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Effect of Different Sowing Dates on Seed Index, Lint and Ginning Out-turn of Various Cotton Varieties

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Abstract: The field experiment was conducted to study the effects of sowing dates on seed index, lint index and ginning out-turn of three cotton varieties. The study revealed that the sowing dates produced significant difference in above parameters. The sowing on 10th May produced heavier seed index (8.21g), maximum lint index (4.04 g) and high ginning Out-turn percent (33.98). Among the genotypes, Rehmani performed better in seed index (8.48g), lint index (4.04g) and G.O.T. percent (33.71). It is recommended that for lower part of Sindh, Pakistan, the cotton crop may be planted in early to mid of May month. Very early and delayed sowings reduces cotton crop yield due to change in environmental factors of the region, which in turn affects plant's life cycle and vigorous growth.

Key words: Cotton, sowing dates, yield, G.O.T

Introduction

Cotton is an important fiber crop of Pakistan and contributes too much for the national exchange. Its yield is far low as compare to other countries. Among the constraints of low yield, the proper time of sowing the crop is of vital importance. It has been concluded that boll weight gradually decreased with the delay in sowing time (Saroya *et al.*, 1980). Khan *et al.* (1965), observed that the seed index was higher with early than with late sowing of cotton crop. Memon and Malik (1970), stated that the bolls formed with earlier flowers produced higher lint index, seed weight and seed cotton weight per boll. Taha (1982) concluded that the ginning-out-turn (G.O.T.) decreased with the late sowing. Looking the previous work done by various researchers and economic importance of the cotton crop, the study was conducted to evaluate the appropriate sowing time for boosted G.O.T and yield of cotton crop.

Materials and Methods

An experiment was conducted at Latif Experimental Farm, Sindh Agriculture University, Tandojam, to observe the effect of different sowing dates on seed index, lint index and ginning-out-turn of three genotypes. The experiment was laid out in a split plot design with four replications including all conditions of the treatments. The net plot size was 13 x 5m² was maintained the details of treatments were as under.

Main Plots = Sowing Dates
10th April (Early sowing)
10th May (Medium sowing)
10th June (Late sowing)
Sub-plots = Varieties
Rehmani
NIAB-78
Qalandri

The seeds were sown by drilling method with the sowing rate of 30 kg ha⁻¹ in well prepared soil. The inter and intra row spacings were 75 and 22.5cm, respectively. The thinning was done twice to maintain the proper plant population and proper distance. Usual fertilizer dose of 100 kg N and 50 kg P₂O₅ per hectare was applied. The nitrogen was applied in two splits i.e., 25kg ha⁻¹ at sowing and the remaining at peak flowering. All the cultural operations and plant protection measures were adopted in all the plots uniformly. When crop was matured the seed cotton was picked. The data collected and analysed using the methods of Steel and Torrie (1980).

Results and Discussion

Seed index: The analysis of variance indicates that the heavier seeds were produced in medium sowing date of 10th May followed by early and late sowing of 10th April and 10th June,

Table 1: Seed index, lint index and ginning-out-turn of cotton varieties under different sowing times

Genotypes	Sowing Dates			Mean
	10th April (Early)	10th May (Medium)	10th June (Late)	
Seed index (g)				
Rehmani	8.13	9.45	7.88	8.48a
Qalandri	7.35	7.40	6.82	7.19b
NIAB-78	6.95	7.80	6.87	7.20b
Mean	7.47b	8.21a	7.19b	-
Lint index (g)				
Rehmani	4.25	3.98	3.87	4.033a
Qalandri	3.23	4.13	3.16	3.506b
NIAB-78	3.58	4.02	3.78	3.793ab
Mean	3.68ab	4.04a	3.60b	-
Ginning-Out-turn				
Rehmani	33.52	34.56	33.07	33.71a
Qalandri	33.10	33.65	32.48	33.07a
NIAB-78	33.18	33.73	32.89	33.26a
Mean	33.26b	33.98a	32.81b	-

Means followed by similar letter do not differ significantly from each other at P < 0.05

respectively, which are statistically significant (Table 1). Among the varieties

Rehmani produced heavier seed as compared to NIAB-78 and Qalandri. The differences in mean value of seed index given by all three varieties were highly significant, but their interactions with different sowing dates were non-significant. These results are in conformity with the findings of Memon and Malik (1970), who reported that very early and late sowings significantly reduced the cotton crop parameters, because plants in these conditions were unable to grow vigorously in the early growth phase. This early vigorous growth phase supports plants to produce photosynthesis for food manufacture. The difference for production of seed index in the varieties was due to varietal genetic potentiality.

Lint index and ginning out-turn: It was observed that medium sowing of 10th May produced the highest lint yield in Rehmani cotton variety as compared to other rest of varieties and sowing dates (Table 1). The differences in these both crop characters due to various sowing dates were statistically significant. The results are fully supported by Taha (1982) who also observed that delayed sowing of cotton crop decreases the G.O.T, which in turn economically does not favour the growers. In the delayed sowing the crop's photosynthetic efficient is affected by environmental

and adeophic factors and plant lifecycle became shorten and sometimes stunted growth was observed. This stunted and weak growth has adverse effects on all crop parameters including yield and G.O.T of the cotton crop. Therefore, it is concluded that for the Lower part of Sindh province the appropriate sowing time is the start of or mid of May. Further delay or very early sowing is not economically favourable for the grower.

References

- Khan, A.H., M.H. Vaince and M.A. Khan, 1965. Some studies on ginning outturn of some Pak. cottons as influenced by location and season. *W. Pak. J. Agric. Res.*, 3: 29-42.
- Memon, A.M. and M.N.A. Malik, 1970. Some observations on the development of cotton bolls and other related characters in Pak-upland cotton (Variety-M4). *W. Pak. J. Agric. Res.*, 8: 134-140.
- Saroya, A.R., M. Saeed and M. Umer, 1980. Effect of different sowing dates on the yield of cotton (*G. hirsutum* L.) under Sahiwal conditions. *The Pak. Cottons*, 24: 267-273.
- Steel, R.G.D. and J.I. Torrie, 1980. Principles and procedure of statistics. McGraw Hill Book, New York, pp:137-233.
- Taha, M.A., 1982. Effective boll setting. FAO. Report on Cotton Physiology for Pak-73/026. Cotton Res. Inst. Multan, Pakistan, pp: 15-18.