

## Effects of Picking Dates on Seed Germination, GOT and Fiber Traits of Upland Cotton (*Gossypium Hirsutum L.*)

ABDUL WAHAB SOOMRO<sup>1</sup>  
MUHAMMAD SAFFAR MAJIDANO  
MUHAMMAD ZAHIR AHSAN  
ABDUL RAZZAQUE CHANNA  
FAIZ HUSSAIN PANHWAR  
HIDAYATULLAH BHUTTO  
ALLAH DINO KALHORO  
Central Cotton Research Institute Sakrand  
Sindh, Pakistan

### Abstract:

*The present study was conducted so as to determine the impacts of picking dates effects on traits seed germination %, ginning outturn, staple length, fiber strength and fiber fineness of three cotton genotypes viz. Bt.CRIS-508, CRIS-585 and CRIS-342. The selected picking dates were 1<sup>st</sup> October, 16<sup>th</sup> October and 1<sup>st</sup> November. The results revealed that seed germination % was highest when picked early at 1<sup>st</sup> October and decreased when picked late after 15 to 30 days interval; it shows that due to fluctuation of temperature and humidity. The staple length, fiber strength and fiber fineness was also high during early pick at 1<sup>st</sup> October and it declined to some extent when picked after 30 days crop standing at field. The GOT was also observed higher and lower during picking dates at all the varieties.*

**Key words:** Picking dates, (*Gossypium hirstum L.*), seed germination, GOT.

---

<sup>1</sup> Corresponding author: soomro.wahab@outlook.com

## **Introduction**

Cotton can rightly be considered as an internationally traded crop that plays a vital role for uplifting country's economy. A better crop growth ensures with the appropriate coordination of different agronomic practices and judicious use of various inputs and among these, appropriate picking date is important phase which effects on fiber characters. Because cotton is an important fiber crop and occupies a key position in the world's trade and economy of Pakistan. Mostly cotton growers and farmers picking practices are three to four times during cotton picking period. The picking dates definitely have the effects on fiber characteristics and the exacting cultivars during the right time so that the preferred level of the parameters may not negatively be disturbed.

It effects of mixing of immature bolls along with mature ones during picking of seed cotton on the quality of the lint and the germination of the seed has been accentuated by *Soomro et al., (2004)*. The effects of different picking treatments intervals in minimizing the effect of low temperature, excess air moisture and effects of delayed picking in deteriorating the fiber quality traits i.e., fiber length and strength delayed pickings was reported in earlier findings of *Chaudhry et al., (1987)*. *Soomro et al., (2004)* reported higher values of staple length and strength as result of frequent pickings intervals with 15 days obtained in early picking treatments. *Salam et al. (1993)* demonstrated that staple length was slightly less in 15<sup>th</sup> October picking and reached its maximum in 1<sup>st</sup> November picking after which it constantly declined till 15<sup>th</sup> December picking. The present studies were conducted to explore the effect of picking dates on seed germination percentage, ginning outturn percentage and fiber characteristics under the Sakrand climatic conditions.

Therefore, present studies were conducted on three varieties of cotton to investigate the picking effects on seed germination percentage, ginning outturn and fiber characters under the Sakrand conditions to provide valuable suggestion to breeders, researchers, scientist ginners and spinners to put their efforts on right path.

## **Materials and Methods**

The picking date trial conducted with three picking dates interval 1<sup>st</sup> October, 16<sup>th</sup> October and 1<sup>st</sup> November, to investigate the appropriate picking time of three cotton varieties at Central Cotton Research Institute Sakrand during the cotton season 2014-15. The experiment was designed with four replications in randomized complete block design, row to row distance 75 cm and between plant to plant distances 30 cm was maintained. The other inputs and plant protection measures were applied accordingly as per need. The characters were studied i.e. seed germination percentage, Ginning outturn (GOT), Staple length, Fiber Strength, and Fiber fineness.

## **Results and Discussions**

The Analysis of variance presented in Table-1. The variance due to picking dates was highly significant for all the characters such as seed germination%, staple length, fiber strength and fiber fineness except ginning outturn % only. The variance due to varieties were also highly significant for all the characters except GOT. The variance due to interaction between picking dates into varieties were also highly significant for the trait seed germination percent, staple length and fiber strength except GOT and fiber fineness were non significant. These results hence suggested that data is worth for further processing and interpretations.

The mean values regarding seed germination percentage is presented in Table-2 & 3 that ranged from 72.33% to increase 86.81%. The maximum seed germination was observed, when picked on 1<sup>st</sup> October and minimum was measured when picked on 1<sup>st</sup> November, after thirty days interval, it means effects of climatic condition and humidity which deteriorate the viability of seed germination percent. Among the mean values of varieties CRIS-585 has shown highest seed germination percentage as compared others when picked early. The same results also presented by *Deho et. al. (2012)* to determine the impact of different picking dates on seed germination percent, it reduced when picked late due to fluctuating levels of temperature and humidity. *Solangi et.al (2001)* presented that result decreased in seed germination percent as picking dates were delayed from 1<sup>st</sup> October.

As regards the trait staple length, fiber strength and fiber fineness is presented in Table-2 & 3 that depicted highest values and observed when seed cotton picked on 1<sup>st</sup> October, whilst it decreased and when crop standing in field after 30 days & delayed in picking, it is suggested that influence of environmental condition which effect the staple length, fiber strength and fiber fineness. While comparing the result of varieties the CRIS-585 presented highest values for traits staple length, fiber strength and fiber fineness. The similar results presented by *Baloch et. al (2010)* The staple length was high during early pickings and then it declined to some extent with the progress of picking season. Fiber fineness and fibre strength had maximum values during first picking date (1st October), afterwards showed sharp decline with each successive picking. The lowest values were recorded during the last picking date. *Deho et. al. (2012)* presented the effects of different picking dates increase and decrease of staple length (mm) due plasticity of temperature and humidity. The effect of weather in deterioration of staple length trait has also been

reported by *Basinski et al.*, (1973). Who reported that the staple length (mm) was reduced markedly by weather consistently on average 0.7% per week of exposure. The present findings that how environment significantly influenced the fiber traits are in accordance with the results of *Quensenberry & Kohel (1975)* who also reported the similar kind of effect on fiber length (mm) and strength due to delayed picking. *Choudhry et al. (1987)* who reported that fiber length and strength also decreased with the delay in pickings. *Salam et al. (1993)* also reported similar results that staple length was slightly less after picking late.

The ginning outturn percentage presented in Table-2 & 3 the result revealed that the early picking showed maximum values 44.6, while it slightly decreased to 37.4 when picking late at 1<sup>st</sup> November (30 days intervals), but the results were non significant which shows no such highest effects of picking dates on GOT.

**Table No.1: Analysis of Variance (ANOVA) F-Value of characters.**

Source of Variation	D.F	Characters				
		Seed Germination %	Staple Length	Fiber Strength	Ginning outturn	Fiber Fineness
Picking Dates	2	978.85**	119.40**	122.69**	2.45ns	76.17**
Varieties	2	82.24**	26.92**	37.59**	0.66ns	3.71*
Picking Dates x Varieties	4	2.96*	3.34**	4.43**	0.99ns	2.04ns

\* = significant, \*\* = highly significant, ns = non-significant

**Table No.2: Mean values in respect of varieties with characters.**

Varieties		Seed Germination %	Staple Length (mm)	Fiber Strength (G tex <sup>-1</sup> )	GOT (%)	Fiber Fineness (µg inch <sup>-1</sup> )
Bt.CRIS-508	Mean	77.72 C	27.58B	27.77B	38.43	3.99AB
CRIS-585	Mean	81.78 A	28.24A	28.17A	42.58	4.10A
CRIS-342	Mean	78.82 B	27.62B	26.99C	40.37	3.86B
<b>LSD value (0.05%)</b>						
<b>Varieties</b>		<b>0.676</b>	<b>0.208</b>	<b>0.284</b>	<b>NS</b>	<b>0.184</b>

Abdul Wahab Soomro, Muhammad Saffar Majidano, Muhammad Zahir Ahsan, Abdul Razzaque Channa, Faiz Hussain Panhwar, Hidayatullah Bhutto & Allah Dino Kalhorro-  
**Effects of Picking Dates on Seed Germination, Got and Fiber Traits of Upland Cotton (*Gossypium Hirsutum L.*)**

**Table No.3: Mean values in respect of picking dates with cotton traits.**

Picking Dates	Picking Dates	Seed Germination %	Staple Length (mm)	Fiber Strength (G tex <sup>-1</sup> )	GOT (%)	Fiber Fineness (µg inch <sup>-1</sup> )
Mean	01-10-2014	86.81a	28.53a	28.71a	44.61a	4.57a
	16-10-2014	79.17b	27.92b	27.65b	38.84ab	3.88b
	01-11-2014	72.33c	26.98c	26.56c	37.43b	3.49c
<b>LSD value (0.05%)</b>						
<b>Picking Dates</b>		<b>0.676</b>	<b>0.208</b>	<b>0.284</b>	<b>NS</b>	<b>0.184</b>

## REFERENCES

- Baloch, M., Noor-un-Nisa Memon, S.N. Mari and Z.A. Soomro 2010. Ginning Outturn and Fiber Characteristics As Affected By Different Picking Dates. Life Sci. Int. J.
- Basinski. J.J, G. Robinson and N.J. Thomson. 1973. Cotton varieties and related studies. Cot. Grow. Rev., 50(3):193.
- Choudhry, M. R., A. Salam and M. A. Tariq, 1987. Effect of picking intervals on some fiber characters of cotton. The Pakistan Cottons, Vol. 31 (1): 47-54.
- Deho, Z.A., S. Laghari, S.Abro, M.A.Arain, M.Hussain, S.A. Abro and Fakhruddin. 2012. Effect of picking dates on seed germination, gin turn-out, seed index and staple length in gossypium hirsutum L. Pak. J. Bot., 44(1): 135-137.
- Quensenberry, J.E. and R.J. Kohel. 1975. Growth and development of fiber and seed in upland cotton. Crop. Sci., 15(04): 463.
- Salam, A., M. Arshad and M. Afzal, 1993. Effect of picking dates on ginning outturn, seed and lint indices of four commercial cotton varieties of G. hirsutum L. The Pakistan Cottons, Vol. 37 (2): 75-79.
- Salam, A., M. Arshad and M. Afzal, 1993. Effect of picking dates on fiber characters of different commercial cotton

varieties of *G. hirsutum L.* The Pakistan Cottons, Vol. 37 (2): 67-74.

Salam, A., M. Arshad and R. Ali, 1998. Effect of picking dates on seed index, seed immaturity and seed germination of three commercial cotton varieties of *G. hirsutum L.* The Pakistan Cottons, Vol. 42 (1&2): 30-37.

Solangi, M.Y., M.H. Solangi, Mrs. M. Sultana Solangi, A.R. Lakho, G.N Panhwar, M.S. Chang and G.H. Tunio 2001. Relative effect of picking dates, seed germination percentage, seed immaturity and seed index of three cotton varieties of *Gossypium hirsutum L.* Sindh Balochistan J. of Plant Sc. (Suppl.) 3 (1&2) 87-92.

Soomro, A.R., Noor-Illah, Zahid Mahmood and Kifayatullah Khan. 2004. How picking dates affect ginning turn and fiber characteristics in cotton. Central Cotton Research Institute, Multan, Pakistan. Indus Cottons, 1(2): 29-34.