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Performance of different *Bt* cotton (*Gossypium hirsutum* L) hybrids under varying dates of sowing

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ABSTRACT : A field experiment was conducted at CCS Haryana Agricultural University, Cotton Research Station, Sirsa during *kharif,* 2011 to study the performance of *Bt* cotton hybrids under different sowing dates. Higher sympods/plant, bolls/plant, yield/plant, seed cotton yield and lint yield/ha were recorded in early sowing (20th April and 6th May) than late sowing (18th May and 6th June). Highest seed cotton yield was observed when sowing was done on 20th April (3166 kg/ha) and the lowest seed cotton yield was observed at 6th June (2345 kg/ha) sowing. There was no significant difference in boll weight at different dates of sowing. The reduction in seed cotton yield was 8.24 per cent at 6th May (D_2), 16.55 per cent at 18th May (D_3) and 25.90 per cent at 6th June (D_4) sowing as compared to 20th April (D_1) sowing. Seed cotton yield and lint yield/ha were significantly higher in NCS 855 than Bio 6488 and RCH 134 genotype.

Keywords : *Bt* cotton, dates of sowing, genotypes and yield

Productivity of cotton can be considerably improved by cultivation of *Bt* cotton hybrids with suitable sowing time. Time of sowing affects plant growth and fruiting through its effects on the microclimate of the crop. Lint yield is a product of number of mature bolls produced/unit area. Late sowing resulted in decrease in opened bolls, increased pest attack and reduction in yield. Early sowing of the crop helped in the timely sowing of the succeeding *rabi* crops. Planting time differs from place to place for obtaining higher yields. In Haryana, sowing is recommended in the month of April to mid May. The *Bt* cotton hybrids are comparatively fast growing and gave better yields even under late sown conditions. However, little research work has been carried out under Haryana conditions, on suitability of *Bt* cotton hybrids under different sowing dates. Keeping the above aspects, the present investigation was planned to study the performance of different *Bt* cotton hybrids (*Gossypium hirsutum* L) under varying dates of sowing.

The experiment was conducted at CCS Haryana Agricultural University, Cotton Research Station, Sirsa situated in the semi arid, sub tropical region of north western India, in the state of Haryana at 29^0252 N latitude, 74^0402 E longitude and at an altitude of 202 m above mean sea level. The present investigation was carried out during *kharif,* 2011. The experiment was laid out in split plot design with three replications. The main plots treatments were sowing time *viz.* D_1: 20th April, D_2: 6th May, D_3: 18th May and D_4: 6th June and the sub plots treatments were 3 *Bt* cotton hybrids V_1: RCH 134, V_2: NCS 855 and V_3: Bio 6488. The soil of experimental field was sandy loam in texture having pH 8.2 with low organic carbon and available N while available P was medium and available K was high. The rainfall (507.5 mm) was highly erratic with 20-30 per cent annual and 30-50 per cent seasonal variations. The recommended doses of fertilizers were applied. Irrigations were given to the crop depending on the requirements and rainfall during the crop season. The data number of monopods, sympods and bolls/plant were recorded from randomly selected (tagged) 5 plants in each treatment when the boll formation was completed and seed cotton yield was recorded from the whole plot. The crop was picked two times in each treatment.

The data in the Table 1 revealed that seed cotton yield was significantly higher in 20th April sown crop (3166 kg/ha) than 18th May and 6th June sown but it was *at par* with 6th May sown crop. The seed cotton yield of *Bt* cotton reduced drastically when the sowing was delayed beyond 20th April onwards to 6th June. The higher seed cotton yield recorded in 20th April sown crop might be due to higher number of sympods and bolls/plant as compared to 18th May and 6th June sown crop. Buttar *et al.,* (2010) and Buttar *et. al.,* (2004) also observed that under Punjab condition higher

seed cotton yield was obtained in early sown American cotton (*G. hirsutum*) as compared to late sown crop. Norfleet *et al.*, (1997) suggested that the early sowing date having optimum environment conditions and considered the most suitable sowing date. The biological yield was significantly higher than 20th April and 6th June sowing but it was *at par* with 6th May sowing, it could be due to the higher number of monopods or optimum rainfall received during the grand growth phase of the cotton crop. The harvest index was observed significantly higher in 20th April sowing than 6th May and 18th May but it was *at par* with 6th June sowing (which was due to lower biological yield produced by 6th June sowing).

The genotype NCS 855 recorded significantly higher seed cotton yield (2963 kg/ha) than Bio 6488 and RCH 134. The highest seed cotton yield recorded in NCS 855 might be due to higher number of sympods and bolls/plant as compared to Bio 6488 and RCH 134. These results were found in close conformity with the findings of Patil *et al.*, (2009). The harvest index was observed significantly higher in NCS 855 than RCH 134 but it was at par with Bio 6488 genotype.

Table 1. Effect of dates of sowing on yield and yield attributing characters of different *Bt* cotton genotypes

Treatments	Monopods/ plant	Sympods/ plant	Bolls/ plant	Boll weight (g)	Seed cotton yield (g/plant)	Seed cotton yield (kg/ha)	Lint yield (kg/ha)	Biological yield (kg/ha)	Harvest index (%)
Dates of sowing									
D_1= 3rd week of April	1.76	30.64	50.61	3.60	178.46	3166	1195	7806	41.46
D_2= 1st week of May	3.17	30.39	48.02	3.64	171.41	2905	1066	9681	30.15
D_3= 3rd week of May	4.40	29.33	42.51	3.88	161.13	2642	978	10050	27.37
D_4= 1st week of June	4.40	21.58	37.69	3.85	144.73	2345	866	6744	36.24
SE(m)±	0.17	0.35	2.32	0.15	3.12	113	45	498	1.55
P=0.05	0.58	1.20	8.01	NS	10.79	389	155	1717	5.36
Genotypes									
V_1= RCH-134	7.95	21.23	37.55	4.14	153.47	2630	970	9169	29.63
V_2= NCS-855	1.18	31.56	49.05	3.60	173.37	2963	1107	8323	38.13
V_3= Bio-6488	1.17	31.17	47.53	3.54	164.95	2702	1001	8219	33.66
SE(m)±	0.26	0.55	1.68	0.14	2.56	76	33	368	1.75
P=0.05	0.77	1.66	5.05	0.41	7.68	228	100	NS	5.25

REFERENCES

Buttar, G.S., Singh, P. and Kaur, P. 2010. Influence of date of sowing on the performance of American cotton (*Gossypium hirsutum* L.) genotype under semi arid region of Punjab. *J. Cotton Res. Dev.* **24** : 56-58.

Buttar, G.S., Aggarwal, N. and Singh, S. 2004. Productivity of American cotton as influenced by sowing time. *Haryana J. Agron.* **20** : 101-02.

Norfleet, M.L., Reeves, D.W., Burmester, C.H. and Monks, C.D. 1997. Optimal planting dates for cotton in the Tennessee Valley of North Alabama. *Proceeding Beltwide Cotton Conference* **1** : 644-47.

Patil, D.V., Deosarkar, D.B. and Patil, S.G. 2009. Study of *Bt* and non *Bt* cotton hybrids for yield and quality characters under normal and delay sown condition. *J. Cotton Res. Dev.* 23 199-203.

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