

API SERIES NO. 226



**COTTON POLICY ANALYSIS  
FOR  
2008-09 CROP**

**AGRICULTURE POLICY INSTITUTE  
MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK  
GOVERNMENT OF PAKISTAN  
ISLAMABAD**

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## ABBREVIATIONS

AARI	:	Ayub Agricultural Research Institute
ALMA	:	Agricultural and Livestock Marketing Adviser
API	:	Agricultural Policy Institute
APTMA	:	All Pakistan Textile Mills Association
BCR	:	Benefit Cost Ratio
BPS	:	Basic Pay Scale
CEC	:	Cotton Export Corporation
CIF	:	Cost, Insurance and Freight
CLCV	:	Cotton Leaf Curl Virus
COP	:	Cost of Production
CPI	:	Consumer Price Index
CRIM	:	Cotton Research Institute, Multan
CRIS	:	Cotton Research Institute, Sakrand
DAP	:	Di. Ammonium Phosphate
DRC	:	Domestic Resource Cost Co-efficient
ECC	:	Economic Coordination Committee
E&M	:	Economics & Marketing
EPC	:	Effective Protection Co-efficient
FBS	:	Federal Bureau of Statistics
FCA	:	Federal Committee on Agriculture
FOB	:	Free on Board
FSC&RD	:	Federal Seed Certification and Registration Department
FYM	:	Farm Yard Manure
GCP	:	Ghee Corporation of Pakistan
GDP	:	Gross Domestic Product
GOT	:	Ginning Out Turn
HSD	:	High Speed Diesel
ICAC	:	International Cotton Advisory Committee
ICPM	:	Integrated Crop Production Management
IPM	:	Integrated Pest Management
IPNS	:	Integrated Plant Nutrition System
IRRI	:	International Rice Research Institute (Group of rice varieties Grown in Pakistan which were developed at this Institute)
ITMF	:	International Textile Mills Forum
KCA	:	Karachi Cotton Association
MINFAL	:	Ministry of Food, Agriculture and Livestock
MOC	:	Ministry of Commerce
NARC	:	National Agriculture Research Centre
NCI	:	No Control Limit
NIAB	:	Nuclear Institute of Agriculture and Biology
NPC	:	Nominal Cost Co-efficient
NWFP	:	North West Frontier Province
NSC	:	National Seed Council
OLS	:	Ordinary Least Squares
PAPA	:	Pakistan Agriculture Pesticides Association
PARC	:	Pakistan Agricultural Research Council
PCCC	:	Pakistan Central Cotton Committee
PCGA	:	Pakistan Cotton Ginners Association
PCSI	:	Pakistan Cotton Standards Institute
PSC	:	Punjab Seed Corporation
SSC	:	Sindh Seed Corporation
TCP	:	Trading Corporation of Pakistan
WTO	:	World Trade Organization

# **SUMMARY OF FINDINGS AND RECOMMENDATIONS**

## **Findings**

### **Area and Production**

- Punjab and Sindh contribute about 78 and 21 per cent in cotton production while the share of both NWFP and Balochistan is less than one.
- During the last decade, cotton production has increased @ 3.4 per cent per annum due to 2.8 per cent improvement in yield and 0.5 per cent expansion in area.
- Cotton production for 2007-08 crop is estimated at 11.57 million bales, a decline of 10 per cent from 12.86 million in 2006-07.
- Cotton production has fallen short by 18 per cent against the target.

### **Domestic Prices**

- Monthly average market prices of seed cotton for 2007-08 crop have generally ruled above the export parity prices.
- The wholesale prices of seed cotton ranged from Rs 1445 to Rs 1560 per 40 kgs during the post harvest season in major producing areas of the Punjab and Rs 1311 to Rs 1569 per 40 kgs in Sindh.
- Monthly average spot prices of cotton lint at Karachi have increased to Rs 3550 per 40 kgs in April, 2008 from Rs 2894 in April, 2007.

## Cost of Production

- In Punjab, cost of cotton cultivation during 2008-09 season is estimated at Rs 21,787 per acre.
- The cost of production at the market/ginnery level would be Rs 1277 per 40 kgs, reflecting a rise of 23 per cent over the last year.
- In Sindh, the cost of cotton cultivation for 2008-09 crop is expected at Rs 20,543 per acre.
- The cost of production at market/ginnery level would come to Rs 1201 per 40 kgs, showing an increase of 25 per cent over the last year.

## Economics of Cotton and Competing Crops

- The economics of cotton vs basmati during 2007-08 has shown mixed pattern in respect of economic indicators adopted in this analysis.
- Cotton has performed better in terms of returns to purchased inputs and irrigation water while it has lagged behind basmati in returns to overall investment and crop duration.
- Cotton has performed better than IRRI paddy. Cotton combinations have also performed better than sugarcane in the Punjab.
- In Sindh, cotton farming had an edge over IRRI paddy in returns to purchased inputs and irrigation water.
- The cotton combinations gave better returns over sugarcane in terms of all the economic indicators.

## Economics of Fertilizer Use on Cotton Crop

- Benefit Cost Ratio refers to the ratio between value of additional produce obtained by using a certain dose of fertilizer and additional costs incurred. In view of remunerative prices of cotton, these ratios have considerably improved over the last three years.
- The quantity of seed cotton needed to buy one nutrient tonne of N fertilizer has fluctuated from 0.58 to 0.89 tonnes while that of P fertilizer from 0.83 to 1.51 during 2001 to 2008.

## Real Prices

- The real market price of seed cotton has restored to the base year level of Rs 957 per 40 kgs in 2007-08 in view of lucrative prices.

## World Production and Prices

- World cotton production at 26.04 million tonnes in 2007-08 is forecast to marginally increase to 26.87 million in 2008-09.
- The world prices of cotton have fluctuated widely dipping as low as 39 cents per pound in 2001-02 and rising as high as 69 cents per pound in 2007-08.

## Export/Import Parity Prices

- Based on cotton yarn prices at Karachi during 2007-08, the prices of seed cotton work back to Rs 1458 per 40 kgs.
- Based on actual export price of Pakistani cotton during 2007-08, the export parity price of seed cotton works back to Rs 1371 per 40 kgs.
- Export parity prices come to Rs 1461 per 40 kgs if the cif (North Europe) quotations of Afzal 1-1/32 " are taken as reference price.
- Based on actual cif ( Karachi ) prices of imported cotton during 2007-08, the import parity price of seed cotton works back to Rs 1405 per 40 kgs.

## Economic Efficiency

- Economic efficiency of resource use in cotton production has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC).
- The NPCs have been below one under both export/import scenario for 2002-03 to 2007-08.
- The EPCs are also below one. However, lower EPCs imply that the magnitude of taxation has been higher than the estimation through NPCs.
- DRC indicates the opportunity cost of domestic resources employed per unit of value added in production of a commodity.

- The DRCs have been much less than one during the period under analysis. It implies a Comparative Advantage in domestic cotton production.
- The findings of economic efficiency analysis warrant expansion in cotton production to meet domestic requirements of textile industry as the imports are more expensive.

### **World Comparison**

- Pakistan is the 4<sup>th</sup> largest cotton producer in terms of area and production but holds 13<sup>th</sup> position in terms of yield.
- Among five major cotton producing countries like India, China, USA, Pakistan and Uzbekistan, Pakistan lies at the bottom in the context of yield.
- According to the Annual Progress Report of 2006-07, Central Cotton Research Institute, Multan, major cotton varieties in Punjab were CIM-496, CIM-499, CIM-506, Bt and BM-36 covering around 86 per cent of cotton area.
- Among 5 competing countries, cost of production of seed cotton calculates to Pak Rs 2337 per 40 kgs in Turkey while in India it is reported at Pak Rs 834 per 40 kgs during 2006-07.
- The cost of production of seed cotton is estimated at Pak Rs 1858 in USA, 927 in Uzbekistan and 985 per 40 kgs in Pakistan.
- The highest subsidy on cotton production is provided by USA at Pak Rs 1295 per 40 kgs. The subsidy provided by Turkey, Brazil and China is calculated at Pak Rs 659, 577 and 547 per 40 kgs, respectively.

### **Policy Options**

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for seed cotton 2008-09 crop are presented below:

S.No.	Base	Worked back price of seed cotton at ginnery level	
		Rupees/40 kgs	
1	Domestic price of yarn at Karachi	1458	
2	Export parity prices based on average:		
	i) Actual export price of Pakistani cotton:		
	- During 2007-08 (Aug-Feb)	1371	
	- During 2002-03 to 2006-07	1204	
	ii) Cif (North Europe) value of Index-B cottons:		
	- During 2007-08 (Aug-March)	1454	
	- During 2002-03 to 2006-07	1249	
	iii) Cif (North Europe) quotations of Afzal 1-1/32"		
	- During 2007-08 (Aug-March)	1461	
	- During 2002-03 to 2006-07	1178	
	iv) Futures contract prices of New York No.2 cotton (average of October, December 2008 and March 2009)	1691	
	v) Fob prices of Pakistani cotton yarn (20's):		
	- During 2007-08 (Aug-March)	1251	
	- During 2002-03 to 2006-07	1182	
3	Import parity prices based on average:		
	i) Cif (North Europe) quotations of Orleans/Texas SLM 1-1/32"		
	- During 2007-08 (Aug-March)	1845	
	- During 2002-03 to 2006-07	1607	
	ii) Actual cif Karachi prices of imported cotton:		
	- During 2007-08 (Aug-Feb)	1405	
	- During 2002-03 to 2006-07	1441	
4	Average domestic market price of seed cotton in 2007-08 (August-January)		
	- Punjab	1486	
	- Sindh	1456	
5	Cost of production for 2008-09 crop		
	- Punjab	1277	
	- Sindh	1201	
6	Cost of domestic resources involved in:	At exchange rate Pak rupee 66 = one US \$	
		Punjab	Sindh
	i) Producing cotton for import substitution based on 2007-08 prices of cotton	30	28
	ii) Producing cotton for export based on 2007-08 prices of cotton	33	30

## **Recommendations**

In view of the field information, consultation with the stakeholders in the API's Standing Committee meeting on cotton and analysis of relevant factors, following recommendations are made regarding intervention price and improving productivity, quality and marketing of cotton crop:

### **Intervention Price**

- The MINFAL may like to consider the intervention price of seed cotton ( Base grade 3 with staple length 1-1/32" ) for 2008-09 crop, in view of world prices and high input costs, if deem necessary.
- The intervention price would be a Minimum Guaranteed Price. However, it should provide some margin over cost of production to help Productivity Enhancement Programme of the Government through balanced input use, better management and optimal technology adotpon.
- It provides a reference point to intervene by the public sector agency, if needed.
- In view of trade liberalization and active role of private sector, the actual incentive to cotton growers should come through the market forces.
- The government policy of encouraging the role of private sector in cotton marketing may be continued.
- The TCP should be designated as the implementing agency for seed cotton through buying lint at the price determined on the basis of intervention price of seed cotton.

### **Improving Productivity**

- Public and private seed companies may be asked to multiply and distribute the seed of recommended varieties for cultivation in sufficient quantities.
- The government should strengthen the IPM programme of NARC for its effective implementation in the entire cotton growing area.
- To ensure quality control of pesticides, Magistrates may be posted with Agriculture Departments for quick disposal of adultration cases.

- There is a need to launch an educational campaign to educate the growers about improved practices of cotton picking.
- There is a dire need for early introduction of Genetically Modified Cottons for Boll Worm and CLCV control by using both locally developed or imported technologies.
- The cotton potential existing in the NWFP and Balochistan may be tapped through cotton supporting activities. There is also a need to multiply those plants which are identified as resistant in disease attacked areas.
- NIBGE in collaboration with Cotton Research Institutes should work hard on resistance in boll shedding and increasing boll weight.
- Like other areas, a Regulatory Authority may be established to control agriculture input prices and quality.
- EM technology, Bio-fertilizer and other technologies of fertilizer may be tested for balanced fertilizer use to reduce cost of production.

### **Improving Quality and Marketing**

- A Ginning Research Institute may be established at Multan to deal with the issues of cotton ginning and related matters.
- In order to check the underweight and undue deduction in cotton marketing, a supervisory committee consisting of representatives of provincial agriculture departments, local market committees, growers and cotton dealers may be constituted.
- The case of Amendment in Cotton Control Act may be taken up on top priority.
- Cotton Standardization and Grading System may be implemented in accordance with the provisions of the Pakistan Cotton Standardization Ordinance, 2002.

**( Dr. Qadir Bux Baloch )**  
**Chairman, API**

**June 30, 2008**

# **COTTON POLICY ANALYSIS FOR 2008-09 CROP**

## **INTRODUCTION**

Cotton is the most important cash crop of Pakistan known as "White gold". It is annually cultivated on an area of about 3 million hectares, which accounts for 14 per cent of the cropped area in the country. It contributes 7.5 per cent of the value added in agriculture. Cotton farming where life of millions of farmers is dependent on this crop is also the principal source of raw material for the textile sector. Hundreds of ginneries, factories and textile mills in the country heavily depend upon cotton employing millions of people along the entire cotton value added chain, from weaving to textile and garment export.

2. The foreign exchange earned from export of cotton and its made ups constitutes about 60 per cent of earnings from merchandise exports. An important complementary product of cotton farming is its seed, a valuable source of edible oil. It is also used in feeding livestock. In view of dynamic nature and multifaceted role of cotton in the country through exports and providing livelihood to millions of farmers, traders and workmen, it has always received priority and preference of the government particularly in textile industry.

3. The cotton production has experienced wide fluctuations, having peaked at 14.27 million bales in 2004-05. It has averaged at 12.48 million bales during the last three years. Since production of cotton is vulnerable to a host of insect/pests, its cultivation is a risky proposition. Even in good crop years, farmers have suffered because of low prices. The swings in cotton production and prices have adversely affected all the cotton related sub-sectors of the economy. In view of the importance of cotton, there is an urgent need to minimize incidence of these fluctuations and reverse the set back suffered in cotton production.

4. To reduce price risk and uncertainty in cotton farming and ensure reasonable supply to industry, the Government has been announcing the Intervention Price in the past. For the year 2006-07, it was fixed at Rs 1025 per 40 kgs for the Base grade with staple length 1-1/32".

Similarly, MINFAL submitted the summary on Intervention Price of seed cotton for 2007-08 crop but the price was not announced by the Government of Pakistan. However, the market prices prevailed much higher in all the producing area markets due to short crop.

5. In preparing this Report for seed cotton 2008-09 crop, following procedure was adopted:

- The data on different aspects of cotton production, input prices, trade situation, ginning and marketing were collected from the primary and secondary sources and analysed by the Institute.
- A field survey was conducted by the API during January, 2008 in major cotton producing areas of the country. Interviews and discussions were held with the growers, local leaders and officials of the Provincial Departments of Agriculture, cotton ginners and traders, etc.
- Meeting of the API's Standing Committee on Cotton was held on 24<sup>th</sup> March, 2008. It was attended by the representatives of growers associations, chambers of agriculture, KCA, TCP, progressive growers, cotton experts and officials of Federal and Provincial Governments concerned with cotton production and marketing. Issues relating to cotton production, consumption, marketing and price situation both national and international were discussed in the meeting.

6. Under the WTO regime, the cotton trade has become increasingly quality conscious. Even the local manufacturers of textiles also demand standardized cotton for producing quality goods. In future, these challenges are expected to become serious. There are also challenges of domestic production like threat of CLCV, Mealy bug and wide spread cultivation of unauthorized Bt cotton. Thus, it is very essential for Pakistan to prepare its cotton production and marketing strategies to face the emerging challenges in the domestic and global markets. In order to improve yields, quality and marketing of cotton, the MINFAL is planning to take several steps. These include introduction of cotton in other potential areas and bridging the yield gap through adequate supply of certified seed, balanced use of fertilizer and optimal plant population. Measures are also being taken to develop disease/heat resistant varieties and Genetically Modified cotton varieties. For improving quality of cotton, Amendment in Cotton Control Act and implementation of Cotton Standardization and Grading System are to be given priority.

## 2. REVIEW OF 2007-08 CROP

### 2.1 Provincial Shares in Area and Production

7. Punjab and Sindh contribute about 78 and 21 per cent in cotton production while the share of both NWFP and Balochistan is less than one (Table-1).

**Table-1: Provincial Shares in Area and Production of Cotton: Average of 2005-06 to 2007-08**

Country/ Province	Area		Production	
	000 hectares	Per cent	000 bales	Per cent
<b>Pakistan</b>	<b>3073.8</b>	<b>100.0</b>	<b>12480.1</b>	<b>100.0</b>
Punjab	2434.3	79.2	9802.7	78.5
Sindh	604.9	19.7	2588.2	20.7
NWFP & Balochistan	34.6	1.1	89.3	0.7

Source: Annex-I.

### 2.2 Long-term Changes: 1997-98 to 2007-08

8. Cotton production at country level has increased @ 3.4 per cent per annum owing to 2.8 per cent improvement in yield and 0.5 per cent expansion in area. In the Punjab, cotton production has increased @ 3.7 per cent annually due to 3.1 per cent improvement in yield and 0.6 per cent acreage expansion. In Sindh, cotton production has also increased @ 2.0 per cent per annum mostly due to improvement of 1.9 per cent in yield (Table-2).

**Table-2: Average Annual Growth Rates of Area, Yield and Production of Cotton: 1997-98 to 2007-08**

Country/ Province	Area	Yield	Production
	----- Per cent -----		
<b>Pakistan</b>	<b>(+) 0.5</b>	<b>(+) 2.8</b>	<b>(+) 3.4</b>
Punjab	(+) 0.6	(+) 3.1	(+) 3.7
Sindh	(+) 0.1	(+) 1.9	(+) 2.0

Note: The growth rates have been worked out by estimating the equation,  $Y=a(1+r)^x$ , through Ordinary Least Squares (OLS) method from the data given in Annex-I.

### 2.3 Short-term Changes 2006-07 Vs 2007-08

9. According to Second estimates, cotton production from 2007-08 crop is reported at 11.57 million bales at country level showing a decline of 10 per cent from 12.86 million produced in 2006-07. The decline in production is mainly attributed to 9 per cent decline in yield (Table-3).

**Table-3: Area, Yield and Production of Cotton: 2006-07 and 2007-08 Crops**

Country/ Province	Area		Changes in 2007-08 over 2006-07	Yield		Changes in 2007-08 over 2006-07	Production		Changes in 2007-08 over 2006-07
	2006-07	2007-08		2006-07	2007-08		2006-07	2007-08	
	-- 000 hectares --		Per cent	--Kgs/hectare --		Per cent	-- 000 bales --	Per cent	
<b>Pakistan</b>	<b>3074.9</b>	<b>3043.4</b>	<b>(-) 1.0</b>	<b>711.1</b>	<b>646.4</b>	<b>(-) 9.1</b>	<b>12856.2</b>	<b>11565.2</b>	<b>(-) 10.0</b>
Punjab	2462.9	2413.9	(-) 2.0	714.8	619.4	(-) 13.3	10350.0	8790.0	(-) 15.1
Sindh	570.1	607.4	6.5	715.5	761.2	6.4	2398.2	2718.3	13.3
NWFP	0.3	0.2	(-) 33.3	340.2	425.2	25.0	0.6	0.5	(-) 16.7
Balochistan	41.6	21.9	(-) 47.4	439.1	438.0	(-) 0.2	107.4	56.4	(-) 47.5

Source: Annex-I.

## 2.4 Factors Responsible for Short Production: 2007-08

10. Provincial Agricultural Departments of the Punjab and Sindh have reported following factors responsible for short production during 2007-08.

### - Punjab

- Cotton area declined due to shifting of area to sugarcane, rice and other competing crops.
- Plant population per acre is about 16 per cent low as compared to last year, which is due to poor germination particularly of Bt varieties covering about 40 per cent of the total area.
- Number of fruits/bolls per plant has been observed to be higher but with low boll weight by 2.7 per cent compared to last year. It is due to repeated spraying for Mealy bug control which depressed plant growth. Further high temperature during the month of August and September 2007 resulted in more fruit shedding.
- High and wide spread attack of Mealy bug and CLCV affected the growth and fruiting of plants in the districts of T.T Singh, Sahiwal, Vehari, Bahawalpur, Bahawalnagar and R.Y. Khan.

### - Sindh

- Production increased over last year due to increase in area
- Attack of Mealy bug affected the crop on wide area
- Reddening and CLCV were observed in patches
- Attack of sucking complex was also observed.

## 2.5 Targets Vs. Achievements: 2007-08 Crop

11. The Federal Committee on Agriculture (FCA) had set the cotton production targets at 14.14 million bales for 2007-08 crop from an area of 3.25 million hectares. According to the second estimates, the production reported at 11.57 million bales has fallen short by 18.2 per cent against the target. Production target could not be achieved due to under achievement in area and yield targets by 6 and 13 per cent, respectively. Provincial details may be seen in Table-4.

**Table-4: Targets and Estimated Achievements of Area, Yield and Production of Cotton: 2007-08 Crop**

Country/ Province	Area		Deviation from target	Yield		Deviation from target	Production		Deviation from target
	Target	Achieve- ment		Target	Achieve- ment		Target	Achieve- ment	
	000 hectares		Per cent	Kgs/ hectare		Per cent	000 bales		Per cent
<b>Pakistan</b>	3250.0	3043.4	(-) 6.4	740.0	646.4	(-) 12.7	14140.0	11565.2	(-) 18.2
Punjab	2560.0	2413.9	(-) 5.7	730.9	619.4	(-) 15.3	11000.0	8790.0	(-) 20.1
Sindh	640.0	607.4	(-) 5.1	797.3	761.2	(-) 4.5	3000.0	2718.3	(-) 9.4
NWFP	5.0	0.2	(-) 96.0	340.2	425.2	25.0	10.0	0.5	(-) 95.0
Balochistan	45.0	21.9	(-) 51.3	491.4	438.0	(-) 10.9	130.0	56.4	(+) 56.6

Sources:

1. For targets: Working paper of the 86<sup>th</sup> Meeting of the FCA.
2. For achievements: Annex-I.

**3. DOMESTIC SUPPLY, DEMAND AND STOCKS**

12. Data on domestic production, consumption, imports, exports and stocks of cotton lint for the years 2005-06 to 2007-08 are presented in Table-5.

**Table-5: Domestic Production, Demand and Stocks of Cotton Lint:  
2005-06 to 2007-08 (August-July)**

Item	2005-06	2006-07 (estimated)	2007-08 (Provisional)
----- Million bales (a) -----			
<b>1. Supply</b>			
1.1 Opening stocks	4.12	3.65	6.03
1.2 Production	13.02	13.00	11.60 (b)
1.3 Imports	1.73	4.75	2.86 (c)
1.4 Total supply	19.05	21.40	20.49
<b>2. Demand</b>			
2.1 Consumption by reporting mills, non-reporting mills and fire loss	14.90	14.50	15.00
2.2 Exports	-	0.37	0.97 (c)
2.3 Total demand	15.40	15.37	16.47
2.4 Closing stocks	3.65	6.03	4.02

## Notes:

- a) One bale = 170 kgs = 375 lbs.
- b) Production: 2<sup>nd</sup> estimates 2007-08 crop.
- c) During August 07 to February 08.

## Sources:

- i) PCCC, Karachi.
- ii) Provincial Agriculture Departments for production.
- iii) FBS, Karachi.

13. According to the latest estimates, 11.60 million bales have been harvested from 2007-08 crop. Accounting for opening stocks of 6.03 million bales, total availability of cotton is estimated at 20.49 million bales, against the total requirements of 16.47 million bales (mill and non mill consumption). Thus end year stocks may be around 4.02 million bales subject to actual imports/exports during the rest of the year.

#### 4. DOMESTIC PRICE SITUATION

##### 4.1 Seed Cotton (Phutti)

14. Monthly average wholesale prices of seed cotton 2007-08 crop prevailed in the producing area markets of the Punjab and Sindh during the post harvest period are given in Table-6.

**Table-6: Monthly Average Wholesale Prices of Seed Cotton in the Main Producer Area Markets for 2007-08 Crop**

Markets	Aug	Sept	Oct	Nov	Dec	Jan	Avg
	----- Rupees per 40 kgs -----						
<b>Punjab</b>							
R. Y. Khan	-	1535	1535	1560	1548	1540	1544
Multan	-	1470	1470	1500	1453	1405	1486
Bahawalnagar	-	1484	1484	1513	1480	1470	1460
Khanewal	-	1475	1475	1505	1483	1420	1472
Vehari	-	1502	1502	1532	1520	1470	1505
Rajan pur	-	1445	1445	1473	1455	1435	1451
Average	-	1485	1485	1514	1490	1457	1486
<b>Sindh</b>							
Hyderabad	1410	1332	1448	1568	1513	1539	1468
Nawabshah	1448	1311	1380	1511	1371	1408	1475
Mirpur khas	1426	1343	1441	1569	1490	1583	1475
Sanghar	1440	1354	1449	1547	1494	1567	1405
Average	1431	1335	1430	1549	1467	1524	1456

Sources:

1. Directorate of Agriculture (E&M), Punjab, Lahore.
2. PCCC, Karachi for Sindh.

15. Monthly average market prices of seed cotton 2007-08 crop has ruled above its economic prices (export parity prices). This situation emerged partly due to high international prices transmitted to domestic market and partly due to lower domestic production in the face of rising consumption requirement of our textile sector.

#### 4.2 Cotton lint

16. The monthly average spot prices of raw cotton have also shown a sharp increase in 2007-08 over 2006-07 varying from 8 - 29 per cent in various months of the season (Table-7).

**Table-7: Monthly average Spot Prices of Raw Cotton at Karachi, 2006-07 and 2007-08 Crops ( August-April)**

Month	Base Grade -3, Staple Length 1-1/32", Micronaire Value 3.8 to 4.9 NCL	
	2006-07	2007-08
	Rupees per 40 kgs	
August	2713	3223
September	2801	3014
October	2625	3067
November	2821	3353
December	2754	3232
January	2755	3404
February	2755	3371
March	2749	3542
April	2894	3550

Note: Prices include expenses from up- country @ Rs 50 per 40 kgs.

Source: Karachi Cotton Association(KCA).

## 5. COST OF PRODUCTION OF SEED COTTON

17. The cost of production of seed cotton for 2008-09 crop in the Punjab and Sindh have been streamlined by adopting the input-output parameters of 2007-08 policy alongwith the latest prices of various inputs and hiring rates of cultural operations. These rates were obtained through mini field survey conducted by the API during January 2008 in major producing areas of the Punjab and Sindh. The inputs prices and hiring rates were also consulted in the meeting of the API's Standing Committee held on 24<sup>th</sup> March 2008 at Islamabad and supplemented with the information provided by the representatives of the Provincial Agricultural Departments and Farmers' Associations. The COP estimates are narrated below ( Table-8).

**Table-8: Average Farmers' Cost of Production of Seed Cotton:  
2007-08 and 2008-09 Crops**

S.No.	Items	Unit	2007-08 crop	2008-09 crop	Increase in 2008-09 over 2007-08
<b>Punjab</b>					
1.	Cost of cultivation	Rs/acre	17658	21787	4129
2.	Yield	Kgs/acre	696	696	-
3.	Cost of production at farm level	Rs/40 kgs	1015	1252	237
4.	Marketing cost	Rs/40 kgs	23	25	2
5.	Cost of production at market/ ginnery	Rs/40 kgs	1038	1277	239
<b>Sindh</b>					
1.	Cost of cultivation	Rs/acre	16360	20543	4183
2.	Yield	Kgs/acre	700	700	-
3.	Cost of production at farm level	Rs/40 kgs	935	1174	239
4.	Marketing cost	Rs/40 kgs	25	27	2
5.	Cost of production at market/ ginnery	Rs/40 kgs.	960	1201	241

Source: Annex-II and III.

**- Punjab**

18. The cost of growing one acre of seed cotton in the Punjab during 2008-09 crop year, is expected at Rs 21787. Based on the average yield of 696 kgs per acre, the farm level cost of production would be Rs 1252 per 40 kgs. Accounting for marketing cost @ Rs 25 per 40 kgs, the cost of produce at the market/ginnery level would be Rs 1277 per 40 kgs, reflecting an increase of Rs 239 or 23 per cent over the last year.

**- Sindh**

19. The cost of cotton cultivation in Sindh for 2008-09 crop is estimated at Rs 20543 per acre. Based on the average yield of 700 kgs per acre., the farm level cost of production would be Rs 1174 per 40 kgs. Accounting for marketing cost @ Rs 27 per 40 kgs, the market/ginnery level cost of the produce would come to Rs 1201 per 40 kgs, showing an increase of Rs 241 or 25 per cent over the last year.

20. The escalation in cost of production of seed cotton for the 2008-09 crop is mainly attributed to unforeseen rises in prices of fertilizer especially of phosphoric fertilizer due to tremendous surge in landed cost at Karachi. Likewise increases in the labour wage rates, land rentals and hiring rates of field operations and irrigation cost have also added in cost of production of the seed cotton.

### 5.1 Cost of major operations

21. The cost of major operations and inputs in overall cost of cultivation of seed cotton during 2007-08 and 2008-09 crops is given in Table-9.

**Table-9: Cost of Major Operations/Inputs in the Total Cost of Cultivation of Seed Cotton: 2007-08 and 2008-09 crops**

S.No		2007-08 crop	2008-09 crop	Shares in increased cost
		Rs/acre		Per cent
<b>Punjab</b>				
1.	Land preparation	1472 (8)	1666 (8)	5
2.	Seed and sowing operations	775 (4)	1015 (5)	6
3.	Irrigation	2185 (12)	2331 (11)	3
4.	Interculture	1179 (7)	1350 (6)	4
5.	Plant protection	2856 (16)	2885 (13)	1
6.	Fertilizers including FYM	2315 (13)	4763 (22)	59
7.	Land rent	4000 (22)	4333 (20)	8
8.	Picking charges	1479 (8)	1740 (8)	6
9.	Others	1697 (10)	2049 (9)	8
10.	Gross cost	17958(100)	22132(100)	100
<b>Sindh</b>				
1.	Land preparation	1935 (12)	2126(10)	5
2.	Seed and sowing operations	1080 (6)	1434 (7)	8
3.	Irrigation	1348 (8)	1600 (8)	6
4.	Interculture	1253 (7)	1418 (7)	4
5.	Plant protection	1911 (11)	1953 (9)	1
6.	Fertilizers including FYM	2028 (12)	4335 (21)	54
7.	Land rent	4000 (24)	4333 (21)	8
8.	Picking charges	1443 (9)	1671 (8)	5
9.	Others	1762 (11)	2132 (10)	9
10.	Gross cost	16760 (100)	21003 (100)	100

**Notes:**

1. Rounding of figures may result in slight differences.
2. Figures in parenthesis are percent shares in total cost of cultivation per acre.
3. Others include mark-up, management charges, land revenue, land tax, drainage cess and cutting of sticks.

### Punjab

22. Fertilizer including FYM is the principal component in the total cost of cotton cultivation in the Punjab, accounting for 22 per cent. The other major constituents are: land rent (20 %), plant protection (13 %), irrigation (11 %), picking charges and land preparation (8 % each), interculture (6 %), seed and sowing operations (5 %) and others (9 %).

### Sindh

23. In Sindh, fertilizer including FYM and land rent are the principal constituents of the cost of cotton cultivation accounting for 21 per cent each. The other components are: land preparation (10 %), plant protection (9 %), picking charges and irrigation (8 % each), seed/sowing operations and interculture (7 % each) and others (10 %).

## 5.2 Prices of major farm inputs

24. The average market prices of the major farm inputs are given below:

Items	Units	2007-08 crop	2008-09 crop	% change
<b>Punjab</b>				
1. HSD	Rs/litre	38.8	55.14	42
2. Power tariff	Rs/KWH	3.28	3.28	-
3. DAP	Rs/bag	876	3167	262
4. Urea	Rs/bag	521	700	34
5. Seed	Rs/kg	55	80	45
<b>Sindh</b>				
1. HSD	Rs/litre	38.8	55.14	42
2. Power tariff	Rs/KWH	3.28	3.28	-
3. DAP	Rs/bag	835	2967	255
4. Urea	Rs/bag	530	623	18
5. Seed	Rs/kg	52	80	54

## 6. ECONOMICS OF COTTON AND COMPETING CROPS

25. The economics of cotton and competing crops has been analysed in terms of input-output prices paid and received by the growers during the 2007-08 crop year. The details of the analysis are provided in Annex-IV. A summary of various economic indicators for the Punjab and Sindh is also presented in Table-10.

### Punjab

26. Unlike previous year, cotton crop has lost its superiority over basmati paddy in respect of certain economic indicators adopted in this analysis like returns to overall investment and crop duration. However, its position against basmati paddy is better in terms of revenue per unit of purchased inputs and irrigation water. Against IRRJ paddy cotton has performed comparatively better in terms of the all economic indicators, except output-input ratio.

27. In case of indirect competition with sugarcane, the cotton + wheat and cotton + sunflower combinations have given much better gains to the farmers against sugarcane mainly due to non-lucrative market prices of sugarcane observed during the season.

**Table-10: Economics of Cotton and Competing Crops at Prices Realized by the Growers: 2007-08 Crops**

Province/Crop/ Crop combination	Output-input ratio	Gross revenue per		
		rupee of purchased inputs cost	day of crop duration	acre-inch of irrigation water used
----- Rupees -----				
<b>Punjab</b>				
1. Cotton	1.4	3.3	106	1157
2. Basmati paddy	1.5	2.6	118	366
3. IRRJ paddy	1.4	2.4	90	261
4. Cotton+Wheat	1.4	3.2	104	1289
5. Cotton+Sunflower	1.4	3.8	113	982
6. Sugarcane	1.0	3.1	70	571
<b>Sindh</b>				
1. Seed Cotton	1.5	4.2	105	1403
2. IRRJ paddy	1.8	4.1	105	337
3. Cotton+Wheat	1.4	3.7	98	1376
4. Cotton+Sunflower	1.6	5.0	124	1188
5. Sugarcane	1.1	3.6	74	509

Source: Annex-IV.

## - Sindh

28. In Sindh cotton farming has shown a mixed pattern against IRRI paddy in terms of all the indicators adopted for the current analysis. Cotton could not retain its economic edge over IRRI paddy in terms of output-input ratio and hardly gave equal benefit in terms of crop duration. However, its position was better in terms of purchased inputs and irrigation water.

29. In case of indirect competition with sugarcane, the cotton + wheat and cotton + sunflower combinations gave better returns over sugarcane in terms of all the economic criteria adopted for the economic analysis.

## 7. ECONOMICS OF FERTILIZER USE ON COTTON CROP

30. The economics of fertilizer use on cotton crop has been analyzed through estimating (i) Benefit Cost Ratio of fertilizer use and (ii) Parity Ratio between the prices of fertilizers and seed cotton.

### 7.1 Benefit Cost Ratio (BCR)

31. BCR refers to the ratio between value of additional produce which can be obtained by using a certain dose of fertilizers and the additional costs incurred therein. The BCR greater than one means that benefits are higher than the costs entailed in the process and vice versa. To account for the variation in cotton-fertilizer response under different conditions, the BCRs have been computed at 4 different response levels. The results of the exercise are set out in Table-11.

**Table-11: Benefit Cost Ratio (BCR) of Fertilizer Use on Cotton: 2000-01 to 2007-08**

Year	Response Ratios (Seed Cotton: Nutrient) of			
	3.00:1	3.75:1	4.50:1	5.25:1
2000-01	2.51	2.96	3.35	3.71
2001-02	1.87	2.22	2.53	2.81
2002-03	1.97	2.45	2.79	3.11
2003-04	2.79	3.32	3.79	4.23
2004-05	1.75	2.09	2.39	2.67
2005-06	1.95	2.32	2.67	2.99
2006-07	1.53	1.84	2.13	2.41
2007-08	2.72	3.22	3.68	4.10

Sources:

1. For 2007-08: Annex-V.
2. For 2000-01 to 2006-07: Intervention Price Policy for Seed Cotton: 2007-08 Crop

**7.2 Parity ratio between prices of fertilizer and seed cotton**

32. The parity ratio between prices of fertilizers and those of seed cotton refers to the quantity of seed cotton required to purchase a certain quantity of chemical fertilizers. In view of fluctuating prices, the ratio has been calculated for 2000-01 to 2007-08 (Table-12). The quantity of seed cotton needed to buy one nutrient tonne of N fertilizer has fluctuated between 0.58 to 0.89 tonnes. The parity ratios between prices of seed cotton and those of phosphatic fertilizer have fluctuated from 0.83 to 1.51 during the period of analysis.

**Table-12: Parity Ratio between the Prices of Fertilizer and Seed Cotton: 2000-01 to 2007-08**

Crop Year	Sale Prices of		Market Prices of Seed Cotton	Quantity of Seed Cotton needed to buy one nutrient tonne of	
	Nitrogen N	Phosphorous P <sub>2</sub> O <sub>5</sub>		Nitrogen N	Phosphorous P <sub>2</sub> O <sub>5</sub>
	-----Rupees per tonne-----			-----Tonnes-----	
2000-01	14130	22300	22700	0.62	0.98
2001-02	16960	24230	19150	0.89	1.27
2002-03	16760	24590	21875	0.77	1.12
2003-04	18040	25550	30950	0.58	0.83
2004-05	18400	34000	22550	0.82	1.51
2005-06	19700	37900	25075	0.79	1.51
2006-07	21600	39000	27400	0.79	1.42
2007-08	22850	28390	36400	0.63	0.78

#### 8. NOMINAL AND REAL PRICES OF SEED COTTON: 2000-01 TO 2007-08

33. To ascertain over time changes in the purchasing power of seed cotton, the nominal and real prices of seed cotton are deflated by the Consumer Price Index (CPI), the most common measure of inflation in the economy. In this context, the analysis has been made for 2000-01 to 2007-08 as presented in Table-13.

**Table-13: Nominal and Real Prices of Seed Cotton: 2000-01 to 2007-08**

Crop year	Consumer price Index(CPI) 2000-01=100	Market prices	
		Nominal	Real
		---- Rs per 40 kgs ----	
1	2	3	4=(3/2)x100
2000-01	100.00	957	957
2001-02	103.54	813	785
2002-03	106.75	921	863
2003-04	111.63	1370	1227
2004-05	121.98	885	726
2005-06	131.64	1017	773
2006-07	142.55	1110	779
2007-08	153.46	1468	957

- Notes:
1. For 2007-08, CPI data is obtained from the State Bank of Pakistan.
  2. Market prices are the average monthly wholesale prices of seed cotton during Aug - Feb in major producing area markets.
- Sources:
1. Directorate of Economics and Marketing (E&M) Punjab, Lahore.
  2. Agricultural Policy Institute (API).

34. The nominal market price of seed cotton has experienced overall rise of 53 per cent during 2000-01 to 2007-08. Deflating against the cumulative increase in CPI by 53%, over the same period, the real market price has restored to base-year level of Rs 957 per 40 kgs in 2007-08. In the meanwhile, the real market price has fluctuated from the lowest level of Rs 726 per 40 kgs in 2004-05 to the highest level of Rs 1227 per 40 kgs in 2003-04 crop.

## 9. WORLD SUPPLY, DEMAND, STOCKS, TRADE AND PRICE SITUATION

35. The global stocks have shown a declining trend due to less production and high consumption requirements. This declining trend in the stocks has led to rising cotton prices in the global market (Table-14).

**Table-14: World Production, Consumption, Stocks and Trade in Cotton: 2005-06 to 2008-09**

S.No.	Item	2005-06 (Actual)	2006-07 (Estimated)	2007-08 (Projection)	2008-09 (Forecast)
-----Million tonnes-----					
1.	Opening stocks	11.87	12.48	12.66	11.56
2.	Production	25.53	26.74	26.04	26.87
3.	Total supply (1+2)	37.40	39.22	38.70	38.43
4.	Likely consumption	24.97	26.65	27.14	27.48
5.	Trade imbalance and stock adjustment*	(+) 0.05	(-) 0.01	0.00	(+)0.01
6.	Closing stocks (3-4+5)	12.48	12.66	11.56	10.96
7.	Trade (exports)	9.73	8.11	8.52	8.72

Note: \* Trade imbalance i.e. difference in world imports and exports may exist due to inclusion of linter and waste, changes in weight during transit, difference in reporting periods and measurement error. Need for stock adjustment may arise due to difference between calculated stocks and actual ones.

Source: International Cotton Advisory Committee, March-April, 2008.

## 10. INTERNATIONAL PRICES

36. The world prices of cotton have fluctuated widely dipping as low as 39 cents per pound in 2001-02 and rising as high as 69 cents per pound in 2007-08 (Annex-VI). The analysis further shows that low international prices of cotton mainly resulted from heavy US subsidies have directly impacted the raw cotton exporters. Transmission of these prices into domestic market in the past has also affected the comparative economics of cotton in Pakistan. Resultantly the producers suffered and industry benefited. However, for the last two years prices in the international market have benefited the producers while the textile industry has suffered.

## 11. DOMESTIC PARITY PRICES

37. A sufficient proportion of cotton production is domestically processed into yarn by the spinning mills for domestic use and export. Therefore, domestic prices of yarn have been taken as reference for working back the price of its raw material like cotton and seed cotton. During 2007-08, the prices of yarn at Karachi have averaged at Rs 595 per bundle of 4.54 kgs. Accounting for various costs involved in processing of seed cotton into yarn, prices of seed cotton worked back to Rs 1,458 per 40 kgs. Details may be seen at annex-VII.

## 12. EXPORT AND IMPORT PARITY PRICES

38. Estimation of export parity price of a commodity is helpful in ascertaining its competitiveness in international market while its import parity price is a useful measure of determining the opportunity cost of resources used in its domestic production. Since Pakistan is exporting as well as importing cotton, both the export and import parity prices of cotton have been worked out for formulating policy options.

39. The export and import parity prices of seed cotton have been calculated on the basis of their actual as well as quoted prices. A summary of the results is given in Table-15 while the details are provided in Annex VIII-XIII.

**Table-15: Export/Import Parity Prices of Seed Cotton as Worked Back from Various Reference Prices**

S.No.	Base/period	Reference price	Worked back price of seed cotton at ginnery level
		US cents/lb	Rs/40 kgs
1.	<b>Export parity prices based on average:</b>		
	i) Actual export price of Pakistani cotton		
	- During 2007-08 (Aug-Feb)	57.53	1,371
	- During 2002-03 to 2006-07	49.00	1,204
	ii) Cif (North Europe) value of Index-B cottons:		
	- During 2007-08 (Aug-March)	68.85	1,454
	- During 2002-03 to 2006-07	57.94	1,249
	iii) Cif (North Europe) quotations of Afzal 1-1/32":		
	- During 2007-08 (Aug-March)	69.21	1,461
	- During 2002-03 to 2006-07	54.14	1,178
	iv) Futures contract prices of New York No.2 cotton (average of October - December 08 and March 2009)	84.50	1,691
		<i>US cents/kg</i>	
	v) Fob prices of Pakistani cotton yarn (20's):		
	- During 2007-08 (Aug-March)	197.00	1,251
	- During 2002-03 to 2006-07	188.00	1,182
2.	<b>Import parity prices based on average:</b>		
	i) Cif (North Europe) quotations of Orleans/Texas SLM 1-1/32"	<b>US cents/lb</b>	
	- During 2007-08 (Aug-March)	69.25	1,845
	- During 2002-03 to 2006-07	57.77	1,607
	ii) Actual cif (Karachi) prices of imported cotton:	<b>Rs/40 kgs</b>	
	- During 2007-08 (Aug-Feb)	3,171	1,405
	- During 2002-03 to 2006-07	3,278	1,441

Sources: Annex-VIII to XIII.

### 13. ECONOMIC EFFICIENCY IN COTTON PRODUCTION

40. The economic efficiency of resource use in cotton production in Pakistan has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC), and Domestic Resource Cost Coefficient (DRC). As Pakistan exports as well as imports cotton, analysis has been carried out under both the scenario for 2002-03 to 2007-08. The estimation of these indicators is mainly based on cost of production data as used in the API's Policy Reports for cotton crop. Details of the analysis are presented in Annex-XIV to XV, while the summary of results is given in Table-16.

**Table- 16: Economic Efficiency Coefficients for Seed Cotton: 2002-03 to 2007-08**

Year/ Province	Exporting Scenario				Importing Scenario			
	NPC	EPC	DRC	Cost* Rs/US\$	NPC	EPC	DRC	Cost* Rs/US\$
<b>Punjab</b>								
2002-03	0.97	0.91	0.63	36.88	0.90	0.82	0.56	33.09
2003-04	1.11	1.12	0.52	30.65	1.04	1.02	0.47	27.91
2004-05	0.85	0.72	0.71	41.60	0.79	0.64	0.63	36.95
2005-06	0.90	0.80	0.62	37.43	0.83	0.72	0.56	33.36
2006-07	0.97	0.92	0.74	44.40	0.90	0.81	0.65	39.05
2007-08	0.97	0.94	0.56	33.22	0.92	0.86	0.52	30.44
<b>Sindh</b>								
2002-03	0.83	0.75	0.50	29.26	0.77	0.68	0.45	26.39
2003-04	1.02	1.01	0.41	24.05	0.95	0.93	0.37	22.01
2004-05	0.87	0.77	0.57	33.82	0.80	0.69	0.51	30.12
2005-06	0.88	0.82	0.52	31.13	0.82	0.73	0.47	27.95
2006-07	0.96	0.92	0.66	39.71	0.88	0.82	0.59	35.41
2007-08	0.95	0.94	0.51	30.12	0.90	0.87	0.47	27.75

\* Cost incurred on buying domestic resources to earn/save one US\$.

### **13.1 Nominal Protection Coefficient (NPC)**

41. NPC is estimated by dividing domestic prices with border prices. It measures the impact of output pricing policies without taking into consideration the distortions in input markets. The NPCs have been below one under both export/import scenario during the period. This implies that the domestic producers have been implicitly taxed. However, the magnitude of this taxation has remained much higher under the importing scenario. The findings warrant expansion in cotton production to meet the domestic requirements of textile industry as the imports are expensive.

### **13.2 Effective Protection Coefficient (EPC)**

42. Effective protection coefficient is the ratio between the value added in producing a commodity at private prices and at social prices. Unlike the NPC, EPC also takes into account the impact of policy interventions in the input markets. Thus, it is a more meaningful measure for analyzing the protection/taxation of a certain commodity. The results of EPCs are in line with those of NPCs. However, lower EPCs imply that the magnitude of taxation has been higher than that estimated through NPCs.

### **13.3 Domestic Resource Cost (DRC)**

43. Domestic resource cost coefficients (DRCs) indicate the opportunity cost of domestic resources employed per unit of the value added in the production of a commodity. The numerator in these calculations is the opportunity cost of non-tradable factors used in domestic production while the denominator is the value addition calculated at social prices. DRC coefficient less than one indicates a Comparative Advantage in domestic production as the cost of domestic production is lower than the economic cost of imports.

44. The DRCs have been much less than one during the period under analysis under both the export/import scenario. Thus, Pakistan enjoys a Comparative Advantage in cotton production. The DRCs ranging from 0.41 to 0.74 under exporting condition imply that cost of domestic resources involved in earning one US dollar through cotton export has been 26 to 59 percent less than the respective exchange rate. Accordingly, increasing cotton production either for export or substituting the imports is an economic proposition.

45. The DRCs under importing scenario are much lower than the coefficients estimated under exporting situation. The cost of domestic factors involved in saving one unit of foreign exchange through increased cotton production is only 37-65 percent of its market price. Thus expansion in production of cotton for import substitution is highly cost effective. Substituting manual labour for traded inputs particularly plant protection may increase the profitability of this crop.

#### **14. COTTON YIELD AMONG COMPETING COUNTRIES**

46. To compare its position with the world, area, yield and production of major cotton producing countries are presented in Table-17.

47. During 2006, global cotton occupied an area of 34.644 million hectares with a total production of 71.920 million tonnes. The world 20 top cotton-producing countries contribute 88 per cent of total area and 94 of total production. India has the largest area of 9.139 million hectares, while China has the highest production of 20.190 million tonnes. Pakistan is the fourth largest cotton producer in terms of area and production and 13<sup>th</sup> in terms of yield. Among 5 major cotton producing countries like India, China, USA, Pakistan and Uzbekistan, Pakistan lies at the bottom in the context of yield.

**Table-17: Area, Yield and Production of Seed Cotton: 2006**

S.No	Country	AREA (million hect.)	Yield (tonnes/hect.)	Production (million tonnes)
1	Syrian Arab Republic	0.238	4.298	1.022
2	Australia	0.336	4.297	1.442
3	Greece	0.300	4.173	1.252
4	Mexico	0.117	3.854	0.449
5	China	5.416	3.728	20.190
6	Turkey	0.700	3.700	2.590
7	Iran, Islamic Rep of	0.108	3.365	0.363
8	Brazil	0.900	3.205	2.883
9	Egypt	0.235	3.149	0.740
10	Uzbekistan	1.448	2.486	3.600
11	United States of America	5.187	2.410	12.500
12	Kazakhstan	0.199	2.185	0.435
13	<b>Pakistan</b>	<b>3.210</b>	<b>1.948</b>	<b>6.252</b>
14	Tajikistan	0.263	1.673	0.440
15	India	9.139	1.170	10.692
16	Turkmenistan	0.600	1.167	0.700
17	Burkina Faso	0.630	1.151	0.725
18	Argentina	0.417	1.074	0.448
19	Mali	0.490	0.972	0.476
20	Nigeria	0.678	0.830	0.563
<b>Total of 20 top producing countries</b>		<b>30.610</b>	<b>2.214</b>	<b>67.763</b>
<b>World total</b>		<b>34.644</b>	<b>2.076</b>	<b>71.920</b>

Source: FAOSTAT.

## 15. COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

48. Seed is the substantial basis of production. No other input can compensate for the inferior seed. To get higher production, use of high quality seed is foremost essential. The qualities that are vital in a good cotton seed are: improved variety, genetic and physical purity, germination, vigor and free from weeds, pest and diseases.

49. The development of such ideal - type seed with all the expected qualities is rather difficult due to limitation of breeding procedure, know-how, and environment vagaries. However, there has been a gradual and remarkable improvement in yield potential and fiber qualities of cotton varieties released by the various research institutes from time to time.

50. The cotton varieties being sown in various ecological zones of Pakistan along with yield potential are presented at Annex-XVI. The data reveal that more than one hundred varieties are grown in the country. Among these, 78 are upland varieties, 3 are hybrid and 12 are Desi varieties. The yield potential of these varieties ranges from 600 kgs to 3900 kgs per hectare.

51. According to Crop Reporting Service, Government of the Punjab, Lahore, major cotton varieties grown in the Punjab during 2007-08 are: **Bt. Cotton (39%), CIM-496 (20%), CIM-506 (6%), CIM-499 (6%), BH-160 (4%) and others about 25%.**

## **16. COST OF PRODUCTION OF SEED COTTON IN COMPETING COUNTRIES**

52. The cost of production is the most important part of the multiple criteria used for making price policy proposals. It varies farm to farm and country to country particularly due to use level of farm inputs and technologies. Here we are comparing the cost of production of seed cotton in Pakistan with that of other competing countries i.e. India, Turkey, USA and Uzbekistan. The cost of production of seed cotton during 2006-07 is given in Table-18.

**Table-18: Cost of Production of Seed Cotton in Competing Countries During 2006-07**

Country	Average yield per hectare		Cost of production of seed cotton			
	Kgs	40 Kgs	US \$/ha	US \$/40 kgs	Pak Rs/ha	Pak Rs/40 kgs
India	2109	52.7	646.12	12.26	43936	834
Turkey	4452	111.3	3825.40	34.37	260127	2337
USA	2016	50.4	1377.00	27.32	93636	1858
Uzbekistan	3000	75.0	1022.40	13.63	69523	927
Pakistan	2154	53.8	779.56	14.49	53010	985

Note: One US \$ = Pak Rs 68.

Source: International Cotton Advisory Committee (ICAC), Washington DC, USA.

53. The cost of production of seed cotton calculated at Pak Rs 2337 per 40 kgs in Turkey is the highest than that of other countries while in India, it is reported at Rs 834 as the lowest. The cost of production of seed cotton in USA, Uzbekistan and Pakistan is Rs 1858, 927 and Rs 985 per 40 kgs, respectively.

#### 17. **SUBSIDY ON COTTON PRODUCTION IN COTTON PRODUCING COUNTRIES**

54. The subsidy on cotton production provided to cotton growers in cotton producing countries is given in Table-19.

**Table-19: Subsidy on Production of Seed Cotton in Cotton Producing Countries During 2006-07**

Country	Production Thousand tonnes	Subsidy on production of seed cotton		
		US \$ in million	US \$/40 kgs	Pak Rs/40 kgs
Brazil	1457	309	8.48	577
China	7183	1444	8.04	547
India	-	-	-	-
Turkey	850	206	9.69	659
USA	4700	2238	19.05	1295
Uzbekistan	-	-	-	-
Pakistan	2210	-	-	-

Note: One US \$ = Pak Rs.68.

Source: International Cotton Advisory Committee (ICAC), Washington DC, USA.

55. The highest subsidy on cotton production to farmers is provided by the USA i.e. US \$ 19.05 (Pak Rs 1295) per 40 kgs. The subsidy provided to cotton growers of Brazil, China and Turkey is calculated at Pak Rs 577, 547 and 659 per 40 kgs. While no substantial subsidy is given to Pakistani cotton growers. The data on subsidy for India and Uzbekistan is not available.

56. During 2006-07, USA government provided subsidy to its cotton growers about 70 per cent of cost of production. In Turkey, the amount of subsidy was 28 per cent of the cost of production of seed cotton during 2006-07.

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### *Officers*

1.	Mr. Abdul Rauf Chaudhry ( <b>Coordinator</b> )	Chief
2.	Mr. G. S. Soomro	Chief
3.	Ch. Asghar Ali	Chief
4.	Mr. Sherzada Khan ( <b>Deputy Coordinator</b> )	Deputy Chief
5.	Mr. Muhammad Ikram	Assistant Chief
6.	Mr. Sardar Ali Khan	Assistant Chief
7.	Mr. Abdul Karim	Assistant Chief
8.	Syed Wasim Raza Zaidi	Assistant Chief
9.	Rana Muhammad Akbar	Systems Analyst
10.	Mr. Muhammad Saleem Butt	Computer Programmer
11.	Mr. Muhammad Azim Hakro	Computer Programmer
12.	Mr. Muhammad Amin	Assistant Chief
13.	Mr. Hussain Ali Turi	Assistant Chief
14.	Syed Riaz Ali Shah	Assistant Chief

### *Staff*

15.	Mr. Hafeez Ahmed ( <b>Composed the Report</b> )	Stenographer
16.	Mr. Muhammad Rauf	Stenographer
17.	Mr. Muhammad Altaf	Stenographer
18.	Mr. Shamir Ahmad	Stenographer
19.	Mr. Muhammad Naeem	Machine Operator

**Dr. Qadir Bux Baloch**  
Chairman, API

**PROVINCE-WISE AREA, PRODUCTION AND YIELD OF SEED COTTON  
IN PAKISTAN : 1997-98 TO 2007-08**

YEAR	PUNJAB	SINDH	NWFP	BALOCH	PAKISTAN
<b>AREA</b> ----- 000 hectares -----					
1997-98	2348.4	600.3	0.5	10.5	2959.7
1998-99	2282.8	630.2	0.4	9.4	2922.8
1999-00	2329.3	633.5	0.3	20.0	2983.1
2000-01	2386.4	523.6	0.2	17.3	2927.5
2001-02	2526.4	547.4	1.6	40.4	3115.8
2002-03	2208.3	542.6	1.9	40.8	2793.6
2003-04	2386.8	561.4	2.0	39.1	2989.3
2004-05	2518.3	635.1	2.1	37.1	3192.6
2005-06	2426.0	637.1	2.1	37.8	3103.0
2006-07	2462.9	570.1	0.3	41.6	3074.9
2007-08	2413.9	607.4	0.2	21.9	3043.4
<b>YIELD</b> ----- Kgs per hectare -----					
1997-98	494	662	272	494	528
1998-99	494	576	298	496	512
1999-00	643	638	340	493	641
2000-01	609	696	340	496	624
2001-02	542	759	436	502	579
2002-03	590	756	412	543	622
2003-04	549	680	425	426	572
2004-05	753	808	421	432	760
2005-06	720	707	421	440	714
2006-07	715	716	340	439	711
2007-08	619	761	170	438	646
<b>PRODUCTION</b> ----- 000 bales -----					
1997-98	6817.0	2335.5	0.8	30.5	9183.8
1998-99	6628.0	2134.1	0.7	27.4	8790.2
1999-00	8804.0	2377.4	0.6	58.0	11240.0
2000-01	8540.0	2141.1	0.4	50.4	10731.9
2001-02	8046.0	2443.2	4.1	119.3	10612.6
2002-03	7664.0	2411.8	4.6	130.2	10210.6
2003-04	7702.0	2242.8	5.0	97.9	10047.7
2004-05	11149.0	3016.7	5.2	94.3	14265.2
2005-06	10268.0	2648.0	5.2	97.7	13018.9
2006-07	10350.0	2398.2	0.6	107.4	12856.2
2007-08	8790.0	2718.3	0.5	56.4	11565.2

**Sources:** 1- For 1997-98 to 2006-07 : Agricultural Statistics of Pakistan 2006-07, MINFAL, Islamabad.  
2- For 2007-08: 2nd estimates for the Punjab, Sindh and Balochistan and Final estimates of NWFP provided by respective Provincial Agriculture Departments.

**AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON  
IN THE PUNJAB: 2007-08 AND 2008-09 CROPS**

S. No.	Operations / Inputs	Average No. of oprs/units/acre	2007-08 crop		2008-09 crop		Change in 2008-09 over 2007-08
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5 = 3 * 4	6	7 = 3 * 6	8 = 7-5
-----Rupees-----							
1	Land preparation:						
	1.1 Deep ploughing	0.228	550.00	125.40	625.00	142.50	17.10
	1.2 Rotavator	0.233	660.00	153.78	750.00	174.75	20.97
	1.3 Ploughing	3.200	220.00	704.00	250.00	800.00	96.00
	1.4 Planking	0.421	110.00	46.31	125.00	52.63	6.32
	1.5 Ploughing+planking	1.341	220.00	295.02	250.00	335.25	40.23
	1.6 Levelling (tractor hrs)	0.537	275.00	147.68	300.00	161.10	13.43
2	Seed and sowing operations:						
	2.1 Seed (kgs)	7.643	55.00	420.37	80.00	611.44	191.08
	2.2 Sowing:						
	2.2.1 Ploughing+planking	0.394	220.00	86.68	250.00	98.50	11.82
	2.2.2 Ridging	0.228	220.00	50.16	250.00	57.00	6.84
	2.2.3 Drilling	0.772	220.00	169.84	250.00	193.00	23.16
	2.2.4 Manual labour for sowing, bund making and gap filling (m.days)	0.369	130.00	47.97	150.00	55.35	7.38
3	Irrigation: (Nos)						
	3.1 Canal	2.156	-	85.00	-	85.00	0.00
	3.2 Private tubewell	1.706	434.00	740.40	450.00	767.70	27.30
	3.3 Mixed	2.739	332.00	909.35	350.00	958.65	49.30
	3.4 Labour for irrigation and water course cleaning (m.days)	3.462	130.00	450.06	150.00	519.30	69.24
4	Interculture:						
	4.1 With tractor	2.640	220.00	580.80	250.00	660.00	79.20
	4.2 Manual weeding/thinning (m.days)	4.600	130.00	598.00	150.00	690.00	92.00
5	Plant Protection including application (weedicides + pesticides)	5.769	495.00	2855.66	500.00	2884.50	28.84
6	Farm Yard Manure including transport and application 50% (trolley load)	-	-	185.00	-	250.00	65.00
7	Fertilizers: (bags)						
	7.1 DAP	0.731	876.00	640.36	3167.00	2315.08	1674.72
	7.2 SSP	0.071	229.00	16.26	860.00	61.06	44.80
	7.3 SOP	0.029	910.00	26.39	2228.00	64.61	38.22
	7.4 NPK	0.046	900.00	41.40	2071.00	95.27	53.87
	7.5 Urea	2.297	521.00	1196.74	700.00	1607.90	411.16
	7.6 CAN	0.224	387.00	86.69	641.00	143.58	56.90
	7.7 NP	0.069	608.00	41.95	2018.00	139.24	97.29
	7.8. Fertilizer transport and application	3.467	23.00	79.74	25.00	86.68	6.93
8	Mark up on investment @ 12 % per annum for 8 months on items 1 to 7 minus 3(1)	-	-	855.68	-	1114.01	258.33
9	Management charges for 8 months	-	-	450.00	-	497.00	47.00
10	Land rent for 8 months	-	6000.00	4000.00	6500.00	4333.33	333.33
11	Average weighted land tax @ Rs 132/acre/annum for 8 months	-	132.00	88.00	132.00	88.00	0.00
12	Land revenue including local rate, chaukidara, etc.	-	-	5.00	-	5.00	0.00
13	Payment to pickers (Rs/ 40 kgs)	17.400	85.00	1479.00	100.00	1740.00	261.00
14	Cutting of cotton sticks	-	-	300.00	-	345.00	45.00
15	Gross cost (item 1 to 14)	-	-	17958.67	-	22132.42	4173.75
16	Value of cotton sticks	-	-	300.00	-	345.00	45.00
17	Net cultivation cost (item 15-16)	-	-	17658.67	-	21787.42	4128.75
18	Yield per acre (kgs)	-	-	696.00	-	696.00	-
19	Cost of production at farm level: (Rs/40 kgs)	-	-	-	-	-	-
	19.1 Including land rent	-	-	1014.87	-	1252.15	237.28
	19.2 Excluding land rent	-	-	784.98	-	1003.11	218.13
20	Marketing expenses (Rs/40 kgs)	-	-	23.00	-	25.00	2.00
21	Cost of production at market/ginnery: (Rs/40 kgs)	-	-	-	-	-	-
	21.1 Including land rent	-	-	1037.87	-	1277.15	239.28
	21.2 Excluding land rent	-	-	807.98	-	1028.11	220.13

**AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON  
IN SINDH: 2007-08 AND 2008-09 CROPS**

S. No.	Operations / Inputs.	Average No. of oprs/units/acre	2007-08 crop		2008-09 crop		Change in 2008-09 over 2007-08
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5 = 3 * 4	6	7 = 3 * 6	8 = 7-5
-----Rupees-----							
1	Land preparation:						
	1.1 Deep ploughing	0.553	715.00	395.40	750.00	414.75	19.36
	1.2 Ploughing	2.071	360.00	745.56	400.00	828.40	82.84
	1.3 Planking	0.030	180.00	5.40	200.00	6.00	0.60
	1.4 Ploughing+planking	1.333	360.00	479.88	400.00	533.20	53.32
	1.5 Levelling (tractor hrs)	0.859	360.00	309.24	400.00	343.60	34.36
2	Seed and sowing operations:						
	2.1 Seed (kgs)	10.279	52.00	534.51	80.00	822.32	287.81
	2.2 Sowing:						
	2.2.1 Ploughing + planking	0.160	360.00	57.60	400.00	64.00	6.40
	2.2.2 Ridging	0.236	360.00	84.96	400.00	94.40	9.44
	2.2.3 Drilling	0.763	360.00	274.68	400.00	305.20	30.52
	2.2.4 Manual labour for sowing, bund making and gap filling (m. days)	0.988	130.00	128.44	150.00	148.20	19.76
3	Irrigation: (Nos)						
	3.1 Canal	3.148	-	93.09	-	93.09	0.00
	3.2 Private tubewell	2.454	268.00	657.67	330.00	809.82	152.15
	3.3 Mixed	0.413	237.00	97.88	290.00	119.77	21.89
	3.4 Lift irrigation	0.251	58.00	14.56	70.00	17.57	3.01
	3.5 Labour for irrigation and water course cleaning (m.days)	3.732	130.00	485.16	150.00	559.80	74.64
4	Interculture:						
	4.1 With tractor	0.524	360.00	188.64	400.00	209.60	20.96
	4.2 With bullocks	1.259	360.00	453.24	400.00	503.60	50.36
	4.3 Manual weeding/thinning (m.days)	4.700	130.00	611.00	150.00	705.00	94.00
5	Plant Protection including application (weedicides + pesticides)	4.200	455.00	1911.00	465.00	1953.00	42.00
6	Farm Yard Manure including transport and application 50 % (trolley load)	-	-	140.00	-	190.00	50.00
7	Fertilizers: (bags)						
	7.1 DAP	0.893	835.00	745.66	2967.00	2649.53	1903.88
	7.2 TSP	0.009	608.00	5.47	2392.00	21.53	16.06
	7.3 Urea	1.834	530.00	972.02	623.00	1142.58	170.56
	7.4 CAN	0.016	385.00	6.16	550.00	8.80	2.64
	7.5 AS	0.010	780.00	7.80	1250.00	12.50	4.70
	7.6 NPK	0.042	900.00	37.80	1982.00	83.24	45.44
	7.7 NP	0.076	612.00	46.51	2040.00	155.04	108.53
	7.8 Fertilizer transport and application	2.880	23.00	66.24	25.00	72.00	5.76
8	Mark up on investment @ 12% per annum for 8 months on items 1 to 7 minus 3(1)	-	-	757.00	-	1021.88	264.88
9	Management charges for 8 months	-	-	450.00	-	496.00	46.00
10	Land rent for 8 months	-	6000.00	4000.00	6500.00	4333.33	333.33
11	Land revenue including local rate, chaukidara, etc.	-	-	5.00	-	5.00	0.00
12	Land tax @ Rs 200/acre/annum for 8 months	-	200.00	133.33	200.00	133.33	0.00
13	Drainage cess @ Rs 24/acre/annum for 8 months	-	24.00	16.00	24.00	18.00	0.00
14	Payment to pickers (Rs/ 40 kgs)	15.190	95.00	1443.05	110.00	1670.90	227.85
15	Cutting of cotton sticks	-	-	400.00	-	460.00	60.00
16	Gross cost (item 1 to 15)	-	-	16759.94	-	21002.99	4243.04
17	Value of cotton sticks	-	-	400.00	-	460.00	60.00
18	Net cultivation cost (item 16-17)	-	-	16359.94	-	20542.99	4183.04
19	Yield per acre (kgs)	-	-	700.00	-	700.00	0.00
20	Cost of production at farm level: (Rs/40 kgs)	-	-	934.85	-	1173.89	239.03
	20.1 Including land rent	-	-	706.28	-	926.27	219.98
	20.2 Excluding land rent	-	-	25.00	-	27.00	2.00
21	Marketing expenses (Rs/40 kgs)	-	-	25.00	-	27.00	2.00
22	Cost of production at market/ginnery: (Rs/40 kgs)	-	-	959.85	-	1200.89	241.03
	22.1 Including land rent	-	-	731.28	-	953.27	221.98
	22.2 Excluding land rent	-	-	-	-	-	-

### Notes for Annex-II and III

1. The input-output parameters for estimating cost of production of Seed Cotton, 2008-09 crop, have been adopted from the Price Policy Report of Seed Cotton, 2007-08 crop, API's Series No 222.
2. The inputs, prices, custom hire rates of field operations, labour wage rate and transportation cost have been revised in the light of data collected through mini field survey conducted by the API during January 2008 in the major cotton producing areas of the Punjab and Sindh, discussion made and information provided by the Provincial Agriculture Departments and Farmers' Association in the meeting of the Standing Committee on Seed Cotton, held on 24<sup>th</sup> March 2008 at Islamabad.
3. The seed prices as reported by the growers in the field survey and representatives of the cotton growers in the Standing Committee meeting vary very widely on account of Bt varieties and local seed. The prices of seed have been adjusted accordingly.
4. The labour component (10 per cent) in the cost of plant protection has revised in light of the new wage rate. While the remaining cost, 90 per cent has not been increased on account of new generic and low cost pesticides.
5. The prices of chemical fertilizers have been revised in light of the fertilizers prices published by the Federal Bureau of Statistics, Islamabad for the week ending on 5<sup>th</sup> June 2008. However, price of NPK fertilizer have been worked out from prices of Urea, DAP and SOP fertilizers
6. In light of information received from various quarters indicates that the increasing trend in the prices of insecticides and pesticides has been arrested on account of new generic and low cost brands, the material cost (90 per cent) of the plant protection has not been revised. However, the cost of labour component (10 per cent of the total cost) has been mutated in light of new wage rate.
7. It has been noticed during the field survey and discussion with knowledgeable farmers that due to rises in the prices of fertilizers, the cost of FYM has increased substantially. The cost of FYM has been revised in line with rise in the prices of fertilizer, wage rate and transportation charges.
8. The management charges for a manager looking after a 25 acre farm and devoting one-fourth of his time to the managerial activities have been worked out at Rs 6208 per month for a Field Assistant at the 10<sup>th</sup> stages in BPS-6 as per revised scale of July 2007.
9. Land rent is the major item of the cost of cultivation. There is no precise measure for updating the land rentals. However, keeping in view the observations obtained during field survey and discussion made in the meeting of API's Standing Committee, land rentals have been enhanced accordingly.

**ECONOMICS OF SEED COTTON AND COMPETING CROPS AT  
PRICES REALIZED BY THE GROWERS: 2007-08 CROPS**

Province/crops/ crop combination	Crop duration	Water used	Gross cost	Cost of purchased inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Revenue per		
									Rupee of purchased inputs	Crop day	Acres inch of water
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3
	Days	Acres inches	.....Rupees per acre.....						.....Rupees.....		
<b>Punjab</b>											
1 Basmati paddy	180	58	13979	8150	21232	13082	7253	1.52	2.61	118	366
2 IRRI paddy	180	62	11715	6689	16189	9500	4474	1.38	2.42	90	261
3 Seed cotton	240	22	18191	7811	25443	17632	7252	1.40	3.26	106	1157
4 Wheat	180	12	13962	6069	18369	12301	4408	1.32	3.03	102	1531
5 Sunflower (spring)	144	22	12605	3433	17760	14328	5155	1.41	5.17	123	807
6 Seed cotton + wheat	420	34	32153	13680	43812	29932	11660	1.36	3.16	104	1289
7 Seed cotton + sunflower	384	44	30796	11244	43203	31959	12407	1.40	3.84	113	982
8 Basmati paddy+wheat	360	70	27940	14219	39601	25382	11661	1.42	2.79	110	566
9 Basmati paddy+sunflower	324	80	26584	11582	38992	27409	12408	1.47	3.37	120	487
10 IRRI paddy + wheat	360	74	25677	12758	34558	21800	8882	1.35	2.71	96	467
11 IRRI paddy+sunflower	324	84	24321	10122	33949	23827	9628	1.40	3.35	105	404
12 Sugarcane	394	48	27306	8809	27410	18601	104	1.00	3.11	70	571
<b>Sindh</b>											
1 IRRI paddy	180	56	10243	4572	18866	14293	8623	1.84	4.13	105	337
2 Seed cotton	240	18	17091	5988	25250	19262	8159	1.48	4.22	105	1403
3 Wheat	180	12	11851	5129	16035	10906	4184	1.35	3.13	89	1336
4 Sunflower (spring)	144	22	12105	3433	22260	18828	10155	1.84	6.49	155	1012
5 Seed cotton + wheat	420	30	28942	11116	41285	30168	12343	1.43	3.71	98	1376
6 Seed cotton + sunflower	384	40	29196	9420	47510	38090	18314	1.63	5.04	124	1188
7 IRRI paddy+ wheat	360	68	22094	9701	34901	25200	12806	1.58	3.60	97	513
8 IRRI paddy+sunflower	324	78	22349	8005	41126	33121	18777	1.84	5.14	127	527
9 Sugarcane	488	71	33509	10006	36120	26114	2610	1.08	3.61	74	509

**Notes for Annex - IV**

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2007-08 crops.
2. The data regarding input-output parameters have been adopted from the APCom's support price policy papers for sugarcane, seed cotton, rice paddy and wheat, 2007-08 crops. However, the relevant data for sunflower and canola were adopted from the last support price policy for non-traditional oilseeds, 2000-01 crops with necessary adjustments in input prices for updating costs and incomes for the 2007-08 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2007-08 crops, some marginal revisions have been made as under:
  - 2.1 The cost of supplementary irrigation remained unchanged as there is no any change observed in the power tariff and diesel prices during the period under consideration.
  - 2.2 The cost of fertilizers has been revised in view of their prices prevailed at the time of application for the respective crops in 2007-08 season.
3. Water use has been estimated from the number of irrigations as reported in the cost of production estimates of the respective crops assuming each irrigation of 3 inches and 'rauni' of 4 inches.
4. The following prices as realized by the growers for different crops are adopted for the analysis:
  - 4.1 The support price of Rs 625 per 40 kgs as announced by the government for 2007-08 crop has been adopted for the current analysis.
  - 4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post harvest period in major producer area markets reported by the Directorate of Agriculture (E&M), Lahore have averaged at Rs 920 and Rs 481 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs 509 per 40 kgs by the Joint Director, Directorate of Agriculture Extension, Hyderabad, Sindh.
  - 4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug - Feb 2007-08 in the main producer area markets have averaged at Rs 1468 per 40 kgs in the Punjab as reported by the Directorate of Agriculture (E&M), Lahore. In Sindh, the corresponding prices are reported by the PCCC, Karachi averaged at Rs 1445 per 40 kgs.
  - 4.4 The prices of sunflower are reported around Rs 1200 per 40 kgs in the Punjab and Rs 1500 per 40 kgs in Sindh as per to POdB and press media.

- 4.5 The market prices of sugarcane at mill-gate in the major cane producing areas are reported to hover around Rs 55 per 40 kgs in the Punjab and Rs 60 in Sindh.
5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 6.25 per 40 kgs in Punjab and Sindh for sugarcane, Rs 23 in Punjab and Rs 25 in Sindh for seed cotton, Rs 16 for rice paddy, wheat and oilseeds.
6. Gross income = (Yield per acre multiplied by price of principal produce at farm gate) plus (value of by-products per acre).
7. Cost of purchased inputs = Cost incurred on seed and related items, fertilizer, supplementary irrigation including labour, canal water rate, pesticides and weedicides.
8. Gross margin = Gross income minus cost of purchased inputs.
9. Net income = Gross income minus gross cost.
10. Output-input ratio = Gross income divided by gross cost
11. Revenue per rupee of purchased inputs cost = Gross income divided by cost of purchased inputs
12. Revenue per crop day = Gross income divided by crop duration in days.
13. Revenue per acre-inch of water used = Gross income divided by irrigation water used in acre inches.

**PROFITABILITY OF FERTILIZER USE ON SEED COTTON  
AT THE MARKET PRICE: 2007-08**

S.No.	Item	Seed Cotton Nutrient Ratio of			
		3.00:1	3.75:1	4.50:1	5.25:1
		----- Kgs -----			
1	Yield increase due to use of additional 10 nutrient kgs of fertilizer per acre	30.0	37.5	45.0	52.5
		----- Rupees -----			
2	Direct cost of 10 kgs of NPK fertilizer at the weighted average price of Rs 28.52 per nutrient kg (i.e. Rs.22.85, 28.39 and 40.00 per nutrient kg of N,P and K at the recommended NPK ratio of 2:1:1(a)	283.9	283.9	283.9	283.9
3	Indirect cost due to the application of additional fertilizer as detailed below(b)	118.1	139.5	160.9	182.2
	3.1 Transportation and application charges of 20 kgs of fertilizer @ Rs 23.0 per bag of fertilizer	9.2	9.2	9.2	9.2
	3.2 Picking charges for additional produce @ Rs 90.0 per 40 kgs	67.5	84.4	101.3	118.1
	3.3 Marketing charges for additional produce @ Rs 24.0 per 40 kgs	18.0	22.5	27.0	31.5
	3.4 Mark up on direct cost of fertilizer (item2+3.1) for 8 months @ 12 % per annum	23.4	23.4	23.4	23.4
4	Total additional cost (item 2+3)	402.0	423.4	444.8	466.1
5	Value of additional produce @ Rs 1456 per 40 kgs( c)	1092.0	1365	1638	1911
6	Benefit cost ratio (item 5 divided by item 4)	2.72	3.22	3.68	4.10

Note :

- a) The prices of N,P and K have been worked out from average prices of Urea, DAP and NPK used in COP estimates of the Punjab and Sindh for 2007-08 crop taken respectively as 525.5, 855.5 and 900.0 per bag of 50 kgs.
- b) The rates of indirect cost items are the average of the rates used in the COP estimates of the Punjab and Sindh for 2007-08 crop.
- c) Average of the market price of 2007-08 crop for different varieties exclusive of "Desi" varieties for the period August to January, 2008 have been used.

## CIF NORTH EUROPE PRICES OF VARIOUS COTTONS: 1997-98 to 2007-08

Years Aug-Jul	Sindh/ Punjab Afzal 1-1/32"	Index- B Cottons	Orleans/ Texas SLM 1-1/32"	Difference between Sindh/ Punjab Afzal 1-1/32" and	
				Index- B Cottons	Orleans/Texas SLM 1-1/32"
----- US Cents per pound -----					
1997-98	72.28	71.00	72.16	1.28	0.12
1998-99	55.28 *	54.3	67.46	0.98	-12.18
1999-00	47.23	49.55	50.19	-2.32	-2.96
2000-01	56.78	53.7	53.57	3.08	3.21
2001-02	38.41	38.95	39.05	-0.54	-0.64
2002-03	51.36	51.42	51.16	-0.06	0.2
2003-04	63.10 *	63.17	65.85	-0.07	-2.75
2004-05	46.10	51.19	51.19	-5.09	-5.09
2005-06	54.59	55.06	54.39	-0.47	0.20
2006-07	58.63	56.61	56.13	2.02	2.50
2007-08	69.21	68.85	68.76	0.36	0.45
August	N.Q	N.Q	62.25	-	-
September	68.63	68.90	65.00	-0.27	3.63
October	67.75	68.30	65.69	-	-
November	71.25	69.35	66.56	1.90	4.69
December	N.Q	N.Q	65.92	-	-
January	N.Q	N.Q	70.10	-	-
February	N.Q	N.Q	70.13	-	-
March	N.Q	N.Q	84.42	-	-

\* Not quoted during the year, so interpolated in view of Index-B Cottons.  
Source: Cotton outlook ( various issues).

**DOMESTIC PARITY PRICES ON THE BASIS OF COTTON YARN (21') PRICE  
AT KARACHI (AUGUST 07 TO MARCH 2008)**

S.No	Items	Rupees
1	Average price of cotton yarn (21's) per bundle of 4.54 kgs	595
2	Average price of cotton yarn (21's) per kg	131.06
3	Recovery from sale of 0.16 kgs of cotton waste	2.00
4	Conversion charges from lint to yarn per kg	33.00
5	Value of 1.16 kgs of lint (item 2 + 3 minus item 4) (a)	100.06
6	Value of one kg of lint (item 5 divided by 1.16)	86.26
7	Value of 40 kgs lint (item 6 into 40 kgs)	3450.25
8	Storage and transport cost from gin to mill per 40 kgs	40
9	Ex-gin price of 40 kgs lint (item 7 minus 8)	3410.25
10	Value of 80 kgs of cotton seed (b)	1314
11	Ginning charges for 120 kgs seed cotton	350
12	Seed cotton price for 120 kgs (item 9+10 minus item 11) (c)	4374.25
13	Seed cotton price per 40 kgs (item 12 divided by 3)	1458

- Notes: (a) 1.16 kgs of lint = 1 kg of yarn + 0.16 kgs of waste
- (b) Average price of cotton seed for the period August 07, to March, 2008 at Multan and Hyderabad market was Rs 657 per 40 kgs.
- (c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint

## Sources:

- 1 Karachi Cotton Association (KCA), Karachi.
- 2 Pakistan Central Cotton Committee (PCCC), Karachi.
- 3 Pakistan Cotton Ginner's Association (PCGA), Karachi
- 4 All Pakistan Textile Mills Association (APTMA), Karachi.

EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF ACTUAL  
AVERAGE EXPORT PRICE OF PAKISTANI COTTON

S.No	Item	2007-08 (Aug-Feb)	2002-03 to 2006-07
1.	Actual average export price	US Cents per pound 57.53	49.00
		OR Rupees (a)	
	Actual average export price per 40 Kgs	3374	2873
2.	Marketing expenses ( export & purchase incidentals, insurance & financial expenses) per 40 Kgs	225	225
3.	Ex- gin price of lint per 40 Kgs (item 1- item 2 )	3149	2648
4.	Value of 80 kgs of cotton seed (b)	1314	1314
5.	Ginning charges for 120 kgs of seed cotton	350	350
6.	Value of 120 kgs of seed cotton (c) (items 3 +4 - item 5)	4113	3612
7.	Seed cotton price per 40 kgs ( item 6 / 3 )	1371	1204

## Notes:

- a) Buying exchange rate one US \$ = 66.50 Pak rupees, announced by State Bank of Pakistan as on May 31, 2008.
- b) Average price of cotton seed for the period August 07, to March, 2008 at Multan and Hyderabad market was Rs 657 per 40 kgs.
- c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

## Sources:

1. FBS , for export prices.
2. KCA, Karachi for marketing expenses.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Pakistan Central Cotton Committee, Karachi for cotton seed price.

EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF CIF NORTH EUROPE  
 QUOTATIONS OF INDEX B COTTONS AND PAKISTANI AFZAL 1-1/32"

S.No	Item	Index B Cottons		Afzal 1-1/32"	
		2007-08 (Aug - March)	2002-03 to 2006-07	2007-08 (Aug - March)	2002-03 to 2006-07
		----- US Cents per pound -----			
1	Average cif North Europe quotations	68.85	57.94	69.21	54.14
2	Freight charges	4.50	4.50	4.50	4.50
3	Export price ( item 1 - item 2 )	64.35	53.44	64.71	49.64
4	Insurance, agents commission, and port handling charges @ 4% of export price	2.57	2.14	2.59	1.99
5	Net export price ( item 3 - item 4 )	61.78	51.30	62.12	47.65
		OR ----- Rupees (a) -----			
		3623	3008	3643	2795
6	Marketing expenses ( export & purchase incidentals, insurance & financial expenses) per 40 kgs	225	225	225	225
7	Ex- gin price of lint per 40 kgs ( item 5 - item 6 )	3398	2783	3418	2570
8	Value of 80 kgs of cotton seed (b)	1314	1314	1314	1314
9	Ginning charges for 120 kgs of seed cotton	350	350	350	350
10	Value of 120 kgs of seed cotton (c) ( items 7 + 8 - item 9 )	4362	3747	4382	3534
11	Seed cotton price per 40 kgs ( item 10 / 3 )	1454	1249	1461	1178

## Notes:

- Buying exchange rate one US \$ = 66.50 Pak rupees, announced by State Bank of Pakistan as on May 31, 2008.
- Average price of cotton seed for the period August 07, to March, 2008 at Multan market was Rs 657 per 40 kgs.
- 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

## Sources:

- Cif quotations calculated from Annex- VI.
- KCA, Karachi for marketing expenses.
- Pakistan Cotton Ginners Association, Karachi for ginning charges.
- Pakistan Central Cotton Committee Karachi, for cotton seed price.

EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF FUTURE'S  
CONTRACT PRICE OF NEW YORK NO. 2 COTTON ( AVERAGE OF  
OCTOBER, DECEMBER, 2008 AND MARCH, 2009 )

S.No	Item	Price calculations
		US Cents per pound
1.	Future's contract price as on April 09, 08	84.5
2.	Grade and staple discount	4.6
3.	Discount on account of inland transportation and certification of stocks	6
4.	Parity price of Afzal 1-1/32" at Karachi	73.9
		OR Rupees (a)
	Parity prices per 40 kgs	4334
5.	Marketing expenses ( export & purchase incidentals, insurance & financial expenses per 40 kgs	225
6.	Ex- gin price of lint per 40 kgs ( item 4 - item 5 )	4109
7.	Value of 80 kgs of cotton seed (b)	1314
8.	Ginning charges for 120 kgs of seed cotton	350
9.	Value of 120 kgs of seed cotton (c) ( items 6 + 7 - item 8 )	5073
10.	Seed cotton price per 40 kgs ( item 9 / 3 )	1691

## Notes:

- a) Buying exchange rate one US \$ = 66.50 Pak rupees, announced by State Bank of Pakistan as on May 31, 2008.
- b) Average price of cotton seed for the period August 2007, to March, 2008 at Multan market was Rs 657 per 40 kgs.
- c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

## Sources:

1. Cotton Outlook of April 11, 2008 for future contract price.
2. KCA, Karachi for marketing expenses.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Pakistan Central Cotton Committee, Karachi for cotton seed price.

**EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF AVERAGE  
FOB PRICE OF PAKISTANI COTTON YARN (20'S)**

S.No	Item	2007-08 (Aug-Mar)	2002-03 to 2006-07
		US Cents per kg	
1.	Average fob price	197.00	188.00
		OR	Rupees (a)
		131	125
2.	Fob expenses per kg ( transport cost, wharfage, port handling & forwarding, adhesive & EDS)	2	2
3.	Export packing cost per kg	1	1
4.	Sales tax @ 15% of item-5	15	15
5.	Value of 1 kg yarn ( item 1 - (items 2+3+4)	113	107
6.	Recovery from 0.16 kgs cotton waste	2	2
7.	Conversion charges of lint into yarn per kg	33	33
8.	Value of 1.16 kgs cotton lint (b) (items 5 +6 -item 7)	82	76
9.	Price of one kg cotton lint (item7/1.16)	71	66
	Price of 40 kgs cotton lint	2828	2621
10.	Transport cost from ginnery to mill, local tax(per 40kgs)	40	40
11.	Ex-gin price of 40 kgs lint ( item 9 - item 10 )	2788	2581
12.	Value of 80 kgs cotton seed (c)	1314	1314
13.	Ginning charges for 120 kgs of seed cotton	350	350
14.	Seed cotton price of 120 kgs (item11+12- item13) (d)	3752	3545
15.	Seed cotton price per 40 kgs ( item 14/3 )	1251	1182

## Notes:

- a) Buying exchange rate one US \$ = 66.50 Pak rupees, announced by State Bank of Pakistan as on May 31, 2008.
- b) 1.16 kgs of lint = 1 kg of yarn +0.16 kgs of waste.
- c) Average price of cotton seed for the period August 07, to March, 2008 at Multan and Hyderabad market was Rs 657 per 40 kgs.
- d) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

## Sources:

1. Cotton Outlook various issues for fob price.
2. APTMA, Karachi for items, 2, 3 and 9.
3. Annex VII for items 5 and 6.
4. Pakistan Cotton Ginners Association, Karachi for ginning charges.
5. Pakistan Central Cotton Committee Karachi, for cotton seed price.

## ANNEX- XII

IMPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF AVERAGE QUOTED  
CIF NORTH EUROPE PRICE OF ORLEANS/TEXAS'SLM 1-1/32"

S. No	Item	2007-08 (Aug-Mar)	2002-03 to 2006-07
		US cent per pound	
1.	Average cif North Europe quotations	69.25	57.77
2.	Freight charges	4.50	4.50
3.	Forwarding charges @ 1.5% cif (North Europe Quotation)	1.04	0.87
4.	Cif (Karachi) price	74.79	63.14
5.	Insurance, agents commission, and port handling charges @ 1.5% of cif (Karachi) price	1.12	0.95
6.	Landed cost at Karachi	75.91	64.08
		OR Rupees per 40 kgs (a)	
7.	Net cif (Karachi) price	4458	3764
8.	Handling charges at port and transport cost from port to textile mills at Karachi @ 2.5 % of cif price	111	94
9.	Ex- gin price of lint (item 7 + item 8 )	4570	3858
10.	Value of 80 kgs of cotton seeds (b)	1314	1314
11.	Ginning charges for 120 kgs of seed cotton including ginning losses	350	350
12.	Value of 120 kgs of seed cotton ( item 9 +item 10 - item 11 )	5534	4822
13.	Seed cotton price per 40 kgs ( item 12/ 3 )	1845	1607

## Notes:

- Selling exchange rate one US \$ = 66.60 Pak rupees, announced by State Bank of Pakistan as on May 31, 2008.
- Average price of cotton seed for the period August 07, to March, 2008 at Multan and Hyderabad market was Rs 657 per 40 kgs.

## Sources:

- Cif ( North Europe) price Annex - VI.
- KCA, for incidentals charges.
- Pakistan Cotton Ginners Association, Karachi for ginning charges.
- Pakistan Central Cotton Committee, Karachi for cotton seed price

IMPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF ACTUAL AVERAGE  
CIF ( KARACHI ) PRICE OF IMPORTED COTTON

S. No	Item	2007-08 (Aug-Feb)	2002-03 to 2006-07
		Rupees per 40 kgs	
1.	Actual average cif ( Karachi ) price	3171	3278
2.	Handling charges at port and transport cost from port to textile mill at Karachi @ 2.5 % of cif price	79	82
3.	Ex- gin price of lint (Item 1+ item 2)	3250	3360
4.	Value of 80 kgs of cotton seed (a)	1314	1314
5.	Ginning charges for 120 kgs of seed cotton including ginning losses	350	350
6.	Value of 120 kgs of seed cotton ( item 3 +item 4 - item 5 )	4214	4324
7.	Seed cotton price ( item 6/ 3 )	1405	1441

Note:

- a) Average price of cotton seed for the period August 07, to March, 2008 at Multan and Hyderabad market was Rs 657 per 40 kgs.

Sources:

1. FBS, for cif ( Karachi price).
2. KCA, for incidentals charges.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Pakistan Central Cotton Committee, Karachi for cotton seed price

## ECONOMIC EFFICIENCY OF RESOURCE USE IN SEED COTTON

Based on Export Parity Prices

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
Rupees per acre				
<b>PUNJAB</b>				
<b>2002-03</b>				
Private Prices	16418	5780	6992	3646
Social Prices	16966	5257	7319	4390
Transfers	-548	523	-327	-743
<b>2003-04</b>				
Private Prices	22372	6383	7109	8880
Social Prices	20095	5818	7417	6860
Transfers	2277	565	-308	2020
<b>2004-05</b>				
Private Prices	15288	6978	7726	585
Social Prices	17877	6389	8101	3388
Transfers	-2589	589	-375	-2804
<b>2005-06</b>				
Private Prices	18070	7341	7818	2910
Social Prices	20079	6727	8329	5023
Transfers	-2009	614	-511	-2113
<b>2006-07</b>				
Private Prices	19912	8311	8711	2891
Social Prices	20479	7934	9283	3262
Transfers	-567	377	-573	-371
<b>2007-08</b>				
Private Prices	25721	8413	9969	7340
Social Prices	26389	8032	10337	8020
Transfers	-668	381	-368	-680
<b>SINDH</b>				
<b>2002-03</b>				
Private Prices	12830	4585	5932	2313
Social Prices	15355	4386	5440	5529
Transfers	-2525	199	492	-3216
<b>2003-04</b>				
Private Prices	18538	4823	6022	7692
Social Prices	18165	4613	5525	8027
Transfers	373	210	498	-335
<b>2004-05</b>				
Private Prices	13667	5807	6269	1592
Social Prices	15730	5554	5834	4342
Transfers	-2063	254	434	-2751
<b>2005-06</b>				
Private Prices	17950	6264	7794	3892
Social Prices	20303	5990	7426	6887
Transfers	-2353	274	368	-2995
<b>2006-07</b>				
Private Prices	19845	6806	8836	4202
Social Prices	20695	6507	9390	4799
Transfers	-850	300	-553	-597
<b>2007-08</b>				
Private Prices	25443	6926	9640	8877
Social Prices	26639	6967	10044	9628
Transfers	-1197	-41	-404	-752

## ECONOMIC EFFICIENCY OF RESOURCE USE IN SEED COTTON

Based on Import Parity Prices

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
Rupees per acre				
<b>PUNJAB</b>				
<b>2002-03</b>				
Private Prices	16418	5780	6992	3646
Social Prices	18308	5257	7319	5731
Transfers	-1889	523	-327	-2085
<b>2003-04</b>				
Private Prices	22372	6383	7109	8880
Social Prices	21499	5818	7417	8264
Transfers	873	565	-308	616
<b>2004-05</b>				
Private Prices	15288	6978	7726	585
Social Prices	19322	6389	8101	4832
Transfers	-4034	589	-375	-4248
<b>2005-06</b>				
Private Prices	18070	7341	7818	2910
Social Prices	21708	6727	8329	6652
Transfers	-3638	614	-511	-3742
<b>2006-07</b>				
Private Prices	19912	8311	8711	2891
Social Prices	22199	7934	9283	4982
Transfers	-2287	377	-573	-2091
<b>2007-08</b>				
Private Prices	25721	8413	9969	7340
Social Prices	28071	8032	10337	9702
Transfers	-2350	381	-368	-2362
<b>Sindh</b>				
<b>2002-03</b>				
Private Prices	12830	4585	5932	2313
Social Prices	16560	4386	5445	6729
Transfers	-3730	199	487	-4415
<b>2003-04</b>				
Private Prices	18538	4823	6017	7697
Social Prices	19426	4613	5525	9288
Transfers	-888	210	493	-1591
<b>2004-05</b>				
Private Prices	13667	5807	6269	1592
Social Prices	16991	5554	5839	5598
Transfers	-3324	254	429	-4007
<b>2005-06</b>				
Private Prices	17950	6264	7794	3892
Social Prices	21942	5990	7431	8520
Transfers	-3992	274	363	-4628
<b>2006-07</b>				
Private Prices	19845	6806	8836	4202
Social Prices	22425	6507	9395	6524
Transfers	-2580	300	-558	-2321
<b>2007-08</b>				
Private Prices	25443	6926	9640	8877
Social Prices	28331	6967	10049	11315
Transfers	-2888	-41	-409	-2438

## COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

S. No.	Name of variety	Yield (Kgs/hect.)	S. No.	Name of variety	Yield (Kgs/hect.)
<b>Upland</b>					
1	S 12, CRS, Multan	3900	50	Marvi, CRI, Sakrand	2500
2	SLS 1, CRS, Sahiwal	3500	51	Shahbaz 95 ARI, Tandojam	2500
3	NIAB 78, NIAB, Faisalabad	3500	52	B 557, CRI, Faisalabad	2500
4	MNH 93, CRS, Multan	3500	53	Shaheen, CRS, Ghotki	2200
5	MNH 147, CRS, Multan	3300	54	SLH 41, CRS, Sahiwal	2200
6	FH 682, CRI, Faisalabad	3200	55	MS 84, CRS, Multan	2100
7	CRIS 9, CRI, Sakrand	3100	56	k 68/9, crs, Ghotki	2000
8	BH 36, CRS, Bahawalpur	3100	57	Qalandari, CRS, Tandojam	2000
9	CIM 70, CCRI, Multan	3100	58	149 F, CRS, Multan	2000
10	CIM 496 CCRI, Multan	3000	59	Sarmast, CRS, Tandojam	1800
11	CRIS 467 CRI, Sakrand	3000	60	Ms 40, Crs, Multan	1700
12	CIM 707 CCRI, Multan	3000	61	MS 39, CRS, Multan	1650
13	CIM 506 CCRI, Multan	3000	62	AC 134, CRI, Faisalabad	1600
14	CIM 499 CCRI, Multan	3000	63	Lasani 11, CRI, Faisalabad	1600
15	FH 1000, Faisalabad	3000	64	M 100, CRS, Tandojam	1500
16	NIAB 999, NIAB, Faisalabad	3000	65	362 F, CRI, Faisalabad	1500
17	CIM 473, CCRI, Multan	3000	66	BS 1 CRSS, Khanpur	1200
18	BH 118 CRI, Bahawalpur	3000	67	238 F, CRI, Faisalabad	1000
19	CIM 482, CCRI, Multan	3000	68	268 F, CRI, Faisalabad	1000
20	FH 900, CRI, Faisalabad	3000	69	216 F, CRI, Faisalabad	1000
21	FH 901, CRI, Faisalabd	3000	70	LSS, CRI, Faisalabad	1000
22	CIM 443, CRSI, Multan	3000	71	289F/K25, BCGA, Khanewal	1000
23	CIM 446, CRSI, Multan	3000	72	289F, CRI, Faisalabad	950
24	FVH 53, CRS, Vehari	3000	73	199 F, CRS, Multan	900
25	Chandi 95, NIA Tandojam	3000	74	124 F, CRI, Faisalabad	900
26	CIM 448, CCRI, Multan	3000	75	M 4, CRS, Tandojam	900
27	CIM 1100, CCRI, Multan	3000	76	289 F/43, CRI, Faisalabad	900
28	Karishma, NIAB, Faisalabad	3000	77	4F, CRI, Faisalabad	800
29	MNH 329, CRS, Multan	3000	78	3F, CRI, Faisalabad	600
30	RH 112, CRS, R. Y. Khan	3000		<b>Hybrid</b>	
31	S 14, CRS, Multan	3000	1	H151, Alseemi, Multan	3500
32	CIM 240, CCRI, Multan	3000	2	H115, Alseemi, Multan	3500
33	NIAB 26N, NIAB, Faisalabad	3000	3	H160, Alseemi, Multan	3500
34	Reshmi 90, CRS, Tandojam	3000		<b>Desi</b>	
35	CIM 109, CCRI, Multan	3000	1	FDH 170, CRI, Faisalabad	2500
36	Gohar 87, CRS, Bahawalpur	3000	2	FDH 228, CRI, Faisalabad	2000
37	RH 1, CRS, R. Y. Khan	3000	3	Rohi, CRI, Bahawalpur	2000
38	fh 87, CRI, Faisalabad	3000	4	Ravi, CRI, Faisalabad	1900
39	MNH 129, CRS, Multan	3000	5	SKD 10/19, CRI, Sakrand	1700
40	Rehmani, CRS, Tandojam	3000	6	D 9, CRI, Faisalabad	1400
41	MNH 552, CRS, Multan	2900	7	TD 1, CRS, Tandojam	1000
42	MNH 554, CRS, Multan	2800	8	231 R, CRI, Multan	1000
43	FH 634, CRI, Faisalabad	2800	9	119S, CRI, Multan	800
44	Gomal 93, CRS, D. I. Khan	2800	10	SNR, CRS, Tandojam	800
45	NIAB 86, NIAB, Faisalabad	2800	11	39 M, CRI, Faisalabad	650
46	CRIS 134, CRI, Sakrand	2700	11	15 M, CRI, Faisalabad	600
47	NIAB 111 NIAB, Faisalabad	2600	12	SNR, CRS, Tandojam	800
48	Sohani NIA, Tandojam	2500			
49	BH 160 CRS, Bahawalpur	2500			

Source: A booklet titled as "Cotton Varieties of Pakistan FSC & RD, Islamabad".

