Kukada. The deference in seed cotton yield due to genotype was significant. The entry GVhv 961 (917 kg/ha) gave significantly higher seed cotton yield which was at par with the GVhv 950 (810 kg/ha), GVhv 970 (792 kg/ha) and GVhv 996 (810 kg/ha), 961 (819 kg/ha). This entry also maintained its superiority for lint yield. The GOT was recorded maximum in GVhv-996 (41.2 %) compared to GADC-2 (39.0 %).

Keywords: *Gossypium herbaceum*, deshi cotton, global cotton consumption, yield trait, rainfed situation, parameters, agronomical practices

Introduction

India is the country to grow all four species of cultivated cotton *Gossypium arboreum* and herbaceum (Asian cotton), *G. barbadense* (Egyptian cotton) and *G. hirsutum* (American Upland cotton). *Gossypium hirsutum* represents 88% of the hybrid cotton production in India and all the current Bt. cotton hybrids are *G. hirsutum*.

Dry weather in Gujarat state's Saurashtra and Kutch regions and Maharashtra state's central and eastern regions hampered crop development and will likely affect yields. FAS Mumbai estimates all India yields at 1,107 lb (502 kg) per hectare. The Indian Meteorological Department (IMD) reports the Southwest monsoon (July to September) ended with cumulative rainfall during the season nine percent lower than the fifty-year average. The deficit rainfall and humid conditions led to the emergence of various pests. Therefore, the Government of India issued advisories on using plant protection measures to control sucking pest and pink bollworm infestation after the monsoon. According to the latest crop watch report, all incidences of pests and diseases reported are below the economic threshold level. Heavy rainfall and strong winds due to cyclonic storm "Titli" in the southern part of Odisha's coastal belt and Andhra Pradesh's northern part saw wind damage to standing crops in cotton growing districts along the cyclone's path. (Cotton statistics and news, published by cotton association of India on 8th January 2019).

Material and Methods

The performance was evaluate using eighteen including with eighteen (17 well performed entries and 1 check) this genotype were grown during 2017-18 in randomized block designs with 3 replication under Northn Saurashtra Agro climatic Zone -VI (Gujarat)Recommended agronomical practices for research was seed cotton yield (kg/ha), Calculated Lint yield (kg/ha), Ginning percentage, plant stand at harvest, Boll weight (gm) Plant height (cm) No. of monopodia/plant and sympodia/plant, No. of boll/5 plant average were recorded. Analysis of varience as per procedure given by Comstock and Moll, 1963 was adopted to test the significance of location, year and genotype.

Corresponding Author:**RJ Chaudhary**

Associate Research Scientist,
Cotton Research Centre,
Junagadh Agricultural
University, Kukada
Ta. Muli, Dist. Surendrnagar,
Gujarat, India

Results and Discussion

The trial constituted of 18 entries including GADC 2 as check was conducted under rainfed condition. Eighteen promising entries along with one check varieties viz., GADC-2 (C) were evaluated with three replications in RBD in *kharif-2017*. Seed cotton yield among the entries found significant. The entry GVhv 961 (917 kg/ha) gave significantly higher seed cotton

yield which was at par with the GVhv 950 (810 kg/ha), GVhv 970 (792 kg/ha) and GVhv 996 (810 kg/ha), 961 (819 kg/ha). This entry also maintained its superiority for lint yield. The GOT was recorded maximum in GVhv-996 (41.2 %) compared to GADC-2 (39.0 %). The overall results indicated that the entry GVhv 961 were found promising. The further studies important for new variety develop.

1	Location	:	Cotton Research Station, JAU, Kukda Northn Saurashtra Agro climatic Zone -VI
2	Year of commencement	:	<i>Kharif: 2017</i>
3	Crop & variety	:	Cotton, 18 Genotypes
4	a. Experimental details		As showed in Table
	b. Experimental Design		RBD
	c. No. of replications	:	3
	d. No. of plots	:	54
	e. Plot Size	:	Gross: 2.40 m X 4.80 m (2 rows) Net: 2.40 m X 4.20 m (2 rows)
	f. Row spacing	:	120 cm X 30 cm
	g. Manuring & Fertilizer	:	40-00-00 (NPK kg/ha)
	h. Date of sowing		04/07/2017

Table 1: Analysis of different parameters on genotype of *gossypium herbaceum* cotton in rain fed Condition

S. No.	Entry	Seed cotton yield kg/ha	Cal. Lint Yield (Kg/ha)	G.P. (%)	Plant stand at harvest	Ball wt. (g)	Plant Height (cm)	No. of Monopodia/plant	No. of Sympodia/plant	No. of bolls /Plant
1	GVhv 940	386	112	29.2	20.7	7.9	158.9	1.7	6.13	23.4
2	GVhv 946	493	190	38.7	21.3	8.6	162.4	1.9	6.27	23.1
3	GVhv 947	625	231	37.0	21.0	8.5	139.8	2.3	6.27	19.1
4	GVhv 950	810	329	40.7	26.7	7.9	137.3	2.3	6.20	19.9
5	GVhv 952	565	213	37.5	19.3	8.8	127.6	1.9	6.27	21.9
6	GVhv 957	539	214	39.8	23.0	8.1	119.3	2.1	6.67	22.9
7	GVhv 958	519	210	40.5	24.7	8.5	138.9	1.5	6.33	18.4
8	GVhv 961	917	342	37.3	32.0	9.2	141.2	1.7	6.00	19.4
9	GVhv 970	792	302	38.0	29.3	9.2	155.3	1.7	6.13	17.9
10	GVhv 971	547	222	40.5	22.0	9.1	150.9	2.0	6.27	21.9
11	GVhv 973	612	231	37.7	25.0	9.1	157.1	1.9	5.87	19.4
12	GVhv 974	478	171	35.7	22.7	9.8	141.2	1.8	6.00	18.1
13	GVhv 979	776	300	38.7	29.0	9.3	148.2	2.1	6.47	23.2
14	GVhv 984	370	136	36.7	14.0	9.2	139.7	1.5	6.20	18.9
15	GVhv 988	354	132	36.8	16.3	8.6	147.5	1.6	6.07	17.3
16	GVhv 989	714	242	33.7	25.7	10.0	135.9	1.9	5.80	23.4
17	GVhv 996	819	338	41.2	25.3	10.3	163.3	2.1	7.33	20.9
18	GADC-2 (C)	658	256	39.0	25.3	9.5	136.7	2.1	6.60	20.1
	G.M.	609.71	231.72	37.69	-	-	-	-	-	-
	S. Em.	43.27	20.11	1.61	-	-	-	-	-	-
	C.D. at 5%	124.46	57.84	4.64	-	-	-	-	-	-
	C. V. %	12.29	15.03	7.41	-	-	-	-	-	-

Conclusion

The statistics data showed that the highest seed cotton yield found significant in the entries in GVhv 961 compared to other remaining entries, as well as the calculated lint yield also found more in GVhv 961, while GOT (%) found highest 41.2 (%) in entry GVhv 996., so in rainfed where uneven rainfall comes in season their *G. herbaceum* (desi cotton) performed well. (Data showed in Table).

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