

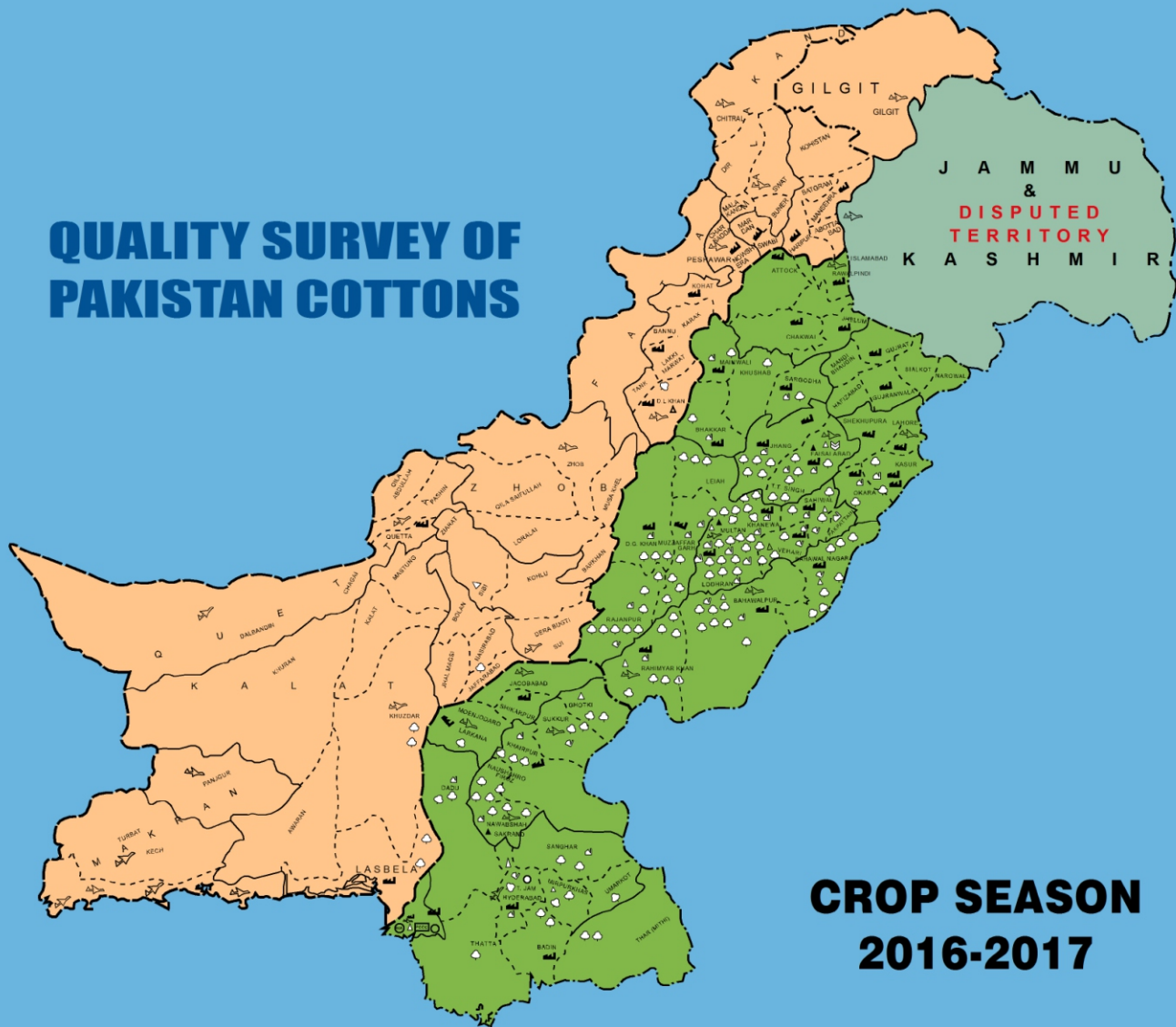


PAKISTAN CENTRAL COTTON COMMITTEE



MINISTRY OF TEXTILE INDUSTRY
GOVERNMENT OF PAKISTAN

QUALITY SURVEY OF PAKISTAN COTTONS



**CROP SEASON
2016-2017**

**PAKISTAN INSTITUTE OF COTTON RESEARCH
AND TECHNOLOGY, KARACHI.**

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**QUALITY SURVEY OF PAKISTAN COTTONS
STATISTICAL ANALYSIS OF
COTTON FIBRE
TESTS RESULTS**

CROP SEASON 2016 - 17

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MESSAGE

Cotton, one of the major cash crops of Pakistan, occupies a place of country's pride in so far as its production, export and consumption are concerned. The phenomenal progress in the field of agriculture has simultaneously accelerated the pace of technological research to help and guide farmers, traders and textile industrialists.

Cotton is a sensitively variable commodity in so far as its physical characteristics are concerned. The characteristics vary with cultivars due largely to a number of biological and physical factors, physiological phenomena and metabolism of the plant as well as soil, rainfall, irrigation and agronomic practices.

All above facts necessitate the need for survey of "Quality characteristics of Pakistan's cotton" becomes apparent to determine precisely the physical characteristics of cotton currently being grown in Pakistan.

This report embodied the results of the characteristics of Pakistan's cotton for crop year 2016-17. Such survey, which seeks to present a true picture of the Quality of cotton of various places of Pakistan, will it is hoped, go a long way to help the cotton growers, traders and industrialists to produce a better product.

Finally, I appreciate the Quality Survey Division of Pakistan Institute, Cotton Research & Technology, Karachi of Pakistan Central Cotton Committee for conducting this survey every year and publishing the report regularly.



(Dr. KHALID ABDULLAH)
Vice President
Pakistan Central Cotton Committee

FOREWORD

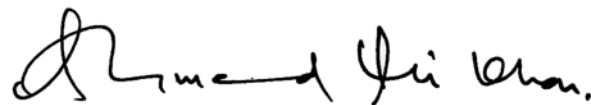
For today's rapidly advancing textile industry and quality conscious international market, the comprehensive information about the characteristics of lint cotton, which is the raw material of the industry, is a dire need for producing quality goods at competitive costs by way of reducing wastage and improving productivity level.

Owing to the overwhelming importance of fibre characteristics of cotton in determining its spinning performance and evaluating marketing worth, comprehensive information about quality parameters of cotton is essential for ginners, spinners, traders and other concerned. This information bears great significance for planners who place their fingers on the pulse of cotton production and demand in local as well as international market.

Realizing the necessity of such information, the Pakistan Institute of Cotton Research and Technology Karachi, has been rendering valuable services by conducting Quality Survey of Pakistan Cottons to provide information about fibre properties of commercially grown cotton cultivars on year basis.

The present report is 35th in series and is based on samples drawn from ginneries during 2016-17 cotton Season. It is genuinely hope that the findings embodied in this report would be of much interest to the breeders, ginners, traders, textile technologists, researchers and other members of cotton community. Suggestions and advices for improving the presentation would be welcomed.

Finally, I appreciate the keen interest and hard working of Mr. Imtiaz Hussain (T.A), Mr. Asif Riaz (T.A) and Mr. Inayatullah (T.A) for co-working in preparation and compilation of this report.



(Ahmed Ali Khan)

Director

Pakistan Institute of Cotton Research & Technology
Karachi

**QUALITY SURVEY OF PAKISTAN COTTONS
CROP SEASON 2016 - 17**

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1.0 INTRODUCTION

This is one of the series of annual summary reports based on the results of Quality Survey of Pakistan Cottons. It contains information on the fibre properties of cotton grown commercially in Pakistan during 2016-17.

The cotton crop comprises a wide spectrum of staple length and other fibre characteristics. The fibre characteristics may exhibit wide variation due to place and seasonal effect, besides getting admix with other varieties thereby losing their original fibre characteristics. The variation also poses serious problems to spinners as it effects the efficiency and productivity of the textile industry. Hence, information about the fibre characteristics of cotton is absolutely necessary.

Pakistan Institute of Cotton Research and Technology, Karachi has been conducting “Quality Survey of Pakistan Cottons“ since 1976-77 for yearly assessment of cotton crop. Samples from crop season 2016-17 for the purpose were collected from 293 ginning factories.

1.1 Targets and achievements 2016 - 17:

Province wise targets and achievements of cotton are given in following tables.

Table 1-a

Target of Cotton Area and Production for 2016-17

Province	Area (Million Hectares)	Production (Million Bales)
Punjab	2.310	9.50
Sindh	0.660	4.50
Khyber Pakhtunkhwa	0.001	0.003
Baluchistan	0.038	0.098
Total	3.009	14.101

Source: Directorate of Marketing & Economic Research
PCCC.

Table 1-b

**Cotton Arrivals in Ginning factories of Pakistan
as on 1st March, 2017**

Province	Production (Million Bales)
Punjab	6.920
Sindh & Baluchistan	3.786
Total	10.706

Source: PCGA Arrival report of 1st March, 2017.

1.2 Pakistan's place in world:

In the global perspective, Pakistan is one of the largest cotton producing and consuming country in the world. Its placement in the global cotton scene can well be visualized from the following figures:

Table 2

Pakistan's Place in World Cotton 2016-17

Parameters	Percent	Rank
Production	7.9	4 th
Consumption	9.0	3 rd

Source: Directorate of Marketing & Economic Research, PCCC.

2.0 SAMPLING PROCEDURE

The sampling frame comprised the ginning factories located in 28 districts of Punjab and Sindh. Factories were selected at random from each locality to cover the entire cotton belt. From each selected factory samples of lint cotton were drawn for the determination of fibre characteristics.

The number of ginning factories visited in each district of Sindh and Punjab during 2016-17 Season is given in Table 3.

Table 3**District wise number of ginning factories visited for the collection of samples during crop season 2016 - 17.**

S.No.	Name of District	No. of Factories Visited
<u>SINDH</u>		
1.	Hyder Abad	23
2.	MirPur Khas	17
3.	Naushero Feroz	02
4.	Shaheed Benazir Abad (Nawab Shah)	07
5.	Sanghar	20
6.	Jamshoro	03
7.	Ghotki	15
8.	Sukkur	15
9.	Khair Pur	<u>09</u>
	TOTAL	111
<u>PUNJAB</u>		
1.	Bahawal Nagar	16
2.	Bahawal Pur	28
3.	Dera Ghazi Khan	07
4.	Faisal Abad	02
5.	Jhang	03
6.	Khanewal	17
7.	Lodhran	11
8.	Multan	09
9.	Layyah	04
10.	Muzaffar Garh	06
11.	Okara	02
12.	Pak Pattan	03
13.	Rahim Yar Khan	14
14.	Rajan Pur	05
15.	Sahiwal	14
16.	Vehari	10
17.	Toba Tek Singh	14
18.	Mianwali	14
19.	Bhakkar	<u>03</u>
	TOTAL	182
	GRAND TOTAL (Sindh + Punjab)	293

3.0 STANDARD ADOPTED FOR EVALUATION

ASTM Standards D5867-95 adopted using Spinlab system HVI 900. All fibre tests were performed at C.C.R.I. Multan except Waste% (N.L.C) test which was performed manually at P.I.C.R & T, Karachi.

4.0 ADJECTIVE DESCRIPTION

The adjective description to classify the cotton is as under:

Fibre length

Inches	mm	
Under 13/16	(20.6)	Short
13/16 to 1	(20.6 - 25.4)	Medium
1-1/32 to 1-3/32	(26.2 - 27.8)	Medium long
1-1/8 to 1- 5/16	(28.6 - 33.3)	Long

Uniformity Index %

Below 77	Very low
78 to 79	Low
80 to 82	Average
83 to 85	High
Above 85	Very High

Fibre Strength (g/tex)

23 & Below	Very Low
24 to 25	Low
26 to 28	Average
29 to 30	High
31 & Above	Very High

Micronaire Reading

Below 3.0	Very fine
3.0 to 3.9	Fine
4.0 to 4.9	Average
5.0 to 5.9	Coarse
6.0 & above	Very coarse

**QUALITY SURVEY
OF
PAKISTAN COTTONS**

Statistical Analysis of Data

**SINDH
2016 - 17**

Table 5.1

**DISTRICT WISE AVERAGE FIBRE CHARACTERISTICS
CROP 2016 - 17 (SINDH)**

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b
GHOTKI								
Mean	27.7	82.7	4.2	28.3	7.4	4.9	70.4	9.9
S.D.	0.61	1.03	0.26	1.20	1.42	0.73	2.83	0.79
C.V.%	2.20	1.24	6.19	4.24	19.19	14.90	4.02	7.98
HYDER ABAD								
Mean	27.2	82.3	4.0	28.9	8.1	6.8	65.3	10.6
S.D.	0.89	1.60	0.42	1.54	2.29	1.18	3.05	0.50
C.V.%	3.27	1.94	10.50	5.33	28.27	17.35	4.67	4.72
JAMSHORO								
Mean	27.3	82.0	4.0	28.9	8.4	7.3	63.2	10.9
S.D.	0.89	1.49	0.42	1.83	1.99	1.56	3.00	0.33
C.V.%	3.26	1.82	10.50	6.33	23.70	21.37	4.75	3.03
KHAIR PUR								
Mean	27.0	81.9	4.2	27.5	8.7	5.3	68.6	10.5
S.D.	0.75	1.00	0.26	1.15	1.42	1.04	2.31	0.91
C.V.%	2.78	1.22	6.19	4.18	16.32	19.62	3.37	8.67
MIRPUR KHAS								
Mean	26.9	81.8	3.8	28.5	8.5	7.3	64.3	10.9
S.D.	1.11	1.97	0.40	1.82	2.30	2.02	3.16	0.51
C.V.%	4.13	2.41	10.53	6.38	27.06	27.67	4.91	4.68
NAUSHERO FEROUZE								
Mean	27.1	81.7	4.1	28.5	8.9	7.1	65.6	10.6
S.D.	1.28	2.06	0.46	1.89	3.02	1.17	2.95	0.45
C.V.%	4.72	2.52	11.22	6.63	33.93	16.48	4.50	4.24
SUKKUR								
Mean	27.4	82.3	4.1	27.8	8.1	5.2	69.5	10.3
S.D.	0.59	0.75	0.23	1.07	1.15	0.97	2.63	1.07
C.V.%	2.15	0.91	5.61	3.85	14.20	18.65	3.78	10.39

Table 5.1 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML	UI%					Rd%	+b
	mm							

SHAHEED BENAZIR ABAD (NAWAB SHAH)

Mean	27.0	81.7	3.9	28.5	8.9	6.6	64.9	10.7
S.D.	0.73	1.47	0.38	1.47	1.83	1.59	2.93	0.41
C.V.%	2.70	1.80	9.74	5.16	20.56	24.09	4.51	3.83

SANGHAR

Mean	27.3	82.3	4.0	29.0	8.1	6.5	65.0	10.4
S.D.	0.91	1.39	0.44	1.53	2.04	1.63	3.12	0.50
C.V.%	3.33	1.69	11.00	5.28	25.18	25.08	4.80	4.81

Table 5.2

**STATION WISE AVERAGE FIBRE CHARACTERISTICS
CROP 2016 - 17 (SINDH)**

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b
ALI WAHAN								
Mean	27.6	82.2	4.3	27.5	8.3	4.9	70.0	10.3
S.D.	0.65	0.72	0.05	0.56	1.13	1.17	2.92	1.41
C.V.%	2.36	0.88	1.16	2.04	13.61	23.88	4.17	13.69
DAHARKI								
Mean	27.6	83.0	4.3	28.2	7.2	5.0	70.7	10.1
S.D.	0.60	0.83	0.28	1.20	1.10	0.85	2.38	0.70
C.V.%	2.17	1.00	6.51	4.26	15.28	17.00	3.37	6.93
GHOTKI								
Mean	27.9	82.5	4.2	28.5	7.5	4.8	70.2	9.7
S.D.	0.59	1.23	0.22	1.23	1.72	0.66	3.40	0.77
C.V.%	2.11	1.49	5.23	4.32	22.93	13.75	4.84	7.94
HINGORJA								
Mean	26.7	81.8	4.1	27.2	9.1	5.6	67.9	10.9
S.D.	0.47	0.49	0.19	1.15	0.78	0.98	1.74	0.31
C.V.%	1.76	0.60	4.63	4.23	8.57	17.50	2.56	2.84
HYDER ABAD								
Mean	27.5	82.4	4.0	29.1	7.8	6.6	66.5	10.5
S.D.	0.65	1.15	0.37	1.42	1.77	1.15	3.27	0.65
C.V.%	2.36	1.40	9.25	4.88	22.69	17.42	4.92	6.19
JHOLE								
Mean	27.4	82.3	4.0	29.3	8.0	6.5	64.4	10.5
S.D.	0.87	1.37	0.52	1.62	2.10	1.85	3.36	0.26
C.V.%	3.18	1.66	13.00	5.53	26.25	28.46	5.22	2.48
KOT GHULAM MUHAMMAD								
Mean	27.0	81.8	3.8	28.7	8.6	7.0	64.1	10.8
S.D.	1.11	2.08	0.48	2.03	2.41	1.83	2.61	0.54
C.V.%	4.11	2.54	12.63	7.07	28.02	26.14	4.07	5.00

Table 5.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

KHAIR PUR

Mean	27.1	82.7	4.4	27.0	7.8	4.8	68.8	10.6
S.D.	0.64	0.17	0.18	1.34	0.32	0.97	0.87	1.13
C.V.%	2.36	0.20	4.09	4.96	4.10	20.21	1.26	10.66

KOT BANGLOW

Mean	27.3	82.4	4.3	27.5	8.1	5.6	68.3	10.7
S.D.	0.68	0.97	0.19	0.95	1.47	1.38	2.26	1.23
C.V.%	2.49	1.18	4.42	3.45	18.15	24.64	3.31	11.50

KOTRI

Mean	27.3	82.0	4.0	28.9	8.4	7.3	63.2	10.9
S.D.	0.89	1.49	0.42	1.83	1.99	1.56	3.00	0.33
C.V.%	3.26	1.82	10.50	6.33	23.69	21.37	4.75	3.03

KUMB

Mean	27.1	81.5	4.2	27.6	9.1	5.2	68.6	10.5
S.D.	1.08	1.24	0.20	1.45	1.67	1.02	3.28	1.03
C.V.%	3.98	1.52	4.76	5.25	18.35	19.62	4.78	9.81

MIRPUR KHAS

Mean	26.8	81.7	3.8	28.3	8.7	7.4	64.2	10.9
S.D.	1.12	1.77	0.37	1.80	2.09	2.06	3.00	0.47
C.V.%	4.18	2.17	9.74	6.36	24.02	27.84	4.67	4.31

MANDO DERO

Mean	27.4	82.3	4.1	28.2	8.1	4.9	70.1	10.1
S.D.	0.62	0.72	0.27	1.18	1.13	0.83	3.16	0.98
C.V.%	2.26	0.87	6.58	4.18	13.95	16.94	4.51	9.70

MIRPUR MATHELO

Mean	27.5	82.5	4.1	27.6	7.8	5.0	69.6	10.5
S.D.	0.65	0.89	0.30	1.04	1.35	0.70	1.81	0.89
C.V.%	2.36	1.08	7.32	3.77	17.31	14.00	2.60	8.48

TANDO JAM

Mean	27.6	82.7	4.1	29.3	7.4	7.2	65.2	10.6
S.D.	0.89	1.82	0.41	1.50	2.56	1.24	2.43	0.17
C.V.%	3.22	2.20	10.00	5.12	34.59	17.22	3.73	1.60

Table 5.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

MORO

Mean	27.1	81.7	4.1	28.5	8.9	7.1	65.6	10.6
S.D.	1.28	2.06	0.46	1.89	3.02	1.17	2.95	0.45
C.V.%	4.72	2.52	11.22	6.63	33.93	16.48	4.50	4.24

SHAHEED BENAZIR ABAD (NAWAB SHAH)

Mean	27.1	81.9	3.9	28.6	8.6	6.5	65.4	10.7
S.D.	0.78	1.29	0.34	1.49	1.85	1.52	2.75	0.45
C.V.%	2.88	1.58	8.72	5.21	21.51	23.38	4.20	4.20

PANO AKIL

Mean	27.6	82.8	4.2	27.6	7.5	5.3	68.9	10.6
S.D.	0.65	0.68	0.17	1.28	1.14	1.25	2.22	1.42
C.V.%	2.36	0.82	4.05	4.64	15.20	23.58	6.17	13.40

RANI PUR

Mean	27.1	81.7	4.3	27.3	8.8	5.6	69.9	10.3
S.D.	0.83	1.30	0.47	0.98	2.07	1.04	2.50	0.95
C.V.%	3.06	1.59	10.93	3.59	23.52	18.57	3.58	9.22

ROHRI

Mean	27.3	82.2	4.1	27.5	8.3	5.3	69.2	10.1
S.D.	0.61	0.87	0.27	1.03	1.32	0.85	2.14	1.10
C.V.%	2.23	1.06	6.58	3.74	15.90	16.04	3.09	10.89

SAEED ABAD

Mean	27.2	82.4	4.0	28.7	8.1	6.6	64.4	10.8
S.D.	1.00	1.88	0.50	1.66	2.79	1.31	3.05	0.39
C.V.%	3.68	2.28	12.50	5.78	34.44	19.85	4.74	3.61

SAKRAND

Mean	27.0	81.3	3.8	28.3	9.2	6.7	64.1	10.6
S.D.	0.69	1.71	0.46	1.47	1.82	1.77	3.13	0.32
C.V.%	2.56	2.10	11.82	5.19	19.78	26.42	4.88	3.02

TANDO ALLAHYAR

Mean	27.4	83.0	4.0	29.7	7.1	7.0	65.4	10.9
S.D.	1.09	1.44	0.39	1.55	2.49	0.28	3.14	0.14
C.V.%	3.98	1.73	9.75	5.22	35.07	4.00	4.80	1.28

Table 5.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

SANGHAR

Mean	27.4	82.3	4.0	29.0	8.2	6.1	65.6	10.3
S.D.	1.02	1.67	0.45	1.61	2.42	1.54	3.25	0.54
C.V.%	3.72	2.03	11.25	5.55	29.51	25.25	4.95	5.24

SARHAD

Mean	27.4	82.9	4.4	28.1	7.4	5.0	72.5	9.2
S.D.	0.63	0.07	0.21	0.70	0.49	0.21	1.97	0.63
C.V.%	2.30	0.08	4.77	2.49	6.62	4.20	2.72	6.85

SETHARJA

Mean	27.3	82.4	4.0	28.1	8.2	4.6	68.3	9.8
S.D.	0.55	0.92	0.21	0.95	1.39	0.92	1.93	0.65
C.V.%	2.01	1.12	5.25	3.38	16.95	20.00	2.82	6.63

SHAH DAD PUR

Mean	27.3	82.3	4.0	28.8	8.2	6.7	64.8	10.5
S.D.	0.85	1.16	0.41	1.46	1.68	1.63	2.95	0.53
C.V.%	3.11	1.41	10.25	5.07	20.49	24.33	4.55	5.05

SULTAN ABAD

Mean	27.2	83.4	4.1	29.6	6.7	7.2	67.1	10.8
S.D.	0.83	1.20	0.34	1.32	2.03	0.96	2.34	0.37
C.V.%	3.05	1.44	8.29	4.46	30.30	13.33	3.49	3.42

TANDO ADAM

Mean	26.9	81.6	3.8	28.5	9.1	6.8	65.2	10.4
S.D.	0.86	1.55	0.40	1.51	2.00	1.37	3.06	0.56
C.V.%	3.20	1.90	10.53	5.30	21.98	20.15	4.69	5.38

TANDO JAN MUHAMMAD

Mean	27.1	82.4	4.0	29.1	7.5	6.9	65.5	10.8
S.D.	1.19	2.92	0.45	1.65	3.20	2.23	4.63	0.73
C.V.%	4.39	3.54	11.25	5.67	42.67	32.32	7.02	6.76

Table 5.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

HALA

Mean	27.3	82.5	4.1	29.0	7.9	6.6	64.2	10.8
S.D.	0.95	1.63	0.46	1.75	2.42	0.87	3.36	0.49
C.V.%	3.48	1.98	11.22	6.03	30.63	13.18	5.23	4.54

SALEH PAT

Mean	27.4	82.5	4.1	27.8	7.7	6.5	68.0	11.4
S.D.	0.59	0.79	0.12	0.86	1.11	0.46	1.94	0.17
C.V.%	2.15	0.96	2.93	3.09	14.42	7.08	2.85	1.49

CROP 2016 - 17 (SINDH)

Table 5.3

DISTRIBUTION OF UHML

UHML		Percent %	Descriptive Designation
mm	Inch		
25.4	1.0	4.2	MEDIUM
26.2	(1 - 1/32)	9.4	MEDIUM
27.0	(1 - 2/32)	23.6	
27.8	(1 - 3/32)	29.6	
TOTAL		62.6	
28.6	(1 - 1/8)	30.6	LONG
29.4	(1 - 5/32)	2.6	
33.3	(1 - 5/16)	0.0	
TOTAL		33.2	
GRAND TOTAL		100.0	
MEAN UHML		27.3	

Table 5.4

DISTRIBUTION OF U.I. %

U.I. %	Percent %	Descriptive Designation
Below 77.0	0.0	VERY
77.0 - 78.0	0.9	LOW
TOTAL		0.9
78.1 - 79.0	1.5	LOW
80.0 - 81.0	16.7	AVERAGE
81.1 - 82.0	21.6	
TOTAL		38.3
83.0 - 84.0	50.1	HIGH
84.1 - 85.0	8.0	
TOTAL		58.1
Above 85.0	1.2	V.HIGH
GRAND TOTAL		100.0
MEAN U.I. %		82.2

Table 5.5

DISTRIBUTION OF MICRONAIRE VALUE

MIKE VALUE	Percent %	Descriptive Designation
Below 3.0	0.0	V. FINE
3.0 - 3.4	8.0	FINE
3.5 - 3.9	28.9	
TOTAL		36.9
4.0 - 4.4	44.0	AVERAGE
4.5 - 4.9	19.1	
TOTAL		
5.0 - 5.4	0.0	COARSE
GRAND TOTAL		100.0
MEAN Mike		4.0

Table 5.6

DISTRIBUTION OF STRENGTH (g/tex)

STRENGTH (g/tex)	Percent %	Descriptive Designation
23.0 & Below	0.0	V. LOW
24.0 - 25.0	0.7	LOW
26.0 - 27.0	18.1	AVERAGE
27.1 - 28.0	12.7	
TOTAL		30.8
29.0 - 30.0	48.0	HIGH
31.0 & Above	20.5	V. HIGH
GRAND TOTAL		100.0
MEAN Strength		28.5

CROP 2016 - 17 (SINDH)

Table 5.7

DISTRIBUTION OF SHORT FIBRE %

SHORT FIBRE %	Percent %
3.1 - 4.0	0.5
4.1 - 5.0	3.7
5.1 - 6.0	10.4
6.1 - 7.0	16.0
7.1 - 8.0	15.8
8.1 - 9.0	20.4
9.1 - 10.0	12.3
10.1 - 11.0	9.1
11.1 - 12.0	10.4
12.1 - 13.0	1.4
TOTAL	100.0
MEAN Short Fibre	8.2

Table 5.8

DISTRIBUTION OF WASTE %

WASTE %	Percent %
3.1 - 4.0	4.7
4.1 - 5.0	20.1
5.1 - 6.0	25.2
6.1 - 7.0	24.3
7.1 - 8.0	13.8
8.1 - 9.0	5.8
9.1 - 10.0	3.5
10.1 - 11.0	1.2
11.1 - 12.0	0.9
12.1 - 13.0	0.5
TOTAL	100.0
MEAN Waste %	6.2

Table 5.9

DISTRIBUTION OF Rd %

Rd %	Percent %
57.1 - 59.0	2.6
59.1 - 61.0	7.0
61.1 - 63.0	9.5
63.1 - 65.0	14.1
65.1 - 67.0	21.4
67.1 - 69.0	21.2
69.1 - 71.0	9.6
71.1 - 73.0	11.1
73.1 - 75.0	3.3
75.1 - 77.0	0.2
TOTAL	100.0
MEAN Rd %	66.5

Table 5.10

DISTRIBUTION OF +b

+b	Percent %
8.1 - 8.5	0.7
8.6 - 9.0	2.8
9.1 - 9.5	5.7
9.6 - 10.0	11.0
10.1 - 10.5	25.7
10.6 - 11.0	31.7
11.1 - 11.5	16.5
11.6 - 12.0	4.5
12.1 - 12.5	1.4
TOTAL	100.0
MEAN +b	10.5

Table 5.11

Result of Simple Correlation Analysis for the Fibre Tests
Crop 2016 - 17 (Sindh)

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

SAMPLE DISTRIBUTION:

Mean	27.3	82.2	4.0	28.5	8.2	6.2	66.5	10.5
S.D. ±	0.89	1.47	0.39	1.55	1.99	1.61	3.76	0.71

CORRELATION COEFFICIENT FOR:

UHML	1							
UI %	0.783**	1						
Mike	0.735**	0.710**	1					
Strength	0.734**	0.638**	0.545**	1				
S.F. %	-0.844**	-0.968**	-0.735**	-0.675**	1			
Waste %	-0.602**	-0.565**	-0.655**	-0.352**	0.553**	1		
Rd %	0.580**	0.487**	0.655**	0.257**	-0.509**	-0.699**	1	
+b	-0.388**	-0.324**	-0.384**	-0.146**	0.341**	0.445**	-0.538**	1

**Correlation is significant at the 0.01 level (2-tailed).

**QUALITY SURVEY
OF
PAKISTAN COTTONS**

Statistical Analysis of Data

PUNJAB

2016 - 17

Table 6.1

**DISTRICT WISE AVERAGE FIBRE CHARACTERISTICS
CROP 2016 - 17 (PUNJAB)**

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

BAHAWAL NAGAR

Mean	26.5	81.7	4.1	26.9	9.0	5.1	70.3	9.6
S.D.	0.93	1.58	0.32	1.22	1.95	1.72	2.79	0.50
C.V.%	3.51	1.93	7.80	4.54	21.67	33.73	3.97	5.21

BAHAWAL PUR

Mean	26.8	82.0	4.1	27.1	8.7	5.7	69.8	9.8
S.D.	0.91	1.85	0.33	1.35	2.10	2.07	2.59	0.53
C.V.%	3.39	2.26	8.05	4.98	24.14	36.32	3.71	5.41

DERA GHAZI KHAN

Mean	27.5	82.6	3.7	29.1	7.8	5.7	71.3	10.6
S.D.	0.60	1.23	0.26	1.01	1.70	1.26	1.98	1.01
C.V.%	2.18	1.49	7.03	3.47	21.79	22.11	2.78	9.53

FAISAL ABAD

Mean	26.8	81.8	3.8	28.9	9.0	6.9	65.4	10.3
S.D.	0.39	0.91	0.29	0.77	1.20	0.63	3.03	0.63
C.V.%	1.46	1.11	7.63	2.66	13.33	9.13	4.63	6.12

JHANG

Mean	26.7	81.7	3.7	27.8	9.3	6.9	65.7	10.4
S.D.	0.65	0.62	0.16	1.05	0.96	0.41	0.72	0.76
C.V.%	2.43	0.76	4.32	3.78	10.32	5.94	1.10	7.31

KHANEWAL

Mean	27.1	82.9	4.0	28.5	7.5	6.7	67.6	10.3
S.D.	0.49	1.10	0.30	1.09	1.44	1.43	3.02	0.85
C.V.%	1.81	1.33	7.50	3.82	19.20	21.34	4.47	8.25

LAYYAH

Mean	27.1	82.5	3.8	28.4	8.0	7.2	66.4	10.9
S.D.	0.36	0.75	0.15	0.74	1.01	1.04	1.92	0.78
C.V.%	1.33	0.91	3.95	2.60	12.62	14.44	2.89	7.16

Table 6.1 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML	UI%					Rd%	+b
	mm							

LODHRAN

Mean	26.8	82.3	4.1	27.3	8.4	6.4	68.9	9.7
S.D.	0.57	1.40	0.43	1.35	1.94	2.00	3.53	1.01
C.V.%	2.13	1.70	10.49	4.94	23.10	31.25	5.12	10.41

MULTAN

Mean	27.1	82.8	4.1	28.0	7.7	5.7	69.5	9.6
S.D.	0.65	1.63	0.31	0.91	2.25	1.07	1.83	0.76
C.V.%	2.40	1.97	7.56	3.25	29.22	18.77	2.63	7.92

MUZAFFAR GARH

Mean	27.2	82.6	3.9	28.7	7.9	5.8	69.9	10.5
S.D.	0.57	1.31	0.14	0.77	1.78	1.22	2.83	0.93
C.V.%	2.10	1.58	3.59	2.68	22.53	21.03	4.05	8.86

OKARA

Mean	27.0	81.6	3.8	27.3	9.3	7.5	65.1	10.2
S.D.	0.91	0.98	0.14	0.98	1.62	0.84	2.05	0.21
C.V.%	3.37	1.20	3.68	3.59	17.42	11.20	3.15	2.06

PAK PATTAN

Mean	27.1	82.5	3.8	27.8	8.2	7.4	66.0	10.6
S.D.	0.45	0.88	0.30	0.94	1.24	0.70	1.01	0.25
C.V.%	1.66	1.07	7.89	3.38	15.12	9.46	1.53	2.36

RAHIM YAR KHAN

Mean	27.2	82.6	4.4	27.5	8.0	5.2	70.7	9.8
S.D.	0.85	0.94	0.46	0.90	1.41	0.90	2.41	0.67
C.V.%	3.12	1.14	10.45	3.27	17.62	17.31	3.41	6.84

RAJAN PUR

Mean	27.6	82.8	3.7	29.0	7.5	7.2	69.6	10.3
S.D.	0.42	1.14	0.27	0.79	1.52	1.64	1.88	0.60
C.V.%	1.52	1.38	7.30	2.72	20.27	22.78	2.70	5.82

Table 6.1 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

SAHIWAL

Mean	26.8	81.5	3.7	28.0	9.3	7.2	65.4	10.6
S.D.	0.61	1.19	0.40	0.92	1.61	0.58	2.20	0.83
C.V.%	2.28	1.46	10.81	3.28	17.31	8.06	3.36	7.83

TOBA TEK SINGH

Mean	26.9	82.0	3.8	28.1	8.7	7.5	65.9	10.4
S.D.	0.49	0.99	0.24	0.79	1.35	0.88	2.36	0.58
C.V.%	1.82	1.21	6.32	2.81	15.52	11.73	3.58	5.58

VEHARI

Mean	26.9	82.5	3.9	28.8	8.1	7.3	68.3	10.0
S.D.	0.57	0.89	0.26	0.80	1.34	1.05	1.59	0.68
C.V.%	2.12	1.08	6.67	2.78	16.54	14.38	2.32	6.80

MIANWALI

Mean	27.0	82.0	3.7	28.5	8.6	7.1	65.3	10.5
S.D.	0.57	1.05	0.22	0.88	1.31	0.51	1.72	0.79
C.V.%	2.11	1.28	5.94	3.09	15.23	7.18	2.63	7.52

BHAKKAR

Mean	27.2	82.2	3.6	28.9	8.4	7.1	65.2	10.4
S.D.	0.38	0.73	0.13	0.35	0.87	0.55	0.95	0.47
C.V.%	1.40	0.89	3.61	1.21	10.36	7.75	1.46	4.52

Table 6.2

**STATION WISE AVERAGE FIBRE CHARACTERISTICS
CROP 2016 - 17 (PUNJAB)**

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

CHISTIAN

Mean	26.5	81.8	4.1	26.7	9.0	5.7	69.3	9.8
S.D.	1.04	1.83	0.44	1.69	2.30	3.06	3.92	0.69
C.V.%	3.92	2.24	10.73	6.33	25.56	53.68	5.66	7.04

HAROON ABAD

Mean	26.5	81.6	4.1	27.1	9.1	4.9	70.8	9.5
S.D.	0.93	1.56	0.25	0.98	1.89	0.97	2.11	0.39
C.V.%	3.51	1.91	6.10	3.62	20.77	19.80	2.98	4.10

AHMED PUR

Mean	27.0	82.4	3.9	27.6	8.2	6.6	68.7	10.0
S.D.	0.83	1.45	0.37	1.25	2.10	2.37	2.91	0.63
C.V.%	3.07	1.76	9.49	4.53	25.61	35.91	4.24	6.30

BAHAWAL PUR

Mean	26.7	81.4	4.1	26.5	9.1	5.8	70.1	9.8
S.D.	0.75	2.19	0.35	1.28	2.24	2.52	3.24	0.66
C.V.%	2.81	2.69	8.54	4.83	24.62	43.45	4.62	6.73

KHANGAH SHARIF

Mean	27.6	83.7	4.3	28.0	6.5	5.2	69.7	10.1
S.D.	0.42	1.97	0.07	1.13	2.54	0.28	0.70	0.07
C.V.%	1.52	2.35	1.63	4.04	39.08	5.38	1.00	0.69

HASIL PUR

Mean	26.9	82.8	4.2	27.0	8.2	5.2	70.6	9.6
S.D.	0.98	1.55	0.23	1.37	1.62	0.68	1.57	0.26
C.V.%	3.64	1.87	5.48	5.07	19.76	13.08	2.22	2.71

RAJAN PUR

Mean	27.6	82.8	3.7	29.0	7.5	7.2	69.6	10.3
S.D.	0.42	1.14	0.27	0.79	1.52	1.64	1.88	0.60
C.V.%	1.52	1.38	7.30	2.72	20.27	22.78	2.70	5.82

Table 6.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b
NOOR PUR								
Mean	26.3	81.3	4.1	27.3	9.7	6.4	68.6	10.1
S.D.	1.04	1.85	0.33	1.39	2.34	3.53	3.04	0.67
C.V.%	3.95	2.28	8.05	5.09	24.12	55.16	4.43	6.63
UCH SHARIF								
Mean	26.6	81.9	4.1	27.8	9.0	5.3	70.0	9.6
S.D.	0.62	2.04	0.35	1.20	2.74	0.30	1.71	0.35
C.V.%	2.33	2.49	8.54	4.32	30.44	5.66	2.44	3.64
YAZMAN								
Mean	26.7	81.6	4.3	26.9	8.9	4.7	70.5	9.8
S.D.	1.12	1.82	0.32	1.52	1.83	0.89	2.06	0.40
C.V.%	4.19	2.23	7.44	5.65	20.56	18.94	2.92	4.08
LAYYAH								
Mean	27.1	82.5	3.8	28.4	8.0	7.2	66.4	10.9
S.D.	0.36	0.75	0.15	0.74	1.01	1.04	1.92	0.78
C.V.%	1.33	0.91	3.95	2.60	12.62	14.44	2.89	7.16
DERA GHAZI KHAN								
Mean	27.5	82.6	3.7	29.1	7.8	5.7	71.3	10.6
S.D.	0.60	1.23	0.26	1.01	1.70	1.26	1.98	1.01
C.V.%	2.18	1.49	7.03	3.47	21.79	22.11	2.78	9.53
FORT ABBAS								
Mean	26.9	82.4	4.4	26.8	8.3	4.7	70.5	10.0
S.D.	0.56	0.70	0.07	0.98	1.20	0.14	0.49	0.14
C.V.%	2.08	0.85	1.63	3.66	14.46	2.98	0.70	1.40
TANDLIAN WALA								
Mean	26.8	81.8	3.8	28.9	9.0	6.9	65.4	10.3
S.D.	0.39	0.91	0.29	0.77	1.20	0.63	3.03	0.63
C.V.%	1.46	1.11	7.63	2.66	13.33	9.13	4.63	6.12
VEHARI								
Mean	27.1	82.7	3.9	28.9	7.8	7.3	68.3	9.9
S.D.	0.48	0.88	0.32	0.62	1.30	0.91	1.67	0.75
C.V.%	1.77	1.06	8.20	2.14	16.67	12.47	2.44	7.58

Table 6.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b
JATOI								
Mean	27.1	81.7	3.9	28.7	9.1	6.5	68.0	11.2
S.D.	0.38	1.68	0.08	0.93	2.24	1.51	3.16	1.13
C.V.%	1.40	2.06	2.05	3.24	24.62	23.23	4.65	10.09
JHANG								
Mean	26.7	81.7	3.7	27.8	9.3	6.9	65.7	10.4
S.D.	0.65	0.62	0.16	1.05	0.96	0.41	0.72	0.76
C.V.%	2.43	0.76	4.32	3.78	10.32	5.94	1.10	7.31
JAHANIAN								
Mean	27.5	83.1	4.3	29.1	6.4	6.0	71.0	9.5
S.D.	0.64	1.25	0.35	1.48	0.66	1.07	2.31	0.99
C.V.%	2.33	1.50	8.14	5.08	10.31	17.83	3.25	10.42
KABIR WALA								
Mean	27.1	82.8	4.0	28.4	7.8	6.2	67.7	10.3
S.D.	0.45	0.97	0.14	1.12	1.24	1.44	3.20	0.86
C.V.%	1.66	1.17	3.50	3.94	15.90	23.23	4.73	8.35
KHANEWAL								
Mean	27.3	83.3	4.2	28.5	6.9	6.6	67.2	10.4
S.D.	0.63	1.19	0.31	0.98	1.68	0.93	1.94	0.45
C.V.%	2.31	1.43	7.38	3.44	24.35	14.09	2.89	4.33
MIAN CHUNNUN								
Mean	26.9	82.5	3.8	28.5	8.1	7.8	66.5	10.6
S.D.	0.23	1.10	0.28	1.06	1.39	1.49	3.09	0.93
C.V.%	0.86	1.33	7.37	3.72	17.16	19.10	4.65	8.77
DUNYA PUR								
Mean	27.0	83.0	4.2	28.1	7.5	6.4	69.7	8.9
S.D.	0.38	1.44	0.29	1.14	1.91	0.83	1.50	1.16
C.V.%	1.41	1.73	6.90	4.06	25.47	12.97	2.15	13.03
TOBA TEK SINGH								
Mean	27.0	81.9	3.7	28.3	8.9	7.3	65.5	10.4
S.D.	0.50	0.93	0.25	0.68	1.26	0.70	1.94	0.58
C.V.%	1.85	1.14	6.76	2.40	14.16	9.59	2.96	5.58

Table 6.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b
GILLA WALA								
Mean	26.8	81.6	3.9	26.8	9.2	6.3	68.6	10.2
S.D.	0.74	1.10	0.50	1.12	1.69	2.79	4.23	0.51
C.V.%	2.76	1.35	12.82	4.18	18.37	44.29	6.17	5.00
LODHRAN								
Mean	26.7	82.1	4.0	27.0	8.7	6.4	68.3	9.9
S.D.	0.58	1.39	0.52	1.53	1.97	2.56	4.62	0.72
C.V.%	2.17	1.69	13.00	5.67	22.64	40.00	6.76	7.27
MULTAN								
Mean	27.3	83.6	4.2	28.5	6.4	6.5	68.4	10.0
S.D.	0.52	1.57	0.29	0.50	2.03	0.68	1.57	0.57
C.V.%	1.90	1.88	6.90	1.75	31.72	10.46	2.30	5.70
SHUJA ABAD								
Mean	26.8	81.9	4.2	27.3	8.9	4.7	70.0	9.7
S.D.	0.52	1.59	0.23	1.05	2.11	0.68	2.08	0.35
C.V.%	1.94	1.94	5.48	3.85	23.71	14.47	2.97	3.61
SHAH JAMAL								
Mean	27.7	83.5	4.0	29.0	6.5	5.6	71.3	9.6
S.D.	0.45	0.79	0.21	0.89	1.07	0.84	0.53	0.15
C.V.%	1.62	0.95	5.25	3.07	16.46	15.00	0.74	1.56
JALALPUR PIRWALA								
Mean	27.2	82.6	3.9	28.3	7.9	5.8	70.3	9.2
S.D.	0.82	1.46	0.34	0.67	2.16	1.03	1.32	1.06
C.V.%	3.01	1.77	8.72	2.37	27.34	17.76	1.88	11.52
OKARA								
Mean	27.0	81.6	3.8	27.3	9.3	7.5	65.1	10.2
S.D.	0.91	0.98	0.14	0.98	1.62	0.84	2.05	0.21
C.V.%	3.37	1.20	3.68	3.59	17.42	11.20	3.15	2.06
BURE WALA								
Mean	26.8	82.4	3.8	28.7	8.3	7.4	68.2	10.2
S.D.	0.67	0.93	0.19	1.01	1.40	1.24	1.57	0.55
C.V.%	2.50	1.13	5.00	3.52	16.87	16.76	2.30	5.39

Table 6.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML	UI%					Rd%	+b
	mm							

ARIF WALA

Mean	26.9	82.1	3.7	27.7	8.7	7.0	65.7	10.7
S.D.	0.42	0.91	0.28	1.27	1.27	0.35	1.20	0.21
C.V.%	1.56	1.11	7.57	4.58	14.6	5.00	1.83	1.96

MUZAFFAR GARH

Mean	26.8	82.6	3.9	28.6	8.2	5.2	70.4	10.6
S.D.	0.47	0.74	0.12	0.60	0.94	1.11	3.36	0.47
C.V.%	1.75	0.90	3.08	2.10	11.46	21.35	4.77	4.43

RAHIM YAR KHAN

Mean	27.4	82.5	4.3	27.6	7.9	5.2	71.0	9.7
S.D.	0.60	1.04	0.46	0.75	1.48	0.80	1.98	0.82
C.V.%	2.19	1.26	10.70	2.72	18.73	15.38	2.79	8.45

SADIQ ABAD

Mean	27.0	82.6	4.4	27.5	8.1	5.2	70.3	10.0
S.D.	1.08	0.86	0.49	1.09	1.37	1.05	2.91	0.45
C.V.%	4.00	1.04	11.14	3.96	16.91	20.19	4.14	4.50

CHICHA WATNI

Mean	26.8	81.5	3.7	28.0	9.3	7.2	65.6	10.6
S.D.	0.68	1.21	0.45	0.88	1.65	0.54	2.24	0.82
C.V.%	2.54	1.48	12.16	3.14	17.74	7.50	3.41	7.74

SAHIWAL

Mean	26.8	81.7	3.7	28.1	9.2	7.3	64.8	10.5
S.D.	0.35	1.18	0.18	1.06	1.56	0.72	2.07	0.87
C.V.%	1.30	1.44	4.86	3.77	16.96	9.86	3.19	8.28

PIR MEHAL

Mean	26.8	82.3	3.9	27.6	8.4	8.0	66.9	10.5
S.D.	0.48	1.14	0.14	0.90	1.59	1.15	3.15	0.62
C.V.%	1.79	1.38	3.59	3.26	18.93	14.38	4.71	5.90

Table 6.2 Continued

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

MIANWALI

Mean	27.0	82.0	3.7	28.5	8.6	7.1	65.3	10.5
S.D.	0.57	1.05	0.22	0.88	1.31	0.51	1.72	0.79
C.V.%	2.11	1.28	5.94	3.09	15.23	7.18	2.63	7.52

BHAKKAR

Mean	27.2	82.2	3.6	28.9	8.4	7.1	65.2	10.4
S.D.	0.38	0.73	0.13	0.35	0.87	0.55	0.95	0.47
C.V.%	1.40	0.89	3.61	1.21	10.36	7.75	1.46	4.52

CROP 2016 - 17 (PUNJAB)

Table 6.3

DISTRIBUTION OF UHML

UHML		Percent %	Descriptive Designation
mm	Inch		
25.4	1.0	3.6	MEDIUM
26.2	(1 - 1/32)	6.2	MEDIUM
27.0	(1 - 2/32)	42.1	
27.8	(1 - 3/32)	37.1	LONG
TOTAL		85.4	
28.6	(1 - 1/8)	10.8	LONG
29.4	(1 - 5/32)	0.2	
33.3	(1 - 5/16)	0.0	
TOTAL		11.0	
GRAND TOTAL		100.0	
MEAN UHML		27.0	

Table 6.4

DISTRIBUTION OF U.I. %

U.I. %	Percent %	Descriptive Designation
Below 77.0	0.0	VERY
77.0 - 78.0	0.5	LOW
TOTAL		0.5
78.1 - 79.0	1.7	LOW
80.0 - 81.0	13.1	AVERAGE
81.1 - 82.0	23.7	
TOTAL		36.8
83.0 - 84.0	53.1	HIGH
84.1 - 85.0	6.7	
TOTAL		59.8
Above 85.0	1.2	V.HIGH
GRAND TOTAL		100.0
MEAN U.I. %		82.2

Table 6.5

DISTRIBUTION OF MICRONAIRE VALUE

MIKE VALUE	Percent %	Descriptive Designation
Below 3.0	0.2	V. FINE
3.0 - 3.4	6.7	FINE
3.5 - 3.9	41.9	
TOTAL		48.6
4.0 - 4.4	42.6	AVERAGE
4.5 - 4.9	8.1	
TOTAL		50.7
5.0 - 5.8	0.5	COARSE
GRAND TOTAL		100.0
MEAN Mike		3.9

Table 6.6

DISTRIBUTION OF STRENGTH (g/tex)

STRENGTH (g/tex)	Percent %	Descriptive Designation
23.0 & Below	0.0	V. LOW
24.0 - 25.0	1.4	LOW
26.0 - 27.0	18.7	AVERAGE
27.1 - 28.0	20.1	
TOTAL		38.8
29.0 - 30.0	57.4	HIGH
31.0 & Above	2.4	V. HIGH
GRAND TOTAL		100.0
MEAN Strength		28.0

CROP 2016 - 17 (PUNJAB)

Table 6.7

DISTRIBUTION OF SHORT FIBRE %

SHORT FIBRE %	Percent %		WASTE %	Percent %
3.1 - 4.0	0.2		1.1 - 3.0	0.2
4.1 - 5.0	2.0		3.1 - 5.0	17.5
5.1 - 6.0	6.9		5.1 - 7.0	45.5
6.1 - 7.0	10.3		7.1 - 9.0	32.3
7.1 - 8.0	21.7		9.1 - 11.0	3.0
8.1 - 9.0	25.2		11.1 - 13.0	1.0
9.1 - 10.0	17.9		13.1 - 15.0	0.5
10.1 - 11.0	5.5		15.1 - 17.0	0.0
11.1 - 12.0	7.9		17.1 - 18.0	0.0
12.1 - 13.0	2.4			
TOTAL	100.0		TOTAL	100.0

Table 6.8

DISTRIBUTION OF WASTE %

MEAN Short Fibre	8.4		MEAN Waste %	6.5
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Table 6.9

DISTRIBUTION OF Rd %

Rd %	Percent %		+b	Percent %
56.1 - 59.0	0.7		6.6 - 8.0	1.2
59.1 - 61.0	1.5		8.1 - 8.5	1.4
61.1 - 63.0	2.8		8.6 - 9.0	1.7
63.1 - 65.0	14.6		9.1 - 9.5	12.4
65.1 - 67.0	18.7		9.6 - 10.0	25.9
67.1 - 69.0	21.3		10.1 - 10.5	24.1
69.1 - 71.0	22.5		10.6 - 11.0	18.9
71.1 - 73.0	14.6		11.1 - 11.5	8.7
73.1 - 75.0	2.6		11.6 - 12.0	3.5
75.1 - 77.0	0.7		12.1 - 12.9	2.2
TOTAL	100.0		TOTAL	100.0

Table 6.10

DISTRIBUTION OF +b

MEAN Rd %	67.9		MEAN +b	10.2
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Table 6.11

Result of Simple Correlation Analysis for the Fibre Tests
Crop 2016 - 17 (Punjab)

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

SAMPLE DISTRIBUTION:

Mean	27.0	82.2	3.9	28.0	8.4	6.5	67.9	10.2
S.D. \pm	0.68	1.33	0.37	1.20	1.72	1.51	3.13	0.81

CORRELATION COEFFICIENT FOR:

UHML	1							
UI %	0.623**	1						
Mike	0.115*	0.322**	1					
Strength	0.612**	0.447**	-0.133**	1				
S.F. %	-0.732**	-0.952**	-0.343**	-0.501**	1			
Waste %	-0.052	-0.118*	-0.499**	0.078	0.155**	1		
Rd %	0.140**	0.202**	0.485**	-0.038	-0.249**	-0.680**	1	
+b	-0.006	-0.154**	-0.436**	0.060	0.151**	0.347**	-0.463**	1

** .Correlation is significant at the 0.01 level (2-tailed).

* .Correlation is significant at the 0.05 level (2-tailed).

**QUALITY SURVEY
OF
PAKISTAN COTTONS**

Statistical Analysis of Data

**SINDH & PUNJAB
(Pooled Together)**

2016 - 17

CROP 2016 - 17 (SINDH & PUNJAB POOLED TOGETHER)

Table 7.1

DISTRIBUTION OF UHML

UHML		Percent %	Descriptive Designation
mm	Inch		
25.4	1.0	3.9	MEDIUM
26.2	(1 - 1/32)	7.8	MEDIUM
27.0	(1 - 2/32)	32.8	
27.8	(1 - 3/32)	33.3	LONG
TOTAL		73.9	
28.6	(1 - 1/8)	20.8	LONG
29.4	(1 - 5/32)	1.4	
33.3	(1 - 5/16)	0.0	
TOTAL		22.2	
GRAND TOTAL		100.0	
MEAN UHML		27.1	

Table 7.2

DISTRIBUTION OF U.I. %

U.I. %	Percent %	Descriptive Designation
Below 77.0	0.0	VERY
77.0 - 78.0	0.7	LOW
TOTAL		0.7
78.1 - 79.0	1.6	LOW
80.0 - 81.0	14.9	AVERAGE
81.1 - 82.0	22.7	
TOTAL		37.6
83.0 - 84.0	51.6	HIGH
84.1 - 85.0	7.3	
TOTAL		58.9
Above 85.0	1.2	V.HIGH
GRAND TOTAL		100.0
MEAN U.I. %		82.2

Table 7.3

DISTRIBUTION OF MICRONAIRE VALUE

MIKE VALUE	Percent %	Descriptive Designation
Below 3.0	0.1	V. FINE
3.0 - 3.4	7.4	FINE
3.5 - 3.9	35.3	
TOTAL		42.7
4.0 - 4.4	43.3	AVERAGE
4.5 - 4.9	13.7	
TOTAL		57.0
5.0 - 5.8	0.2	COARSE
GRAND TOTAL		100.0
MEAN Mike		4.0

Table 7.4

DISTRIBUTION OF STRENGTH (g/tex)

STRENGTH (g/tex)	Percent %	Descriptive Designation
23.0 & Below	0.0	V. LOW
24.0 - 25.0	1.1	LOW
26.0 - 27.0	18.4	AVERAGE
27.1 - 28.0	16.3	
TOTAL		34.7
29.0 - 30.0	52.7	HIGH
31.0 & Above	11.5	V. HIGH
GRAND TOTAL		100.0
MEAN Strength		28.3

CROP 2016 - 17 (SINDH & PUNJAB POOLED TOGETHER)

Table 7.5

DISTRIBUTION OF SHORT FIBRE %

SHORT FIBRE %	Percent %		WASTE %	Percent %
3.1 - 4.0	0.4			
4.1 - 5.0	2.8		1.1 - 3.0	0.1
5.1 - 6.0	8.7		3.1 - 5.0	21.2
6.1 - 7.0	13.1		5.1 - 7.0	47.6
7.1 - 8.0	18.8		7.1 - 9.0	25.8
8.1 - 9.0	22.7		9.1 - 11.0	3.9
9.1 - 10.0	15.1		11.1 - 13.0	1.2
10.1 - 11.0	7.4		13.1 - 15.0	0.2
11.1 - 12.0	9.1		15.1 - 17.0	0.0
12.1 - 13.0	1.9		17.1 - 18.0	0.0
TOTAL	100.0		TOTAL	100.0

MEAN Short Fibre	8.3		MEAN Waste %	6.4
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Table 7.6

DISTRIBUTION OF WASTE %

Table 7.7

DISTRIBUTION OF Rd %

Rd %	Percent %		+b	Percent %
56.1 - 59.0	1.7		6.6 - 8.0	0.6
59.1 - 61.0	4.2		8.1 - 8.5	1.1
61.1 - 63.0	6.2		8.6 - 9.0	2.2
63.1 - 65.0	14.4		9.1 - 9.5	9.0
65.1 - 67.0	20.0		9.6 - 10.0	18.4
67.1 - 69.0	21.2		10.1 - 10.5	24.9
69.1 - 71.0	16.0		10.6 - 11.0	25.4
71.1 - 73.0	12.9		11.1 - 11.5	12.6
73.1 - 75.0	2.9		11.6 - 12.0	4.0
75.1 - 77.0	0.5		12.1 - 13.0	1.8
TOTAL	100.0		TOTAL	100.0

MEAN Rd %	67.2		MEAN +b	10.3
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Table 7.8

DISTRIBUTION OF +b

Table 7.9

Result of Simple Correlation Analysis for the Fibre Tests
Crop 2016 - 17 (Sindh & Punjab Pooled Together)

Item	Fibre Length		Mike	Fibre Strength (g/tex)	Short Fibre %	Waste %	Colorimeter Test	
	UHML mm	UI%					Rd%	+b

SAMPLE DISTRIBUTION:

Mean	27.1	82.2	4.0	28.3	8.3	6.4	67.2	10.3
S.D. ±	0.81	1.40	0.38	1.41	1.86	1.57	3.53	0.77

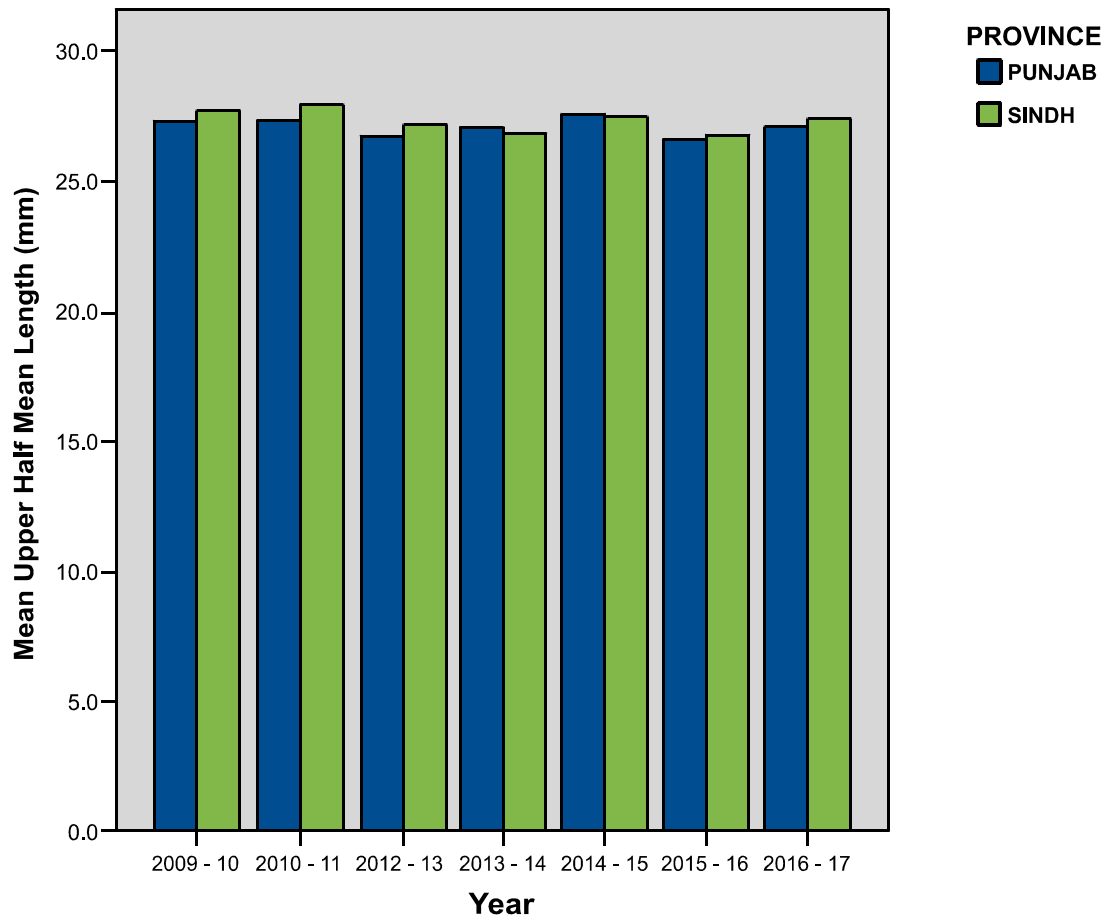
CORRELATION COEFFICIENT FOR:

UHML	1							
UI %	0.705**	1						
Mike	0.489**	0.529**	1					
Strength	0.698**	0.550**	0.277**	1				
S.F. %	-0.795**	-0.959**	-0.563**	-0.605**	1			
Waste %	-0.384**	-0.364**	-0.587**	-0.186**	0.383**	1		
Rd %	0.359**	0.358**	0.536**	0.102**	-0.381**	-0.657**	1	
+b	-0.165**	-0.232**	-0.370**	-0.014	0.229**	0.370**	-0.516**	1

**Correlation is significant at the 0.01 level (2-tailed).

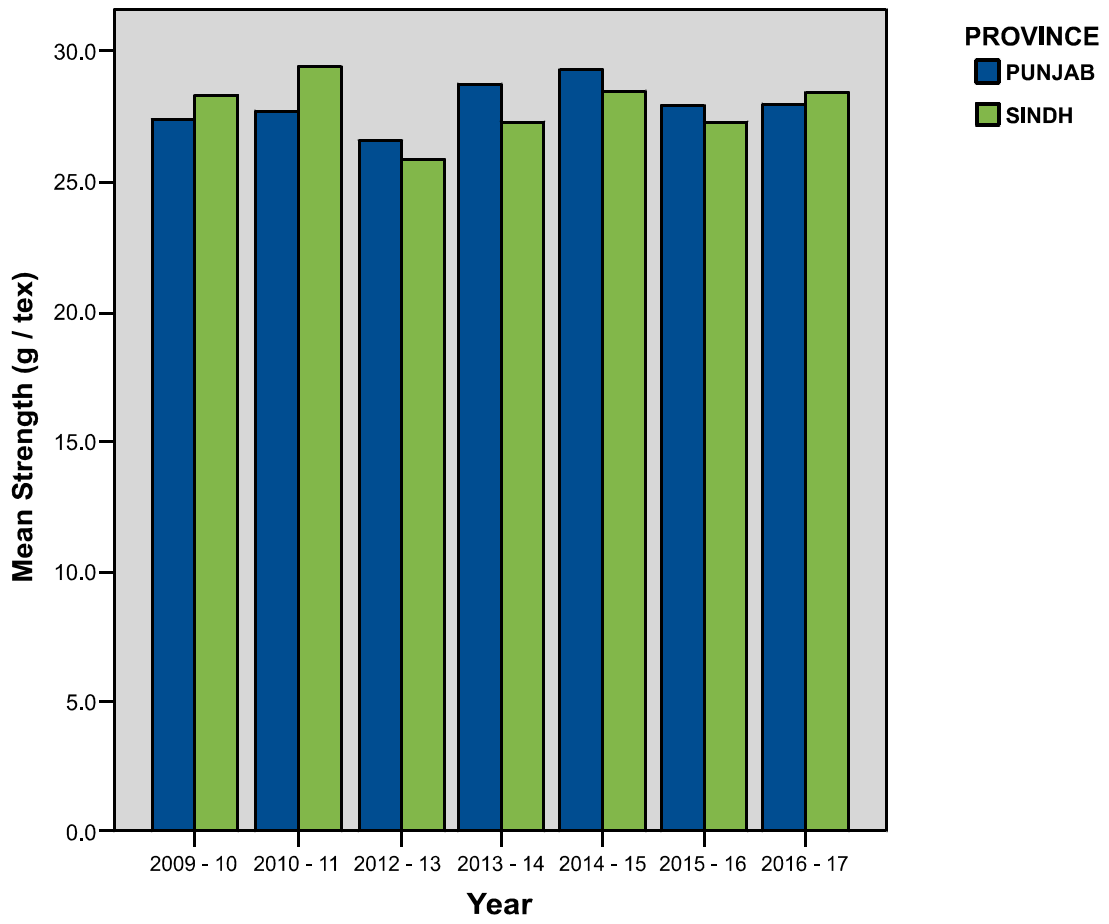
Graph -1

Year Wise Average Upper Half Mean Length (UHML)



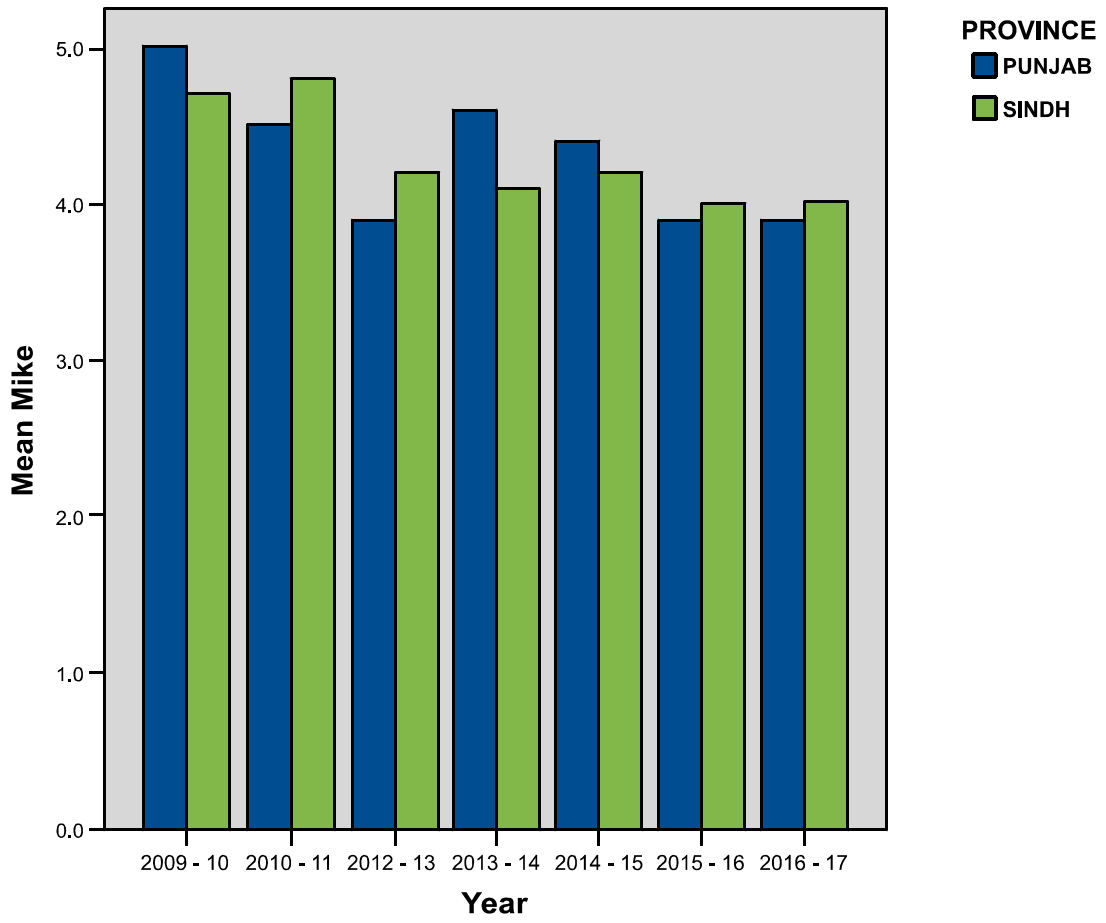
Graph - 2

Year Wise Average Fibre Strength (g/tex)



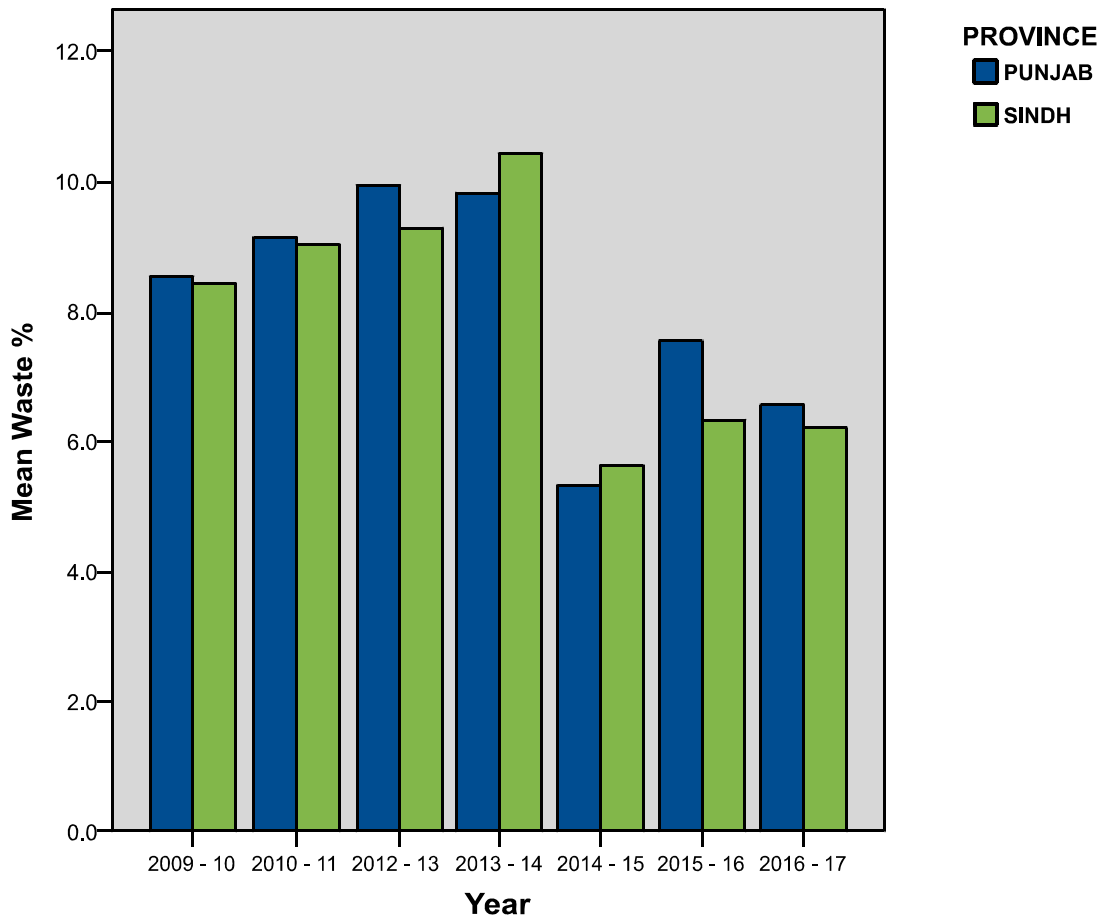
Graph - 3

Year Wise Average Micronaire Value



Graph - 4

Year Wise Average Waste % (N.L.C.)



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ABBREVIATIONS

ASTM	=	American Society for Testing and Material
UHML	=	Upper Half Mean Length
U.I.%	=	Uniformity Index%
Mike	=	Micronaire Value
g / tex	=	Gram Per Tex
NLC	=	Non Lint Content = Shirley Waste%
S.D.	=	Standard Deviation
C.V.%	=	Coefficient of Variation x 100
HECTARE	=	1 Hec. = 2.471 Acres