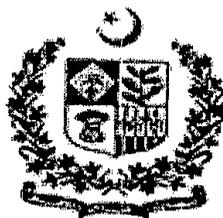


API SERIES NO 241



COTTON POLICY ANALYSIS
FOR
2012-13 CROP

**AGRICULTURE POLICY INSTITUTE
MINISTRY OF NATIONAL FOOD SECURITY AND
RESEARCH
GOVERNMENT OF PAKISTAN
ISLAMABAD**

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ABBREVIATIONS

AARI	:	Ayub Agricultural Research Institute
API	:	Agriculture Policy Institute
APTMA	:	All Pakistan Textile Mills Association
BCR	:	Benefit Cost Ratio
BPS	:	Basic Pay Scale
CFR	:	Cost and Freight
CIF	:	Cost, Insurance and Freight
CLCV	:	Cotton Leaf Curl Virus
COP	:	Cost of Production
CPI	:	Consumer Price Index
CRI	:	Cotton Research Institute
DAP	:	Di. Ammonium Phosphate
DRC	:	Domestic Resource Cost
ECC	:	Economic Coordination Committee
E&M	:	Economics & Marketing
EPC	:	Effective Protection Coefficient
PBS	:	Pakistan Bureau of Statistics
FOB	:	Free on Board
FSC&RD	:	Federal Seed Certification and Registration Department
FYM	:	Farm Yard Manure
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
ITMF	:	International Textile Mills Forum
KCA	:	Karachi Cotton Association
KPK	:	Khyber Pakhtunkhwa
MOC	:	Ministry of Commerce
NARC	:	National Agricultural Research Centre
NCL	:	No Control Limit
NIAB	:	Nuclear Institute of Agriculture and Biology
NPC	:	Nominal Protection Coefficient
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

I. Findings

a) Area and Production

- i) Punjab and Sindh contribute 71.7 and 27.6 per cent of the cotton production while the share of both KPK and Balochistan is less than one.
- ii) During the last decade, cotton production has risen @ 1.5 per cent per annum due to 2.2 per cent improvement in yield while the area has fallen @ 0.7 per cent per year.
- iii) Cotton production in 2011-12 is estimated at 12.63 million bales, higher by 10.2 per cent high over 11.46 million bales produced in 2010-11.
- iv) Cotton production has fallen short of 9.9 per cent against the target fixed by the provinces.

b) Domestic Prices

- i) Monthly average market prices of seed cotton for 2011-12 crop have generally remained below the export parity prices.
- ii) The wholesale prices of seed cotton during the post harvest period averaged at Rs 2558 per 40 kgs in the Punjab and Rs 2051 in Sindh.
- iii) Monthly average wholesale prices of seed cotton ranged from Rs 2153 to Rs 2856 per 40 kgs during the post harvest months in major producing areas of the Punjab and Rs 1378 to Rs 2690 per 40 kgs in Sindh.
- iv) Monthly average spot prices of cotton lint at Karachi have dropped to Rs 6340 per 40 kgs in 2011-12 from Rs 8720 in 2010-11.

c) Cost of Production

- i) In the Punjab, the cost of cotton cultivation during 2012-13 season is estimated at Rs 45,706 per acre.
- ii) The cost of production at the market/ginnery level would be Rs 2479 per 40 kgs, reflecting a rise of 12 per cent over the last year.
- iii) In Sindh, the cost of cotton cultivation for 2012-13 crop is expected at Rs 41,561 per acre.
- iv) The cost of production at market/ginnery level would come to Rs 2214 per 40 kgs, showing an increase of 13 per cent over the last year.

d) Economics of Cotton and Competing Crops

- i) The economics of cotton has an edge over basmati and Irri during 2011-12 in respect of economic indicators adopted in this analysis.
- ii) In case of indirect competition with sugarcane, the cotton + sunflower performed better than sugarcane in most of the criteria.
- iii) In Sindh, cotton farming could not maintain its superiority over IRRI paddy in terms of all the economic indicators.
- iv) In case of indirect competition, the cotton combinations with wheat or sunflower lag behind sugarcane in most of the indicators in Sindh.

e) Economics of Fertilizer Use on Cotton Crop

- i) 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 Seed Cotton, these ratios have moved in favour of cotton crop during 2011-12.
- ii) Regarding parity ratio between prices of fertilizer and seed cotton, the quantity of seed cotton needed to buy one nutrient tonne of N fertilizer has fluctuated from 0.52 to 0.82 tonnes while that of P fertilizer from 0.78 to 3.16 during 2002 to 2012.

f) Nominal and Real Market Prices

- i) The nominal market prices of seed cotton in the Punjab indicate an overall surge of 184 per cent while the real market prices have gained only 5 per cent over the base year during 2000 to 2012.
- ii) In Sindh, the nominal market prices of seed cotton during 2000-01 to 2011-12 have risen @129 per cent over the base year where real market prices have shown a decline of 15 per cent from the base year.

g) World Production and Prices

- i) World cotton production estimated at 26.74 million tonnes in 2011-12 is projected to decline to 25.22 million in 2012-13.
- ii) The world prices of cotton have fluctuated widely dipping as low as 51 cents per pound in 2004-05 and rising as high as 165 cents per pound in 2010-11.

h) Export/Import Parity Prices

- i) The export parity price comes to Rs 2574 per 40 kgs on the basis of Futures contract prices of New York No.2 Cotton.
- ii) Based on actual export price of Pakistani cotton during 2011-12, the export parity price of seed cotton calculates to Rs 2687 per 40 kgs and Rs 2292 during 2008 to 2011.
- iii) Based on cotton yarn prices at Karachi during 2011-12, the price of seed cotton works to Rs 2598 per 40 kgs.
- iv) Based on actual cif (Karachi) price of imported cotton during 2011-12, the import parity price of seed cotton calculates to Rs 4022 per 40 kgs.
- v) Based on CFR Far Eastern quoted price of Index-A Cottons, the import parity price comes to Rs 3511 per 40 kgs during 2011-12.

i) Economic Efficiency

- i) 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).
- ii) The NPCs have been below one under import scenario except 2007-08. However, under export scenario these ratios remained above one during 2007-08 to 2009-10 but below one during last two years.
- iii) Similarly, the EPCs are below one under import scenario, but above one under export scenario in most of the year.
- iv) DRC indicates the opportunity cost of domestic resources employed per unit of value added in production of a commodity.
- v) The DRCs have been less than one during the period under analysis. It implies a Comparative Advantage in domestic cotton production.
- vi) The findings of economic efficiency analysis warrant expansion in cotton production to meet domestic requirements of textile industry as the imports are more expensive.

j) World Comparison

- i) Pakistan is the 4th largest cotton producer in terms of area and production but holds 23rd position in terms of yield.
- ii) According to the Annual Progress Report of Central Cotton Research Institute, Multan for 2009-10, major cotton varieties sown in Punjab were Bt cotton, CIM-496, CIM-499, CIM-473 CIM-506, S-2000, MNH-786, MNH-886 and MNH-121.
- iii) Among 6 competing countries, cost of production of seed cotton was estimated at Pak Rs 3251 per 40 kgs in USA while in India it was reported at Pak Rs 1249 per 40 kgs during 2009-10.
- iv) The cost of production of seed cotton is estimated at Pak Rs 3179 per 40 kgs in China, Rs 3039 in Iran, Rs 2674 in Turkey and Rs 1635 in Pakistan during 2009-10.
- v) Turkey has provided the highest direct assistance to cotton sector through production programmes at Pak Rs 2338 per 40 kgs during 2010-11 followed by USA and China at Rs 304 and Rs 150 per 40 kgs. No such direct assistance is reported in Pakistan and Brazil during 2010-11.

II. Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for seed cotton 2012-13 crop are presented below:

S.No.	Base	Worked back price of seed cotton at ginnery level	
		Rs/40 kgs	
1	Export parity prices based on average:		
	i) Actual export price of Pakistani cotton		
	- During 2011-12 (Aug-Dec)		2687
	- During 2008-09 to 2010-11		2292
	ii) Futures contract prices of New York No.2 cotton (average of October, December 2012 and March 2013)		2574
	iii) Fob prices of Pakistani cotton yarn (20's):		
	- During 2011-12 (Aug-Jan)		2598
	- During 2008-09 to 2010-11		2857
2	Import parity prices based on average:		
	i) Actual cif Karachi prices of imported cotton:		
	- During 2011-12 (Aug-Dec)		4022
	- During 2008-09 to 2010-11		2963
	ii) Index-A cotton		
	- During 2010-11 (Aug-Jan)		3511
	- During 2008-09 to 2010-11		3278
3	Average domestic market price of seed cotton in 2011-12 (Aug-Jan)		
	- Punjab		2558
	- Sindh		2051
4	Cost of production for 2012-13 crop		
	- Punjab		2479
	- Sindh		2214
5	Cost of domestic resources involved in:		
		At exchange rate Pak Rs 90.86 for export and Pak Rs 90.51 for import	
		Punjab	Sindh
	i) Producing cotton for import substitution based on 2009-12 prices of cotton	29.87	29.87
	ii) Producing cotton for export based on 2009-12 prices of cotton	56.33	59.97

III. 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 proposals are made regarding intervention price and improving productivity, quality and marketing of cotton crop:

a) Intervention Price

- i) The Government may like to consider the intervention price of seed cotton (Base grade 3 with staple length 1-1/16") for 2012-13 crop, keeping in view of world prices cotton and high input costs, if deem necessary.
- ii) It provides a reference point to intervene by the public sector agency, if needed. It is to be implemented only when the market prices of seed cotton fall below the Intervention Price.
- iii) In view of trade liberalization and active role of private sector, the actual incentive to cotton growers should come through the market forces.
- iv) The government policy of encouraging the role of private sector in cotton marketing and trade may be continued.
- v) 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, if announced in case of need.

b) Improving Productivity

- i) Public and private seed companies may be encouraged to multiply and distribute the seed of the appoved cotton varieties.
- ii) The cultivation of uncertified Bt cotton varieties must be curtailed through strict measures.
- iii) The role of private sector may be promoted to supply certified Bt cotton seed through public – private partnership. The APTMA may be involved in Government activities for research, marketing and quality improvement.
- iv) There is a dire need to strengthen coordination among the Provincial and Federal Research Institutes to improve research activities for productive outcome.
- v) An appropriate monitoring system must be introduced to verify the performance of Bt cotton varieties in the field particularly for toxin level.

- vi) The price, date of manufacture and weight should be labelled on the bags of fertilizer and brands of pesticides/weedicides.
- vii) The Punjab Seed Corporation is working well. The Government of Sindh, KPK and Balochistan should also pay a special attention towards seed production to meet their requirements.
- viii) To ensure quality control of pesticides, Provincial Agriculture Departments should devise a mechanism for quick disposal of adulteration cases.
- ix) The government should strengthen the IPM programme of NARC for its effective implementation in the entire cotton growing area.
- x) Pest Scouting and Warning System should be further strengthened enabling the farmers to take timely action and apply appropriate pesticides.
- xi) There is a need to encourage the Soil Testing facilities to assess the need of appropriate fertilizers for balanced input use.
- xii) The new seed variety should be auctioned in the open market to encourage the genuine breeders.
- xiii) The cotton production potential existing in the KPK and Balochistan may be tapped through cotton supporting activities. The provincial governments should launch Awareness Campaign to take special care of cotton production activities.
- xiv) The NIBGE in collaboration with Cotton Research Institutes should work hard on heat / drought resistant varieties to avoid excessive boll shedding and increasing boll weight.
- xv) The Government should emphasize the strategy to control the Mealy Bug through management practices and biological control.
- xvi) Soft loans may be arranged by the SBP to boost the production of export-oriented as well as import substitution crops
- xvii) EM technology, Bio-fertilizer and other technologies of fertilizer may be tested for balanced fertilizer use to reduce cost of production.
- xviii) To promote cotton cultivation in the country, there should be restriction on establishing new sugarmills in the cotton region.
- xix) Plant Breeders Rights Act may be approved and implemented in true spirit.

c) Improving Quality and Marketing

- i) A comprehensive educational campaign should be launched to educate the growers about improved practices of cotton picking.
- ii) A Ginning Research Institute may be established at Multan to deal with the issues of cotton ginning and related matters.
- iii) In order to introduce quality assurance system, the Cotton Commissioners should be posted with strong legal and administrative powers by provincial governments of Punjab and Sindh.
- iv) In order to check the underweighting 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.
- v) Like other commodities, a Regulatory Authority may be established to control prices and quality of agriculture inputs.
- vi) The recent amendment in Cotton Control Act for qualitative improvement of cotton may be effectively implemented.
- vii) The Cotton Standardization and Grading System may be implemented in accordance with the provisions of the Pakistan Cotton Standardization Ordinance, 2002.

Chairman, API

June 30, 2012

COTTON POLICY ANALYSIS FOR 2012-13 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 accounting for 13 per cent of the cropped area in the country. It contributes 6.9 per cent of the value added in agriculture sector and about 1.4 per cent to GDP. Cotton farming is a significant source of income for rural labour class especially women as pickers. The cotton sticks are also used as fire wood almost round the year at village level. Hundreds of ginneries are spread all over the country especially at village/town level in remote areas and their seasonal/permanent labour depend on cotton. It also provides raw material to oil extraction mills and the cotton seed cake which is a principal source of animal feed.

2. Cotton farming is the principal source of raw material for the textile sector; factories and textile mills in the country heavily depend upon cotton employing millions of skilled and unskilled labour along the entire cotton value added chain, from weaving to textile and garment export.

3. The foreign exchange earned from export of cotton and its made ups constitute about 60 per cent of earnings from the merchandise exports. 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.

4. Pakistan produced an all time record cotton crop of 14.3 million bales in 2004-05 followed by 13 million in 2005-06 and 12.9 million in 2009-10. Cotton production has averaged above 12 million bales during the last three years. As the crop is susceptible to a host of insect/pests and diseases, its cultivation is a risky proposition. Even in bumper crop harvests, the farmers have suffered because of low prices. The swing in cotton

production and prices has adversely affected all the cotton related sectors of the economy. In view of the importance of cotton, there is an urgent need to minimize incidence of such fluctuations and take effective measures to stabilize its production overtime.

5. In order to ensure a reasonable production level for the domestic textile industry and safeguard the interest of the cotton growers, the Government has been analysing the Intervention Price in the past for the Base grade with staple length 1-1/16" to be implemented only when the market prices of seed cotton fall below the intervention price level. Otherwise the Government always encourages the role of private sector in marketing and trade of cotton. Accordingly, no intervention was required during the last 3 years as the market prices remained at reasonable level during the season.

6. In preparing this Report for seed cotton 2012-13 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 Agriculture Policy Institute.
- A field survey was also conducted by the API during December, 2011 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. The data of field survey was analysed and the findings were duly considered in policy analysis.
- A meeting of the API's Standing Committee on Cotton was held on 9th January, 2012 at API, Islamabad. It was attended by the representatives of growers associations, Karachi Cotton Association, Trading Corporation of Pakistan, Chambers of Agriculture, Progressive Growers, Cotton Experts and officials of Federal and Provincial Governments concerned with farm inputs, cotton production and marketing, etc. Issues relating to cotton production, consumption, marketing and price situation both national and international were discussed in the meeting. The proceedings of the meeting were issued and the viewpoints of the committee members were duly considered in formulating the price policy proposals.

7. Under the WTO regime, the cotton trade has become increasingly quality conscious. Even the local textile industries demand for the standard cotton for manufacturing the quality made ups. In future, these challenges are expected to become more serious. There are also challenges of CLCV, Mealy bug and wide spread cultivation of unapproved Bt cotton in domestic production. Thus, it is very essential for Pakistan to prepare its cotton production and marketing strategies to face the emerging issues in the domestic and global markets. For improving quality of cotton, Amendment in Cotton Control Act and implementation of Cotton Standardization and Grading System are to be taken up on priority basis at the level of Ministry of Textile Industry.

8. In order to promote cotton production, the Ministry of National Food Security and Research 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 inputs and optimal plant population. Measures are also being taken to develop the disease/heat/drought resistant and Genetically Modified cotton varieties. Pest Scouting and Early Warning system is being strengthened by the provincial governments. The private sector is being facilitated for production of Bt-cotton hybrid seeds through technical and financial assistance. The Government has also initiated for the approval of Bt cotton varieties for getting benefit of new technology to boost cotton production in the country.

2. SOWING AND PICKING TIMES OF COTTON

9. In major cotton growing districts of the Punjab and Sindh, sowing of American cotton varieties is generally recommended by Provincial Agriculture Departments from 1st May to end June in the Punjab, 15th March to 15th June in Sindh, the whole month of May in the KPK and Balochistan. Province-wise details of the recommended sowing times for cotton growing districts are given in Table-1.

Table-1: Recommended Sowing Times of American Cotton Varieties

Province/District	Time of Sowing
Punjab	
Faisalabad, Sargodha, Jhang, Toba Tek -Singh Sahiwal, Pak Pattan, Okara Bahawalpur, R. Y. Khan	1 st May to 15 th June
Mianwali	10 th May to 15 th June
Multan, Lodhran, Vehari Muzaffargarh, Layyah, D.G.Khan, Rajanpur	1 st May to end of June
Khanewal	15 th May to 15 th June
Bahawalnagar	1 st May to 20 th June
Sindh	
Thatta	15 th March - 31 st March
Tharparkar, Mirpurkhas and Badin	1 st April - 30 th April
Hyderabad	15 th April - 15 th May
Sanghar	15 th April - 20 th May
Dadu, Nawabshah and Naushahro Feroz	1 st May - 31 st May
Khairpur, Sukkur, Ghotki, Larkana, Shikarpur & Jacobabad	15 th May - 15 th June
Khyber Pakhtunkhwa	
D.I. Khan	1 st May to 31 st May
Balochistan	
Lasbela, Dera Murad Jamali, Nasirabad	1 st May to 31 st May

Sources: 1. Cotton Research Institute, Multan. 2. PCCC, Karachi.
3. Cotton Research Institute, Sakrand.

10. Picking of cotton in Sindh and in some parts of the Punjab starts in August and may continue up to February in certain cases depending upon the crop and climatic conditions in the cotton growing areas of the country.

11. An important development is the increasing usage of Bt cotton by farmers. Almost 80 % of cotton growing area has become under Bt Cotton with different names in Sindh and Punjab. There may be 30 % increase in cotton yield due to resistance against chewing pests and hence additional income to cotton growers in Pakistan. However, the Bt. Cotton varieties grown are susceptible to Cotton Leaf Curl Virus (CLCV) and sucking pests like Mealy Bug , Jassid and White fly which are a major threat to cotton crop in Pakistan. The time of sowing and suitable areas for cultivation of Bt cotton in the Punjab for 2011-12 and 2012-13 crop seasons are presented in Table - 2 .

Table-2: Zoning for Cultivation of Bt Cotton in the Punjab

A. 2011-12 Crop Season

Bt Variety	Suitable Areas for Cultivation	Time of Sowing
IR-NIBGE-3701	All fertile lands of Punjab especially Bahawalpur and Rahim Yar Khan	15 th April to 15 th May
Ali Akbar 703	Rahim Yar Khan, Rajanpur, Bahawalpur, D.G. Khan and areas of early sown cotton	1 st March to 15 th April
MG-6	Low fertile lands and less irrigation water available areas especially Muzafargarh, Bahawalnagar and Bahawalpur	1 st April to 15 th May
Sitara-008	Central fertile areas of cotton, Khanewal, Multan, Vehari and Lodhran	1 st March to 15 th May
FH-113	Low fertile lands and less water available areas (Rahim Yar Khan, Rajanpur, D.G. Khan and Non Core Areas of Cotton), Layyah, Muzafargarh, Bahawalnagar, Haroonabad, Fort Abbas, Sandy areas of Bhakkar and Hard Pan of Bahawalpur	16 th April to 15 th May
Neelum 121	Fertile and irrigation water available Non Core Areas, especially cotton sowing areas after potato crops (Okara, Sahiwal)	1 st March to 30 th April
Ali Akbar 802	Highly Virus Affected areas, Multan, Lodhran, Muzafargarh, Khanewal and Non Core Areas of Cotton	15 th April to 15 th May
IR-NIBGE-1524	Low fertile lands with less water availability areas of Southern Punjab (Bahawalpur, Bahawalnagar)	15 th April to 15 th May
Hybrid GN-2085	All fertile lands of Punjab and suitable for progressive farmers	15 th April to 15 th May

B. 2012-13 Crop Season

Bt Variety	Suitable Areas for Cultivation	Time of Sowing
<i>Bt.CIM-598</i>	All fertile lands and irrigation water available, Core and Non-Core areas of Punjab	1 st March to 30 th April
Sitara-009	All fertile lands of Punjab	1 st March to 15 th May
MNH-886	All fertile lands of Punjab	1 st March to 15 th May
Tarzan-1	Central fertile lands of Punjab	15 th March to 15 th May
N-141	All fertile lands and irrigation water available areas	15 th March to 30 th April
A-One	Central fertile areas of cotton, Khanewal, Multan, Vehari and Lodhran	1 st March to 15 th April
NIBGE-3	Fertile and irrigation water available areas	1 st March to 1 st week of April

Source:- CCRI,Multan

3. PROVINCIAL SHARES IN AREA AND PRODUCTION

12. Provincial shares in area and production of cotton based on 2009-10 to 2011-12 average are provided in Table-3. During this period cotton production averaged at 12.333 million bales from 2.870 million hectares (7.092 million acres).

Table-3: Provincial Shares in Area and Production of Cotton: Average of 2009-10 to 2011-12

Country/Province	Area		Production	
	000 hectares	Per cent	000 bales	Per cent
Pakistan	2870.1	100.0	12333.7	100.0
Punjab	2383.2	83.0	8846.3	71.7
Sindh	450.3	15.7	3401.6	27.6
KPK& Balochistan	36.6	1.3	85.8	0.7

Source: Annex-I.

13. Punjab and Sindh account for 83.0 and 15.7 per cent of cotton area while 71.7 and 27.6 per cent in cotton production. Provincial shares in cotton area and production are also depicted in Figs 1 & 2. Cotton yield in Sindh is higher than Punjab resultantly the production share of Sindh exceeded its area share. The share of KPK & Balochistan together in the total area and production is only 1.3 and 0.7 per cent respectively. However, cotton yield in KPK and Balochistan is much lower than Punjab and Sindh indicating a vast potential in these areas.

4. IMPORTANT COTTON GROWING DISTRICTS

14. The district-wise data on area and production of cotton are given in Annex-III. The districts producing more than one million bales of cotton per annum each are Bahawalpur and Rahim Yar Khan. The districts producing more than 100 thousands bales of cotton per year each are Bahawalnagar, Vehari, Lodhran, Khanewal, Multan, Muzafargarh, Rajanpur, Sahiwal, D.G.Khan, Pakpattan, Jhang, Faisalabad, T.T.Singh, Layyah and Okara from the Punjab province and Sanghar, Khairpur, Ghotki, Nawabshah, Matiari, Naushero Feroze, Mirpurkhas, Sukkur, Tando Allahyar, Badin, and Umerkot from Sindh Province. These 28 districts account for more than 96 per cent of the cotton production in the country.

15. The districts of Bahawalpur, Rahim Yar Khan, Bahawalnagar, Vehari, Lodhran, Khanewal, Multan, and Sanghar each producing more than half million bales per year altogether account for 58 per cent of the cotton production in the country.

5. CHANGES IN AREA, YIELD AND PRODUCTION

16. During the period of 2001-02 to 2011-12, cotton area ranged between 2.689 and 3.193 million hectares (6.645 and 7.889 million acres) and yield between 572 and 763 kgs per hectare (231 to 309 kgs per acre). Similarly, cotton production in the country oscillated between 10.048 and 14.265 million bales. Long term and short term changes in area, yield and production are discussed below:

**Provincial Shares in Area of Seed Cotton:
(Average of 2009-10 to 2011-12)**

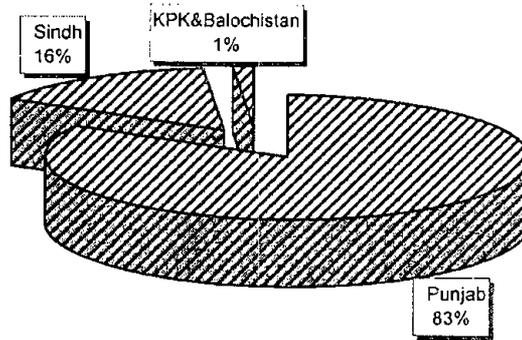


Figure-1: SHARES IN AREA

**Provincial Shares in Production of Seed Cotton:
(Average of 2009-10 to 2011-12)**

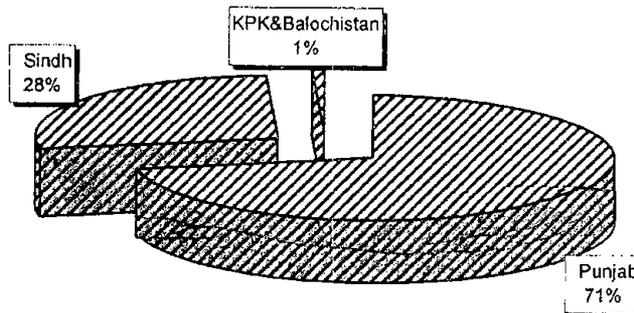


Figure-2: SHARES IN PRODUCTION

5.1 Long-term Changes: 2001-02 to 2011-12

17. During the period under reference, cotton production at country level increased @ 1.5 per cent per annum due to 2.2 per cent improvement in yield despite of 0.7 per cent contraction in area (Table-4).

Table-4: Average Annual Growth Rates of Area, Yield and Production of Cotton: 2001-02 to 2011-12

Country/ Province	Area	Yield	Production
	----- Per cent per annum -----		
Pakistan	(-) 0.7	(+) 2.2	(+) 1.5
Punjab	(-) 0.2	(+) 1.1	(+) 0.9
Sindh	(-) 3.9	(+) 7.2	(+) 3.0

Notes: 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.

18. In the Punjab cotton production grew @ 0.9 per cent per annum solely due to 1.1 per cent improvement in yield as the area under the crop has reduced @ 0.2 per cent annually. In Sindh cotton production increased @ 3.0 per cent per annum solely due to 7.2 percent improvement in yield as the area under cotton has turned down @ 3.9 per cent per year.

5.2 Short-term Changes: 2010-11 Vs 2011-12

19. According to the Second Estimates provided by the Provincial Agricultural Departments, cotton production during 2011-12 is reported at 12.627 million bales reflecting a rise of 10.2 per cent over the last year's crop of 11.460 million bales. The increase in production is mainly due to 4.7 per cent expansion in area and 5.2 per cent improvement in yield (Table-5).

Table-5: Area, Yield and Production of Cotton: 2010-11 and 2011-12 Crops

Country/ Province	Area		Changes in 2011- 12 over 2010-11	Yield		Changes in 2011- 12 over 2010-11	Production		Changes in 2011- 12 over 2010-11
	2010- 11	2011- 12		2010- 11	2011- 12		2010-11	2011-12	
	-- 000 hectares --		Per cent	Kgs/hectare		Per cent	-- 000 bales --		Per cent
Pakistan	2689.1	2815.6	4.7	725	763	5.2	11460.1	12627.5	10.2
Punjab	2200.6	2513.1	14.2	607	686	13.0	7854.0	10133.0	29.0
Sindh	457.0	259.2	-43.3	1316	1573	19.5	3536.8	2397.2	-32.2
KPK	0.2	1.9	1041.2	430	455	5.8	0.4	5.2	1107.0
Balochistan	31.3	41.4	32.3	374	378	1.1	68.9	92.1	33.7

Source: Annex-I

20. Cotton production in the Punjab estimated at 10.133 million bales, 29.0 per cent higher over 7.854 million bales produced in 2010-11. Increase in production is due to expansion in area by 14.2 per cent and higher yield by 13.0 per cent.

21. In Sindh cotton production remained at 2.397 million bales, 32.2 per cent lower than 3.537 million bales achieved in 2010-11. Lower production is entirely due to decline in the area by 43.3 per cent while the yield has improved by 19.5 per cent over 2010-11.

5.3 Factors Responsible for Variation in Cotton Production

22. Provincial Agricultural Departments have provided following reasons for changes in area, yield and production during 2011-12:

❖ Punjab Area

1. Lucrative market rates of last year induced the growers to put more area under seed cotton.
2. The normal size of crop is about 6 million acres out of which last year floods and excessive rains damaged the crop on about 0.7 million acres, causing significant increase in acreage this year.
3. Shifting of rice area to cotton in Faisalabad, Sahiwal, Multan and Bhawalpur divisions.

❖ **Sindh**

Due to last year's attractive market rates of seed cotton and also better situation of availability of irrigation water this year more area was brought under crop. Crop was in good condition, but due to heavy and continued monsoon rains from mid August, major portion of area under the crop was damaged, resultantly cotton production suffered adversely.

❖ **Punjab****Production**

23. Production increased in the Punjab province which is due to the following factors:
1. Corresponding increase in area.
 2. Favorable weather conditions, less attack of CLCV/pest and better management had a positive effect on yield.
 3. Timely (early) sown BT cotton and its increasing share in acreage also contributed in enhancement of production.

❖ **Sindh**

24. Production dropped in Sindh province due to the following factors:
1. From early and timely sown crop, 1-3 pickings in lower Sindh were made which contributed about 787,646 bales towards total production of cotton.
 2. Prolonged standing of rainy water in the fields adversely affected yield per acre, resulting less production.
 3. Overall production decreased due to fall in area under the crop.

6. TARGETS VS ACHIEVEMENTS: 2011-12 CROP

25. Respective Provincial Agriculture Departments had fixed production target for 2011-12 cotton crop at 14.010 million bales. According to Second Estimates provided by the Provincial Agriculture Departments, cotton production is reported at 12.627 million bales, 9.9 percent less than the target solely due to 12.0 percent shortage in area while the yield has surpassed its target by 2.4 per cent (Table-6).

Table-6: Targets and Estimated Achievements of Area, Yield and Production of Cotton: 2011-12 Crop

Country/ Province	Area		Deviation from the target	Yield		Deviation from the target	Production		Deviation from the target
	Target	Achieve- ment		Target	Achieve- ment		Target	Achieve- ment	
	--- 000 ha ---		Per cent	Kgs/ha		Per cent	-- 000 bales --	Per cent	
Pakistan	3200	2815.6	- 12.0	745	763	2.4	14010	12627.5	-9.9
Punjab	2500	2513.1	0.5	660	686	3.9	9700	10133.0	4.5
Sindh	650	259.2	- 60.1	1099	1573	43.1	4200	2397.2	-42.9
KPK	10	1.9	- 80.6	170	455	167.5	10	5.2	-48.1
Balochis- tan	40	41.4	3.5	425	378	-11.0	100	92.1	-7.9

Sources: 1. For targets: Respective Provincial Agriculture Departments.
2. For achievements: Annex-I.

26. In the Punjab cotton production exceeded the target by 4.5 per cent while in Sindh, KPK and Balochistan, it has lagged behind the target by 42.9, 48.1 and 7.9 percent respectively.

7. DOMESTIC SUPPLY, DEMAND, STOCKS AND PRICE SITUATION

7.1 Domestic Supply, Demand and Stocks

27. Domestic production of cotton from 2011-12 crop reported at 12.627 million bales is about 10.2 percent higher than the last year production of 11.460 million bales. Adding the opening stocks of 0.799 million bales, the total supply is calculated at 13.426 million bales. Accounting for the likely consumption, imports and exports, the closing stocks of 2011-12 show a shortfall of 1.142 million bales (Table-7). Due to this shortfall, import of cotton may increase while the prices of seed cotton in the coming season are likely to firm up.

Table-7: Domestic Production, Demand and Stocks of Cotton (Lint): 2009-10 to 2011-12

Item	2009-10	2010-11 (estimated)	2011-12 (Provisional)
----- Million bales * -----			
1. Opening stocks	2.693	2.348	0.799
2. Production	12.693	11.460	12.627
3. Total supply	15.386	13.808	13.426
4. Likely Consumption	14.128	14.378	14.630
5. Imports**	2.010	2.202	0.492
6. Exports**	0.920	0.833	0.430
7. Closing stocks	2.348	0.799	-1.142

Notes: * One bale = 170 kgs = 375 lbs.

** Import and Export during 2011-12 are upto Dec, 2011.

Sources: a) PCCC, Karachi.
b) Provincial Agriculture Departments for production.
c) FBS, Karachi for import and export.

7.2 Domestic Price Situation

7.2.1 Seed Cotton (Phutti)

28. Monthly average wholesale market prices of seed cotton in the main producing area markets of Punjab and Sindh during the post harvest period of 2011-12 crop are detailed in Table-8.

Table-8: Monthly Average Wholesale Market Prices of Seed Cotton (Phutti) in the Main Producer Area Markets: 2011-12 Crop

Market/Province	Sept	Oct	Nov	Dec	Average
PunjabRupees per 40 kgs.....					
Bahawalpur	2831	2740	2472	2153	2549
Khanewal	2810	2665	2568	2234	2569
Multan	2709	2590	2363	2296	2489
R.Y.Khan	2737	2669	2428	2307	2535
Vehari	2856	2855	2596	2272	2645
Average	2789	2704	2485	2252	2558
Sindh					
Mirpur Khas	-	2217	2042	1900	2053
Sanghar	-	2413	1687	1378	1826
Hyderabad	-	1932	1879	1767	1859
Nawabshah	-	2243	1664	1909	1939
Khairpur	-	2544	2166	2225	2312
Ghotki	-	2690	2413	1853	2319
Average	-	2340	1975	1839	2051

Note - Not available due to heavy rains and flood

Sources: 1. Directorate of Agriculture (E&M), Punjab, Lahore.
2. D.G. Agriculture Extension, Hyderabad, Sindh.

29. Monthly wholesale market prices of seed cotton during the post harvest period averaged at Rs 2558 per 40 kgs in the Punjab and Rs 2051 in Sindh.

7.2.2 Cotton Lint (Raw Cotton)

30. Monthly average spot prices of raw cotton at Karachi during 2010-11 and 2011-12 are presented in Table-9. The spot price during 2011-12 averaged at Rs 6340 per 40 kgs which is significantly lower than last year.

Table-9: Monthly Average Spot Prices of Raw Cotton at Karachi, 2010-11 and 2011-12 Crops (August-January)

Month	Base Grade -3, staple length 1-1/16", Micronaire Value 3.8 to 4.9 NCL (No Control Limit)	
	2010-11	2011-12
	Rupees per 40 kgs	
August	7042	6580
September	7282	7254
October	8080	6539
November	9405	5866
December	9770	5694
January	10742	6106
Average	8720	6340

Source: Karachi Cotton Association (KCA).

8. COST OF PRODUCTION OF SEED COTTON

31. The cost of production is one of the major factors in formulating the price proposals for the farm produce. However, its estimation involves several conceptual and practical difficulties because of wide variation in agro- climatic conditions, use level of inputs and farm management resulting in different yield levels.

32. For updating cost of production estimates of seed cotton for 2012-13 crop in the Punjab and Sindh, the input-output parameters as used in the Cotton Policy Analysis Report for 2011-12 crop have been used alongwith the latest input prices and hiring rates of different field operations. To update the input prices and hiring rates of different field operations involved in cotton cultivation, the API conducted an annual field survey in the major cotton producing areas of the Punjab and Sindh during December 2011. These input prices were also discussed in the meeting of the API's Standing Committee on Cotton, held on 9th January 2012 in the Agriculture Policy Institute, Islamabad and supplemented with the information provided by the committee members. The detailed cost estimates of the Punjab and Sindh are presented in Annex-IV and V respectively, while a summary of the results is provided in Table-10.

Table-10: Average Farmers' Cost of Production of Seed Cotton: 2011-12 and 2012-13 Crops

S. No	Items	Unit	2011-12 crop	2012-13 crop	Increase in 2012-13 over 2011-12
Punjab					
1.	Net cost of cultivation	Rs/acre	40651	45706	5055
2.	Yield	Kgs/acre	748	748	-
3.	Cost of production at farm level	Rs/40 kgs	2174	2444	270
4.	Marketing cost	Rs/40 kgs	35	35	-
5.	Cost of production at market/ginnery	Rs/40 kgs	2209	2479	270
Sindh					
1.	Net cost of cultivation	Rs/acre	36802	41561	4759
2.	Yield	Kgs/acre	763	763	763
3.	Cost of production at farm level	Rs/40 kgs	1929	2179	250
4.	Marketing cost	Rs/40 kgs	35	35	-
5.	Cost of production at market/ginnery	Rs/40 kgs	1964	2214	250

Note: The figures have been rounded off.

Source: Annex-IV and V.

Punjab

33. The Table-10 reveals that the cost of cultivating one acre of seed cotton in the Punjab during 2012-13 is expected at Rs 45706, including land rent. The cost of production works to Rs. 2444 per 40 kgs, based on the average yield of 748 kgs per acre. Adding up the marketing charges @ Rs. 35 per 40 kgs, the market/ginnery level cost of production comes to Rs. 2479 per 40 kgs, higher by Rs. 270 (12 per cent) over the last year.

Sindh

34. The cost of cultivating one acre of seed cotton in Sindh during 2012-13 crop season is likely to be Rs 41561, including land rent. Based on average yield of 763 kgs per acre, the farm level cost of production of seed cotton works to Rs. 2179 per 40 kgs. Adding marketing cost @ Rs. 35 per 40 kgs, the market/ginnery level cost of production would be Rs. 2214 per 40 kgs, higher than the comparable cost of 2011-12 crop by Rs. 250 (13 per cent).

35. In both the provinces, the increases in the cost of production of seed cotton are mainly attributed to increase in the hiring rates of tractors and cost of supplementary irrigation on account of rising prices of diesel. The rises in the prices of fertilizers and picking charges will also add substantially in the cost of production of seed cotton for 2012-13 crop.

8.1 Cost of major operations

36. The cost of major items in the total cost of cultivation of seed cotton during 2011-12 and 2012-13 crops is presented in Table-11 below:

Table-11: Costs of Major Operations/Inputs in the Total Cost of Cultivation of Seed Cotton: 2011-12 and 2012-13 crops

S. No	Items	2011-12 crop	2012-13 crop	Shares in increased cost
		Rs/acre		Per cent
Punjab				
1.	Land preparation	3225 (8)	3773 (8)	11
2.	Seed and sowing operations	2336 (6)	2476 (5)	3
3.	Irrigation	3602 (9)	4132 (9)	10
4.	Interculture	2700 (7)	2964 (6)	5
5.	Plant protection	3173 (8)	3173 (7)	-
6.	Fertilizers including FYM	5928 (14)	8694 (19)	54
7.	Land rent	13333 (32)	13333 (29)	-
8.	Picking charges	3740 (9)	4208 (9)	9
9.	Others	3314 (8)	3753 (8)	8
10.	Gross cost	41351 (100)	46506 (100)	100
Sindh				
1.	Land preparation	3927 (10)	4624 (11)	14
2.	Seed and sowing operations	3221 (9)	3395 (8)	4
3.	Irrigation	2601 (7)	2929 (7)	7
4.	Interculture	2747 (7)	3015 (5)	5
5.	Plant protection	2205 (6)	2205 (6)	0
6.	Fertilizers including FYM	5520 (15)	7996 (19)	51
7.	Land rent	10000 (27)	10000 (24)	0
8.	Picking charges	3815 (10)	4292 (10)	10
9.	Others	3691 (10)	4105 (10)	9
10.	Gross cost	37727 (100)	42561 (100)	100

Notes:

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

Punjab

37. Land rent is the most significant element of the cost of cultivation of seed cotton in the Punjab for 2012-13 crop, contributing 29 per cent. The other ingredients are: fertilizers including FYM (19 %), irrigation and picking charges (9 per cent each), land preparation (8 %), plant protection (7 %), interculture (6 %) and seed & sowing operations (5 per cent).

Sindh

38. The major ingredients of the cost of cultivation of seed cotton in Sindh during 2012-13 crop year are: land rent (24 %), fertilizer including FYM (19 %), land preparation (11 %), picking charges (10 %), seed & sowing operations (8 %), irrigation (7 %), plant protection (6 %) and interculture (5 %).

9. ECONOMICS OF COTTON AND COMPETING CROPS

39. The farmers' priorities and decisions regarding resource allocation among the competing crops are primarily governed by the economic considerations as reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc. The estimation of these indicators may provide useful insights into the pattern of resource use at the farm level, both by individual as well as the whole farming community.

40. Cotton, a kharif crop, competes with rice for ~~land~~ water and other farm resources in the areas where cultivation of both the crops is technically feasible. Cotton ~~also faces~~ indirect competition from sugarcane, which occupies the land throughout the year as an annual crop.

41. The economics of cotton and competing crops has been analyzed in terms of input-output prices paid and received by the growers during the 2011-12 crop year. The details of the analysis are provided in Annex-VI. A summary of various economic indicators for the Punjab and Sindh is presented in Tables 12 & 13 and depicted at Figures 3 & 4:

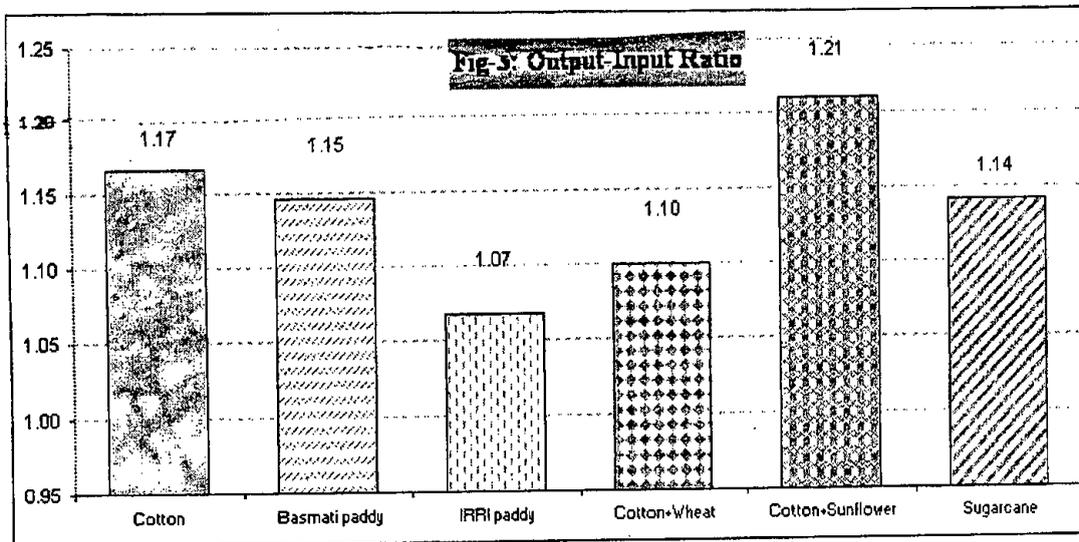
Table-12 : Economics of Cotton and Competing Crops at Prices Realized by the Growers in the Punjab: 2011-12 Crops

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 -----				
1. Cotton	1.17	3.49	200	2176
2. Basmati paddy	1.15	2.29	221	687
3. IRRI paddy	1.07	2.26	192	558
4. Cotton+Wheat	1.10	2.98	191	2361
5. Cotton+Sunflower	1.21	3.25	218	2077
6. Sugarcane	1.14	3.56	196	1622

Source: Annex-VI

Punjab

42. Although the Punjab growers received 36 per cent less price of seed cotton during current season than the last year, even then cotton crop maintained its superiority over basmati and IRRI paddy in respect of all economic indicators adopted in this analysis except crop duration where the basmati paddy has edge over cotton.



43. In case of indirect competition, sugarcane paid better returns over the cotton + wheat combination in respect of all the economic criteria, except in terms of irrigation water where the performance of cotton + wheat combination is much better than sugarcane. However, the cotton + sunflower rotation out performed sugarcane in respect of all indicators used in this analysis except the returns of the purchased inputs.

Sindh

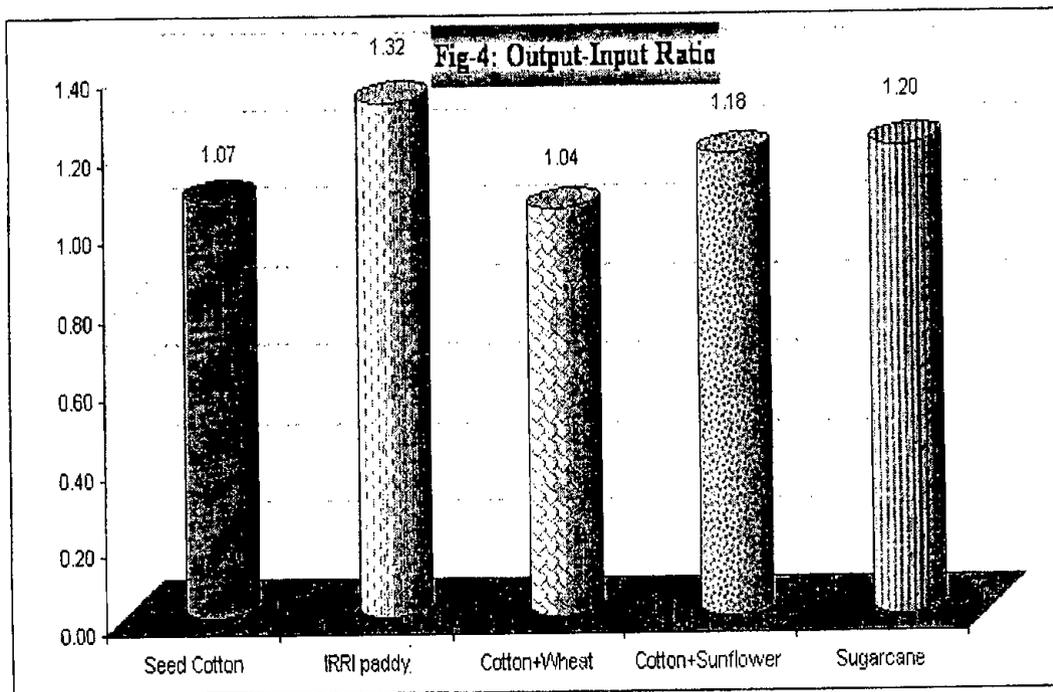
44. In Sindh, cotton farming could not maintain its superiority over IRRI paddy this year due to lower price of seed cotton and better prices of IRRI paddy. IRRI paddy out competed seed cotton in terms of all the indicators adopted for analyzing the economics of the crop except the irrigation water (Table-13).

Table-13: Economics of Cotton and Competing Crops at Prices Realized by the Growers in Sindh: 2011-12 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 -----				
1. Seed Cotton	1.07	3.29	164	2188
2. IRRI paddy	1.32	3.38	220	708
3. Cotton+Wheat	1.04	2.87	162	2273
4. Cotton+Sunflower	1.18	3.49	197	2072
5. Sugarcane	1.20	3.59	196	1349

Source: Annex-VI

45. In case of indirect competition, sugarcane farming has shown better returns over the cotton combinations with wheat and sunflower in respect of all the economic criteria except irrigation water where both the cotton combinations have edge over sugarcane.



10. ECONOMICS OF FERTILIZER USE ON COTTON CROP

46. 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.

10.1 Benefit Cost Ratio (BCR)

47. 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-14.

Table-14: Benefit Cost Ratio (BCR) of Fertilizer Use on Cotton: 2002-03 to 2011-12

Year	Response Ratios (Seed Cotton: Nutrient) of			
	3.00:1	3.75:1	4.50:1	5.25:1
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
2008-09	1.24	1.51	1.77	2.02
2009-10	2.72	3.27	3.78	4.26
2010-11	3.08	3.72	4.32	4.88
2011-12	1.63	1.96	2.26	2.54

Sources: 1. For 2002-03 to 2010-11: Cotton Policy Analysis Report for 2011-12 crop, API. Series No.236, June 2011
2. For 2011-12: Annex-VII.

10.2 Parity Ratio Between Prices of Fertilizer and Seed Cotton

48. The parity ratio between prices of fertilizers and 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 2002-03 to 2011-12 and presented in Table-15. The quantity of seed cotton needed to buy one nutrient tonne of N fertilizer has ranged between 0.39 to 0.82 tonnes. The parity ratios between prices of seed cotton and those of phosphatic fertilizer have fluctuated from 0.78 to 2.06 during the period of analysis except 2008-09 where the parity ratio jumped to 3.16 because of exorbitant rise in world prices of DAP.

Table-15: Parity Ratio between the Prices of Fertilizer and Seed Cotton: 2002-03 to 2011-12

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		Nitrogen N	Phosphorous P
	-----Rupees per tonne-----			-----Tonnes-----	
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
2008-09	28760	120000	38000	0.76	3.16
2009-10	31850	73620	61150	0.52	1.20
2010-11	35000	98260	89475	0.39	1.10
2011-12	45870	118750	57612	0.80	2.06

- Notes:**
1. The prices of N and P have been worked out from those of Urea and DAP as adopted in estimating the cost of production of seed cotton.
 2. The market price of seed cotton is the average price prevailed in the producer area markets of the Punjab and Sindh.

11. NOMINAL AND REAL MARKET PRICES OF SEED COTTON: 2000-01 TO 2011-12

49. The intervention price of seed cotton is annually reviewed by the government well before sowing time, mainly with the purpose to regulate the market in case the market prices fall in the open market below a certain level. The Government always encourages the role of private sector in marketing and trade of cotton. As a result most of transactions in cotton marketing are made in the open market. Hence the nominal market prices of the cotton are being deflated by the Consumer Price Index (CPI) to ascertain overtime changes in the purchasing power of cotton for 2000-01 to 2011-12. The nominal and real market prices of seed cotton for the Punjab and Sindh are presented in Table-16 and 17.

11.1 At Market Prices of Seed Cotton in the Punjab

50. The nominal and real market prices of seed cotton for 2000-01 to 2011-12 are shown in Table-16 below and depicted in Figure-5.

Table-16: Nominal and Real Market Prices of Seed Cotton (Phutti) in the Punjab: 2000-01 to 2011-12

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2000-01= 100	----- Rs per 40 kgs -----
1	2	3	4= (2/3)x100
2000-01	900	100.00	900
2001-02	776	103.54	749
2002-03	892	106.75	836
2003-04	1337	111.63	1198
2004-05	886	121.98	726
2005-06	1047	131.18	798
2006-07	1152	141.87	812
2007-08	1486	158.90	935
2008-09	1557	191.90	811
2009-10	1916	214.41	894
2010-11	4003	244.26	1639
2011-12	2558	270.64	945

Note: Market prices are the average monthly wholesale prices of seed cotton during post-harvest period in major producing area markets of the Punjab.

Sources: 1. For 2000-01 to 2010-11: Price Policy Reports of Seed Cotton by API.
2. Economic Survey of Pakistan, 2011-12.

51. The nominal market price of seed cotton averaging at Rs 900 per 40 kgs for 2000-01 crop had risen to Rs 4003 per 40 kgs in 2010-11, an unprecedented rise of 109 per cent in a single year and an overall surge of 345 per cent over the base year. However, the market price reversed to the level of Rs 2558 per 40 kgs in 2011-12. A similar price volatility was also observed in the early decade when the market price jumped to Rs 1337 per 40 kgs in 2003-04 and dropped to Rs 886 per 40 kgs in the coming year.

52. During the period, the real market price has experienced fluctuations, touching the lowest level of Rs 726 per 40 kgs in 2004-05 and the highest of Rs 1639 per 40 kgs in 2010-11 crop.

Fig-5: Nominal and Real Market Prices of Seed cotton (Phutti) in the Punjab: 2000-01 to 2011-12

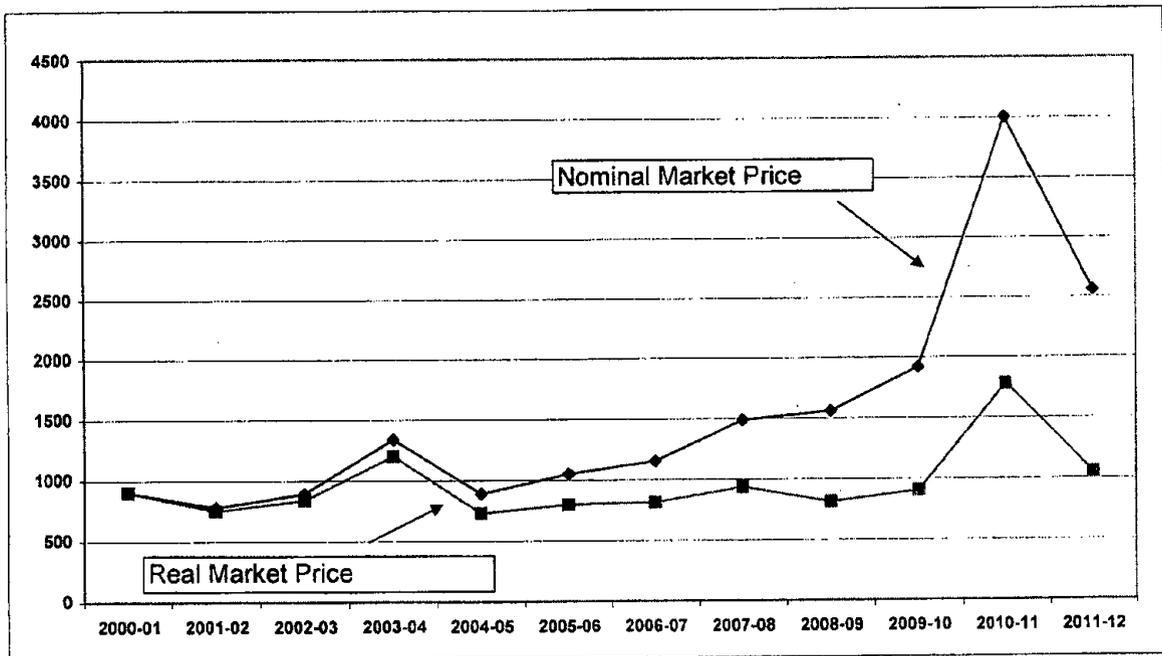
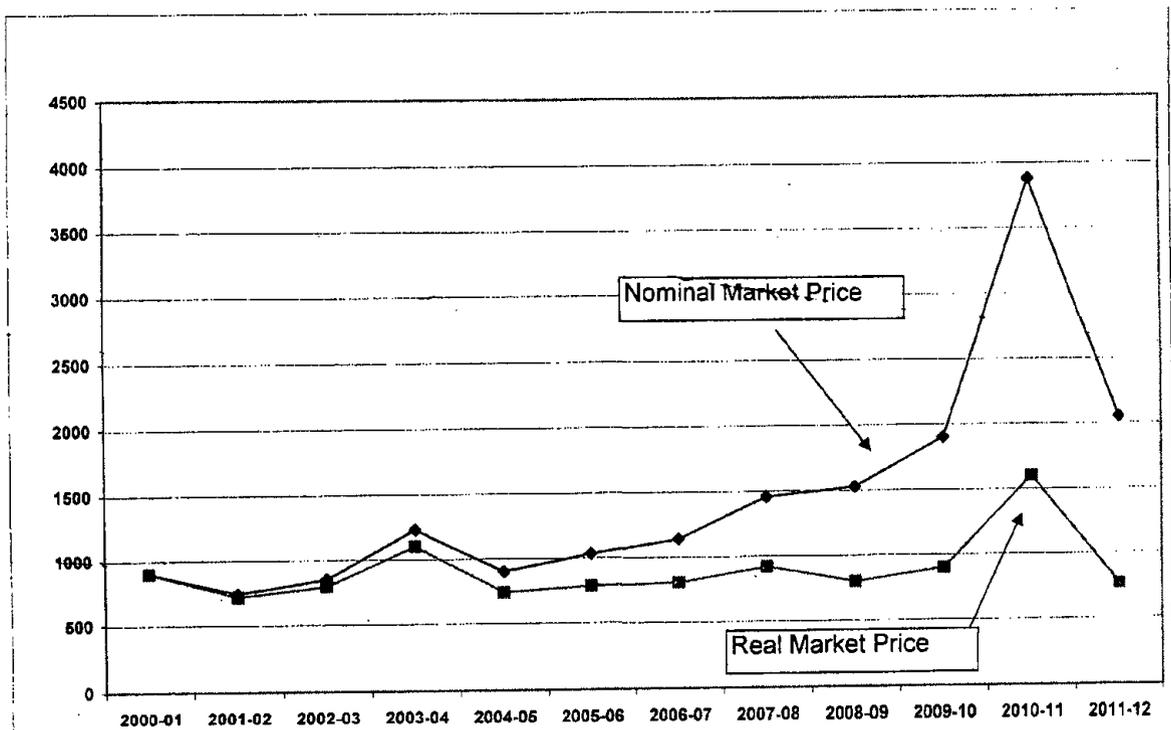


Fig- 6: Nominal and Real Market Prices of Seed cotton (Phutti) in Sindh: 2000-01 to 2011-12



53. For 2011-12 crop, the nominal market price averaged at Rs 2558 per 40 kgs, lower than the previous year. It may be noted that the real value of seed cotton remained much lower against the base year during the period under review except 2003-04, 2007-08, 2010-11 and 2011-12. This indicates that over the years, cotton farmers have lost in terms of real economic returns from the crop. However, the comparative analysis of real value at market price reveals that the market forces have paid favourable returns to the farmers.

11.2 At Market Prices of Seed Cotton in Sindh

54. The nominal and real market prices of seed cotton for 2000-01 to 2011-12 are presented in Table-17 and depicted in Figure-6.

Table-17: Nominal and Real Market Prices of Seed Cotton (Phutti) in Sindh: 2000-01 to 2011-12

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2000-01= 100	----- Rs per 40 kgs -----
1	2	3	4= (2/3)x100
2000-01	895	100.00	895
2001-02	740	103.54	715
2002-03	847	106.75	793
2003-04	1226	111.63	1098
2004-05	899	121.98	737
2005-06	1028	131.64	781
2006-07	1136	141.87	801
2007-08	1456	158.90	916
2008-09	1525	191.90	795
2009-10	1903	214.41	888
2010-11	3874	244.26	1586
2011-12	2051	270.64	758

Note: Market prices are the average monthly wholesale prices of seed cotton during post-harvest period in major producing area markets of Sindh.

Sources: 1. For 2000-01 to 2010-11: Price Policy Reports of Seed Cotton by API.
2. Economic Survey of Pakistan 2011-12

55. It may be seen from Table-17, that same trend in the prices of seed cotton in Sindh Province was observed as in the Punjab during the period under review. However, the degree of fluctuations was different. The nominal market price of seed cotton averaging at Rs 895 per 40 kgs in 2000-01 had risen to Rs 3874 per 40 kgs in 2010-11 recording an overall surge of 333 per cent over the base year. In the next year, the market price dropped to Rs 2051 per 40 kgs. In the meanwhile, the real market price has experienced same fluctuations, touching the lowest level of Rs 715 per 40 kgs in 2001-02 and the highest of Rs 1586 per 40 kgs in 2010-11.

56. During 2011-12 crop season, the nominal market price in Sindh averaged at Rs 2051 per 40 kgs lower than the preceding year by 47 per cent. It is important to note that the real value of seed cotton remained lower against the base year 2000-01 in most of the years except 2003-04, 2007-08 and 2010-11. This indicates that cotton growers in Sindh have lost in terms of real economic returns from seed cotton in most of the period under study. However, the comparative analysis of real value at market price reveals that the market forces have also paid favourable returns to the farmers in Sindh like Punjab.

12. WORLD SUPPLY, DEMAND, STOCKS, TRADE AND PRICE SITUATION

57. The global production of cotton during 2011-12 is estimated at 26.74 million tonnes. It is about 6.49 percent higher than the production of 25.11 million tonnes in 2010-11. During 2012-13, the world production is forecast to decline by 5.68 percent to the level of 25.22 million tonnes. After adding the opening stocks of 9.28 million tonnes, total supply in 2011-12 worked to 36.02 million tonnes, 6.60 percent higher than 2010-11 level. However, the world cotton supply is forecast to improve to the level of 37.58 million tonnes during 2012-13.

58. The world consumption of cotton during 2011-12 estimated at 23.66 million tonnes is 3.15 percent lower than the last year level. For 2012-13, cotton consumption projected at 24.40 million tonnes would be 3.13 percent higher than 2011-12.

59. The end year stocks during 2011-12 estimated at 12.36 million tonnes are about 33 percent higher than the last year, which are projected to further rise to 13.18 million tonnes in 2012-13 (Table-18).

Table-18: World Production, Consumption, Stocks and Trade in Cotton: 2010-11 to 2012-13

S.No.	Item	2010-11	2011-12	2012-13
		(Actual)	(Estimated)	(Projection)
----- Million tones -----				
1.	Opening stocks	8.68	9.28	12.36
2.	Production	25.11	26.74	25.22
3.	Total supply (1+2)	33.79	36.02	37.58
4.	Likely consumption	24.43	23.66	24.40
5.	Trade imbalance and stocks adjustment *	(-)0.07	0.000	0.00
6.	Closing stocks (3-4+5)	9.28	12.36	13.18

Note: *Trade imbalance, i.e. the 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, February 14, 2012.

13. INTERNATIONAL PRICES

60. The international prices of Afzal, Index- A and Orleans/Texas Cottons during 2004-05 to 2011-12 are placed in Annex-VIII.

61. The prices of both the cottons widely fluctuated with the lowest level of 52.20 US cents per lb of Index-A cottons and 51.19 of Orleans /Texas during 2004-05. The highest prices were reported at 165.13 cents per lb for Index-A cottons in 2010-11, while the highest prices of Orleans/ Texas were reported in 2011-12 at 109.50 US cent per lb.

62. The monthly prices of both the cottons have generally shown a declining trend, during the current year of 2011-12. The monthly prices of both the cottons remained above 100 cent per lb during August 2011 to Jan 2013 except December 2011.

14. EXPORT AND IMPORT PARITY PRICES

63. 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 estimated for analyzing price policy options for the next crop season.

64. The export and import parity prices of seed cotton have been calculated on the basis of their actual and quoted prices. Detailed calculations in this regard are given at Annex-IX to XIII and summarized in Table-19.

Table-19: Export/Import Parity Prices of Seed Cotton as Worked from Various Reference Prices

S.No.	Base/period	Reference price	Worked back price of seed cotton at gin
		US cents/lb	Rs/40 kgs
1.	Export parity prices based on average:		
	i) Actual export price of Pakistani cotton		
	- During 2011-12 (Aug-Dec)	90.08	2,687
	- During 2008-09 to 2010-11	75.30	2,292
	ii) Futures contract prices of New York No.2 cotton (average of Oct- Dec 2012 and March 2013)	95.83	2,574
		US cents/kg	
	iii) Fob prices of Pakistani cotton yarn (20's):		
	- During 2011-12 (Aug-Jan)	292.00	2,598
	- During 2008-09 to 2010-11	280.00	2,857
2.	Import parity prices based on average:		
	i) Actual cif (Karachi) prices of imported cotton:	Rs/40 kgs	
	- During 2011-12 (Aug-Dec)	10,259	4,022
	- During 2008-09 to 2010-11	7234	2,963
		US cents/lb	
	ii) Index-A Cottons		
	- During 2011-12 (Aug-Jan)	107.14	3,511
	- During 2008-09 to 2010-11	99.02	3,278

Source: Annex-IX to XIII.

15. ECONOMIC EFFICIENCY OF RESOURCE USE IN COTTON PRODUCTION

65. Estimation of economic efficiency of resources used in the production of a crop is important to assess their relative effectiveness in alternative uses. Most common measures of economic efficiency of resource use are Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC) Coefficient. These parameters may be measured both under the export and import scenarios. If a crop has significant exports from a country, it is more relevant to estimate these parameters under export scenario. On the other hand, if the country is a significant importer of a commodity, it is more important to estimate the above referred parameters in import perspective. As cotton is important export as well as import item of Pakistan, resource use efficiency is determined both under export and import scenarios.

66. The estimation of NPC, EPC and DRC are based on production data obtained from the API's Seed Cotton Policy Report for 2011-12 Crop. Detail of the background data are presented in **Annex-XIV and XV**. The summary of findings is presented in **Table-20**.

15.1 Nominal Protection Coefficient (NPC)

67. Nominal Protection Coefficient is basically obtained by dividing domestic market price of the crop by its social price. Social price is the export or import parity price depending on the objective of the study. It measures only effect of output pricing policies without considering distortions in the input market. As a rule of thumb if NPC is greater than one, it means domestic producers are getting price higher than the corresponding international price. On the other hand, if NPC is less than one, it implies that domestic price is less than the corresponding border price and local producers are implicitly taxed which discourages local production.

Table-20: Economic efficiency of Resource Use in Seed Cotton Production (Policy Analysis Matrix)

Province/ year	Exporting Scenario			Importing Scenario		
	NPC	EPC	DRC	NPC	EPC	DRC
Punjab						
2007-08	1.09	1.10	0.79	1.06	1.08	0.78
2008-09	1.10	1.17	1.00	0.72	0.60	0.52
2009-10	1.12	1.16	0.77	0.84	0.78	0.48
2010-11	0.93	0.91	0.26	0.90	0.87	0.24
2011-12	0.95	0.91	0.62	0.63	0.53	0.33
Sindh						
2007-08	1.06	1.09	0.75	1.04	1.05	0.72
2008-09	1.08	1.14	0.93	0.70	0.61	0.50
2009-10	1.11	1.12	0.69	0.83	0.75	0.47
2010-11	0.90	0.89	0.25	0.90	0.89	0.25
2011-12	0.76	0.75	0.66	0.51	0.45	0.33

Source: Annex-XIV and XV.

68. The NPC estimates given in Table-20 indicate that under export scenario, its values for 2010-11 and 2011-12 are found below one implying implicit taxation to local growers. For 2007-08, 2008-09 and 2009-10 the estimates are above one. It indicates that during these years cotton growers in Pakistan got relatively better prices i.e higher than the corresponding export parity price. The situation generally remains the same for Sindh province. However, the level of implicit taxation remained higher in Sindh as the estimates of NPC coefficients for Sindh province are less than those of Punjab during the last two years.

15.2 Effective Protection Coefficient (EPC)

69. Effective Protection Coefficient (EPC) is the ratio between the value added in producing a commodity at the private prices and social prices. Unlike NPC, Effective Protection Coefficient (EPC) also accounts for the distortions in the input market. It means that analyzing EPC, we consider both input as well as output policies. Thus it is a more meaningful measure of protection or taxation to the domestic growers. For determining the EPC, the difference of the gross revenue and traded inputs costs at the

private prices is divided by the difference of the gross revenue and the traded inputs costs at the social prices. The EPC results for export scenario are also presented in **Table-20**. The estimates are in line with those of NPC. Like NPC the EPC coefficients remained above one in both the Punjab and Sindh during the 1st 3 years but declined during the last 2 years. It implies that in relative terms Pakistani cotton growers received lower prices. At the same time domestic cotton prices were less than the corresponding export parity price. Economically the analysis suggests that domestic producers are implicitly taxed.

15.3 Domestic Resource Cost Coefficient (DRC)

70. Domestic resources used in DRC analysis consist of cost of hired labour cost, transportation cost, canal water, management charges, land rent, land revenue tax, farm yard manure and interest on capital employed in production of a crop. All these inputs are monetized by using the market prices. Thus the DRCs represent the opportunity cost of domestic resources used per unit of the value added in producing a commodity. Numerator in these calculations is domestic factors' cost at social prices and the denominator is the difference of the gross revenue and the traded inputs costs at social prices. Benchmarks range between less than and greater than one. If DRC is less than one, it indicates comparative advantage in a commodity as the domestic cost of production is less than the corresponding economic cost of import of the commodity, i.e. import parity price.

71. The DRC analysis done for this policy paper is presented in **Annex-XIV and Annex-XV** while the DRC estimates are given in **Table-20**. It is clear from the analysis that the DRC numerics both for Punjab and Sindh provinces are found less than one except for 2008-09 in Punjab when it rose to one. Specifically in 2011-12 the coefficient values abruptly increased to 0.62 from 0.26 in the preceding year for Punjab and to 0.66 for Sindh from 0.25 in 2010-11. This is due to sudden increase in domestic price of seed cotton. Even then the coefficient values are much below one which suggests implicit taxation to Pakistani cotton growers. The DRC estimates indicate that Pakistan has comparative advantage in cotton production.

72. Results of the economic efficiency of resource use for the import scenario are presented in Table-20. It is clear from the above Table that the DRC estimates both under the export as well as import scenario are less than one which indicate Pakistan's comparative advantage in cotton production. DRCs estimated under the import scenario are less than those estimated under the export scenario. Thus in Pakistan expansion in production of cotton for import substitution is highly cost effective.

16. COTTON YIELD AMONG COMPETING COUNTRIES

73. Comparison of area, yield and production among competing countries is detailed in Annex-XVI, while a summary of these factors is presented in Table-21.

74. Globally, the cotton crop occupied an area of 32.096 million hectares during 2010 with a total production of 68.333 million tonnes. The world top 30 cotton producing countries contribute 97 per cent of total area and 98 per cent of total production.

75. India ranks on the top with 11 million hectares, followed by China and USA with 4.849 and 4.330 million hectares. Pakistan occupies 4th position in this regard. In terms of cotton production, China is on the top with 17.910 million tones, followed by India with 17.797 million tonnes and USA with 9.474 million tonnes. However, Pakistan retains 4th position in cotton production with 5.700 million tonnes in the world.

Table-21: Area, Yield and Production of Seed Cotton Among Competing Countries: 2010

S.No	Country	Area (million ha)	Yield (tonnes/ha)	Production (million tonnes)
1	China	4.849	3.694	17.910
2	India	11.000	1.618	17.797
3	United States of America	4.330	2.188	9.474
4	Pakistan	2.689	2.121	5.700
5	Uzbekistan	1.330	2.589	3.443
6	Brazil	0.823	3.561	2.931
7	Turkey	0.480	2.649	1.273
8	Turkmenistan	0.640	1.563	1.000
9	Australia	0.208	4.508	0.939
10	Argentina	0.441	1.709	0.754
11	Syrian Arab Republic	0.201	3.711	0.747
12	Greece	0.250	2.800	0.700
13	Burkina Faso	0.463	1.144	0.530
14	Nigeria	0.374	1.300	0.486
15	Mexico	0.113	3.900	0.440
16	Egypt	0.155	2.435	0.378
17	Tajikistan	0.162	1.912	0.311
18	United Republic of Tanzania	0.360	0.764	0.275
19	Mali	0.250	1.043	0.261
20	Kazakhstan	0.134	1.790	0.240
21	Iran (Islamic Republic of)	0.091	2.554	0.232
22	Benin	0.180	1.249	0.225
23	Myanmar	0.300	0.667	0.200
24	Cameroon	0.145	1.310	0.190
25	Mozambique	0.370	0.473	0.175
26	Côte d'Ivoire	0.141	1.028	0.145
27	Sudan	0.138	0.984	0.136
28	Zimbabwe	0.156	0.737	0.115
29	Bolivia (Plurinational State of)	0.121	0.882	0.107
30	Zambia	0.120	0.892	0.107
Total of 30 top producing countries		31.016	2.167	67.219
World Total		32.096	2.129	68.333

Source:FAO,Stat.

76. World cotton production for 2010 was estimated at 68.333 million tonnes as against 61.859 million tonnes in 2009 with increase of 6.474 million tonnes over the last year. Higher cotton production in 2010 is primarily attributed to substantial increase of India and USA, the cotton production improved over the last year.

77. India has the largest area under cotton in the world constituting almost one fourth of the world cotton area. However its production is very low as compared to other major cotton producing countries. The main reason is its low productivity.

78. Although Pakistan ranks 4th in terms of both area and production of cotton but lies at 23rd position in terms of yield during 2010. It implies that there is a lot of potential to enhance cotton productivity per hectare in Pakistan. It is an alarming situation and deserve special attention by all concerned quarters. The cotton yield in Pakistan is at 2.120 tonnes per hectare, in India at 1.618 tonnes. However, the Yield of cotton in Pakistan is close to the world average at 2.129 tonnes per hectare. (Annex-XVI).

17. COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

79. Cotton being a non-food cash crop contributes significantly in foreign exchange earnings. It accounts for 6.9 per cent of the value added in agriculture sector and about 1.4 per cent in the GDP. Around two-thirds of the country's export earnings are from the cotton made-ups and textiles.

80. In spite of the world's 4th largest cotton producer and a leading exporter of yarn in the world, Pakistan ranked 23rd in the world in terms of yield during 2010. As a result, Pakistan annually imports up to 2.00 million bales of cotton to meet the growing needs of local textile industry. Therefore, it has become vital for Pakistan to increase its yield per acre for import substitution to save foreign exchange.

81. There are many reasons for low yield of cotton crop in Pakistan; low level of inputs use is a result of high price of agriculture inputs (seeds, fertilizers, pesticides etc), higher intensity of insects and pest attack, shortage of good quality seed and high

yielding varieties, deficiency of water for irrigation, lack of advance technologies, awareness and agro-professionalism and adulteration in pesticides, fertilizers and seeds.

82. Seed is the most important factor playing a crucial role in improving farm productivity. Seed together with environment determines the upper limit of the productivity. It has been learnt that today all major cotton producing countries are benefiting from the cultivation of Bt Cotton.

83. Bt cotton introduced in 1996 has immense potential to improve cotton productivity. It is an important tool to control chewing pests. Its commercialization is a need of the day. It is the responsibility of research institutes to come up with high yielding production technology and proper recommendations of inputs. At the same time, extension department should play its role in dissemination of information of production technology of Bt cotton for its commercialization. Seed companies in collaboration with Public Research Institutes and FSC & RD should ensure the optimal availability of Bt Cotton seed in the country.

84. Various cotton varieties sown in Pakistan in various ecological zones alongwith yield potential are presented at Annex-XVII. The data indicate that in the country about one hundred varieties are grown. Among those varieties, 93 are upland varieties, 3 hybrid and 13 desi varieties. The yield potential of these varieties ranges from 600 kgs to 4500 kgs per hectare or 6 to 45 maunds of 40 kgs per acre.

85. Several Bt cotton varieties have been approved for commercialization in Pakistan. These include IR-1524 developed by the Nuclear Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad FH-113 developed by the Cotton Research Institute, Faisalabad, Ali Akbar-802 of M/s Ali Akbar Seed Multan and Neelam-121 developed by M/s Neelam Seed, Multan. Two hybrid varieties, GN-2085 and GN-31 developed by M/s Guard Agricultural Research Services, Raiwind Road also received an endorsement for planting.

86. According to the Annual Summary Progress Report of Central Cotton Research Institute, Multan for 2009-10, Bt cotton dominated the farmers choice for cultivation , major cotton varieties sown in the Punjab were Bt cotton, CIM-496, CIM-499, CIM-473, CIM-506, S-2000 ,MNH-786 ,MNH 886 and MNH 121.

87. The Government of Pakistan has officially approved genetically modified cotton crops for cultivation in the country. Bt. Cotton varieties like CEMB-1 and CEMB-2,were developed by the scientists at the Centre of Excellence in Molecular Biology of the Punjab University Lahore. These varieties were recommended by PCCC after more than two years of trials in the field.

18. COST OF PRODUCTION OF SEED COTTON IN COMPETING COUNTRIES

88. The cost of production is the most important part of the multiple criteria used for making price policy proposals. It varies from country to country particularly owing to different price structure, farm incentives and level of input use and technologies. In this section, the cost of production of seed cotton in Pakistan and other competing countries like China, India, Iran, Turkey and USA will be discussed. The cost of production of seed cotton in competing countries for 2009-10 crop is provided by the International Cotton Advisory Committee (ICAC). The cost of production of seed cotton has been presented in Pak Rupees by using the average exchange rate during 2009-10 in Table-22.

Table-22: Cost of Production of Seed Cotton in Competing Countries During 2009-10

Country	Average yield per hectare	Cost of production of seed cotton		
		US \$*	Pak Rupees	
	Kgs	Per hectare	Per hectare	Per 40 kgs
China	2763	2547.17	213455	3090
India	2250	816.59	68432	1217
Iran	2665	2354.64	197321	2962
Turkey	4298	3342.58	280112	2607
USA	1801	1701.95	142625	3168
Pakistan	2121	726.16	60853	1148

Note: * One US \$ = Pak Rs 83.8017 (average of 2009-10)

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

89. The cost of production of seed cotton calculated at Pak Rs 3168 per 40 kgs in USA is the highest among competing countries followed by Rs 3090 in China and Rs 2962 in Iran. The lowest production cost is reported in Pakistan at Rs 1148 per 40 kgs. The cost of production of seed cotton in Turkey and India is Rs 2607 and Rs 1217 per 40 kgs respectively.

19. SUBSIDY ON COTTON PRODUCTION IN MAJOR COTTON PRODUCING COUNTRIES

90. The direct assistance to cotton growers in major cotton producing countries is given in Table-23.

Table-23: Direct Assistance Provided by the Governments to Cotton Sector through Production Programs*

Country	Average Assistance to Cotton Producers							
	2009-10				2010-11**			
	Cotton Production 000 Tons	US cents per pound	US \$*** per 40 kgs	Pak Rs per 40 kgs	Cotton Production 000 Tons	US cents per pound	US \$ per 40 kgs	Pak Rs per 40 kgs
China	6925	11	9.70	813	6650	2	1.76	150
India	5100	0	0	0	5763	0	0	0
USA	2654	8	7.05	591	3942	4	3.53	304
Pakistan	2125	0	0	0	1948	0	0	0
Brazil	1194	4	3.53	296	2038	0	0	0
Turkey	380	31	27.34	2291	475	31	27.34	2338

Notes:

* Income and Price Support Programs only. Credit and other assistance not included.

** Preliminary

*** Average exchange rates of One US \$=Pak Rs 83.80 for 2009-10 and Rs 85.50 for 2010-11.

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

91. During 2009-10 the highest subsidy on cotton production was provided by Turkey at US \$ 27.34 (Pak Rs 2291) per 40 kgs followed by China and USA at Rs 813 and Rs 591 per p40 kgs. The subsidy provided during 2009-10 to cotton growers of Brazil is calculated at Pak Rs 296 per 40 kgs. During 2010-11, the highest subsidy has been again provided by Turkey at US \$ 27.34 (Pak Rs 2338) per 40 kgs followed by USA and China at Rs 304 and 150 per 40 kgs. However, no subsidy to cotton growers in the form of direct assistance is reported in Pakistan, India and Brazil.

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**PROVINCE-WISE AREA (HECTARES), PRODUCTION AND YIELD OF COTTON
IN PAKISTAN : 2001-02 TO 2011-12**

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALUCHISTAN	PAKISTAN
AREA ----- 000 hectares -----					
2001-02	2526.4	547.4	1.60	40.4	3115.8
2002-03	2208.3	542.6	1.90	40.8	2793.6
2003-04	2386.8	561.4	2.00	39.1	2989.3
2004-05	2518.3	635.1	2.10	37.1	3192.6
2005-06	2426.0	637.1	2.10	37.8	3103.0
2006-07	2462.9	570.1	0.30	41.6	3074.9
2007-08	2424.8	607.4	0.20	21.9	3054.3
2008-09	2223.7	561.5	0.20	34.5	2819.9
2009-10	2435.8	634.7	0.04	35.1	3105.6
2010-11	2200.6	457.0	0.17	31.3	2689.1
2011-12	2513.1	259.2	1.94	41.4	2815.6
YIELD ----- Kgs per hectare -----					
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	636	710	425	438	649
2008-09	669	902	425	440	713
2009-10	597	1144	340	440	707
2010-11	607	1316	430	374	725
2011-12	686	1573	455	378	763
PRODUCTION ----- 000 bales -----					
2001-02	8046.0	2443.2	4.10	119.3	10612.6
2002-03	7664.0	2411.8	4.60	130.2	10210.6
2003-04	7702.0	2242.8	5.00	97.9	10047.7
2004-05	11149.0	3016.7	5.20	94.3	14265.2
2005-06	10268.0	2648.0	5.20	97.7	13018.9
2006-07	10350.0	2398.2	0.60	107.4	12856.2
2007-08	9062.0	2536.2	0.50	56.4	11655.1
2008-09	8751.0	2978.3	0.50	89.2	11819.0
2009-10	8552.0	4270.7	0.08	90.7	12913.5
2010-11	7854.0	3536.8	0.43	68.9	11460.1
2011-12	10133.0	2397.2	5.19	92.1	12627.5

Sources: 1- For 2001-02 to 2009-10 : Agricultural Statistics of Pakistan 2009-10, MINFA, Islamabad.
2- For 2010-11: Final estimates provided by respective Provincial Agriculture Departments.
3- For 2011-12: Second estimates provided by respective Provincial Agriculture Departments.

**PROVINCE-WISE AREA (ACRES), PRODUCTION AND YIELD OF COTTON
IN PAKISTAN : 2001-02 TO 2011-12**

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALUCHISTAN	PAKISTAN
AREA ----- 000 acres -----					
2001-02	6243.0	1352.7	3.95	99.8	7699.5
2002-03	5456.9	1340.8	4.70	100.8	6903.3
2003-04	5898.0	1387.3	4.94	96.6	7386.9
2004-05	6223.0	1569.4	5.19	91.7	7889.2
2005-06	5994.9	1574.3	5.19	93.4	7667.8
2006-07	6086.1	1408.8	0.74	102.8	7598.4
2007-08	5991.9	1500.9	0.49	54.1	7547.5
2008-09	5495.0	1387.5	0.49	85.3	6968.3
2009-10	6019.1	1568.4	0.10	86.7	7674.3
2010-11	5437.9	1129.3	0.42	77.3	6645.0
2011-12	6210.1	640.5	4.79	102.3	6957.7
YIELD ----- Kgs per acre -----					
2001-02	219	307	176	203	234
2002-03	239	306	167	220	252
2003-04	222	275	172	172	231
2004-05	305	327	170	175	308
2005-06	291	286	170	178	289
2006-07	289	290	138	178	288
2007-08	257	287	172	177	263
2008-09	271	365	172	178	288
2009-10	242	463	138	178	286
2010-11	246	533	174	152	293
2011-12	278	637	184	153	309
PRODUCTION ----- 000 bales -----					
2001-02	8046.0	2443.2	4.10	119.3	10612.6
2002-03	7664.0	2411.8	4.60	130.2	10210.6
2003-04	7702.0	2242.8	5.00	97.9	10047.7
2004-05	11149.0	3016.7	5.20	94.3	14265.2
2005-06	10268.0	2648.0	5.20	97.7	13018.9
2006-07	10350.0	2398.2	0.60	107.4	12856.2
2007-08	9062.0	2536.2	0.50	56.4	11655.1
2008-09	8751.0	2978.3	0.50	89.2	11819.0
2009-10	8552.0	4270.7	0.08	90.7	12913.5
2010-11	7854.0	3536.8	0.43	68.9	11460.1
2011-12	10133.0	2397.2	5.19	92.1	12627.5

Sources: 1- For 2001-02 to 2009-10 : Agricultural Statistics of Pakistan 2009-10, MINFA, Islamabad.
2- For 2010-11: Final estimates provided by respective Provincial Agriculture Departments.
3- For 2011-12: Second estimates provided by respective Provincial Agriculture Departments.

**DISTRICT- WISE AREA, YIELD AND PRODUCTION OF SEED COTTON
AVERAGE OF 2009-10 TO 2011-12**

ANNEX-III

Area: 000 ha

Production: 000 bales

Yield: Kgs/ha

S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield
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PUNJAB

1	Bahawalpur	281.11	1142.85	9.27	691
2	R.Y.Khan	255.49	1007.14	8.17	670
3	Bahawalnagar	237.82	986.56	8.00	705
4	Vehari	220.41	930.44	7.54	718
5	Lodhran	204.23	762.72	6.18	635
6	Khanewal	196.54	719.21	5.83	622
7	Multan	174.82	671.85	5.45	653
8	Muzaffargarh	147.16	499.35	4.05	577
9	Rajanpur	106.43	411.46	3.34	657
10	Sahiwal	89.43	315.50	2.56	600
11	D.G.Khan	86.19	304.30	2.47	600
12	Pakpattan	52.07	203.24	1.65	664
13	Jhang	69.07	170.35	1.38	419
14	Faisalabad	53.55	148.29	1.19	464
15	T.T.Singh	53.15	142.74	1.16	457
16	Layyah	44.61	121.81	0.99	465
17	Okara	31.57	109.26	0.89	588
18	Mianwali	25.49	73.53	0.60	490
19	Bhakkar	19.96	51.37	0.42	437
20	Kasur	18.60	37.45	0.30	384
21	Sargodha	10.39	23.81	0.19	386
22	Chiniot	3.10	7.82	0.06	429
23	Khushab	1.35	3.34	0.03	419
24	M.B.Din	1.89	2.64	0.02	237
25	Nankana Sahib	0.27	0.62	0.01	392
26	Jhelum	0.41	0.49	0.00	203
27	Hafizabad	0.14	0.30	0.00	369

Sub Total Punjab	2383.15	8846.33	71.72	631
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SINDH

1	Sanghar	92.63	874.43	7.09	1601
2	Khairpur	64.84	409.67	3.30	1065
3	Ghotki	65.29	391.63	3.18	1020
4	Nawabshah	37.82	265.48	2.15	1193
5	Matiari	26.88	252.09	2.04	1594
6	N.Feroze	33.92	222.09	1.80	1113
7	Mirpurkhas	27.06	209.49	1.70	1316
8	Sukkur	28.24	175.62	1.42	1057
9	Tando Allaahyar	15.40	138.66	1.12	1531
10	Badin	12.82	134.42	1.09	1783
11	Umerkot	17.00	123.25	1.00	1233
12	Jamshoro	8.92	61.15	0.50	1166
13	Hyderabad	5.73	62.66	0.42	1543
14	Tando Muhammad Khan	3.18	31.81	0.26	1698
15	Dadu	5.95	29.81	0.24	851
16	Thatta	1.85	18.75	0.15	1726
17	Larkana	1.43	7.12	0.06	849
18	Tharparkar	0.72	5.07	0.04	1203
19	Karachi	0.27	1.58	0.01	1005
20	Shikarpur	0.08	0.37	0.00	829
21	Kashmore	0.01	0.03	0.00	924

Sub Total Sindh	450.32	3401.56	27.58	1285
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Sub Total of Khyber Pukhtunkhwa	0.72	1.90	0.02	451
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Sub Total of Balochistan	35.93	83.90	0.68	397
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Total of Pakistan	2870.12	12333.69	100.00	731
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Notes:

1. Data have been arranged in descending order of production.
2. Percentage shares are calculated on the basis of country total.

Sources:

- 1- MINFA, Islamabad
- 2- Respected Agriculture Provincial Departments

**AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON
IN THE PUNJAB: 2011-12 AND 2012-13 CROPS**

S. No.	Operations / Inputs	Average No. of ops/ units/acre	2011-12 crop		2012-13 crop		Change in 2012-13 over 2011-12
			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	1100.00	250.80	1200.00	273.60	22.80
	1.2 Rotavator	0.233	1300.00	302.90	1400.00	326.20	23.30
	1.3 Ploughing	3.200	500.00	1600.00	600.00	1920.00	320.00
	1.4 Planking	0.421	250.00	105.25	300.00	126.30	21.05
	1.5 Ploughing+planking	1.341	500.00	670.50	600.00	804.60	134.10
	1.6 Levelling (tractor hrs)	0.537	550.00	295.35	600.00	322.20	26.85
2	Seed and sowing operations:						
	2.1 Seed (kgs)	7.643	200.00	1528.60	200.00	1528.60	0.00
	2.2 Sowing:						
	2.2.1 Ploughing+planking	0.394	500.00	197.00	600.00	236.40	39.40
	2.2.2 Ridging	0.228	500.00	114.00	600.00	136.80	22.80
	2.2.3 Drilling	0.772	500.00	386.00	600.00	463.20	77.20
	2.2.4 Manual labour for sowing, bund making and gap filling (m.days)	0.369	300.00	110.70	300.00	110.70	0.00
3	Irrigation: (Nos)						
	3.1 Canal	2.156	-	85.00	-	85.00	0.00
	3.2 Private tubewell	1.706	550.00	1108.90	800.00	1364.80	255.90
	3.3 Mixed	2.739	500.00	1369.50	600.00	1643.40	273.90
	3.4 Labour for irrigation and water course cleaning (m.days)	3.462	300.00	1038.60	300.00	1038.60	0.00
4	Interculture:						
	4.1 With tractor	2.640	500.00	1320.00	600.00	1584.00	264.00
	4.2 Manual weeding/thinning (m.days)	4.600	300.00	1380.00	300.00	1380.00	0.00
5	Plant Protection including application (weedicides + pesticides)	5.769	550.00	3172.95	550.00	3172.95	0.00
6	Farm Yard Manure including transport and application 50%	-	-	500.00	-	600.00	100.00
7	Fertilizers: (bags)						
	7.1 DAP	0.731	3170.00	2317.27	4158.00	3039.50	722.23
	7.2 SSP	0.071	870.00	61.77	1275.00	90.53	28.76
	7.3 SOP	0.029	2566.00	74.41	3800.00	110.20	35.79
	7.4 NPK	0.046	2224.00	102.30	3200.00	147.20	44.90
	7.5 Urea	2.297	1053.00	2418.74	1777.00	4081.77	1663.03
	7.6 CAN	0.224	853.00	191.07	1438.00	322.11	131.04
	7.7 NP	0.069	2047.00	141.24	2633.00	181.68	40.43
	7.8 Fertilizer transport and application	3.467	35.00	121.35	35.00	121.35	0.00
8	Mark up on investment @ 12 % per annum for 8 months on items 1 to 7 minus 3(1)	-	-	1670.34	-	2016.12	339.80
9	Management charges for 8 months	-	-	1000.00	-	1100.00	100.00
10	Land rent for 8 months	-	20000.00	13333.33	20000.00	13333.33	0.00
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)	18.700	200.00	3740.00	225.00	4207.50	467.50
14	Cutting of cotton sticks	-	-	550.00	-	550.00	0.00
15	Gross cost (item 1 to 14)	-	-	41350.88	-	46505.64	5154.76
16	Value of cotton sticks	-	-	700.00	-	800.00	100.00
17	Net cultivation cost (item 15-16)	-	-	40650.88	-	45705.64	5054.76
18	Yield per acre (kgs)	-	-	748.00	-	748.00	-
19	Cost of production at farm level: (Rs/40 kgs)						
	19.1 Including land rent	-	-	2173.84	-	2444.15	270.31
	19.2 Excluding land rent	-	-	1460.83	-	1731.14	270.31
20	Marketing expenses (Rs/40 kgs)	-	-	35.00	-	35.00	0.00
21	Cost of production at market/ginnery: (Rs/40 kgs)						
	21.1 Including land rent	-	-	2208.84	-	2479.15	270.31
	21.2 Excluding land rent	-	-	1495.83	-	1766.14	270.31

Note:

The yield estimates have been adjusted in view of recent improvements.

**AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON
IN SINDH: 2011-12 AND 2012-13 CROPS**

S. No.	Operations / Inputs	Average No. of ops/ units/acre	2011-12 crop		2012-13 crop		Change in 2012-13 over 2011-12
			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	1300.00	718.90	1400.00	774.20	55.30
	1.2 Ploughing	2.071	750.00	1553.25	900.00	1863.90	310.65
	1.3 Planking	0.030	375.00	11.25	450.00	13.50	2.25
	1.4 Ploughing+planking	1.333	750.00	999.75	900.00	1199.70	199.95
	1.5 Levelling (tractor hrs)	0.859	750.00	644.25	900.00	773.10	128.85
2	Seed and sowing operations:						
	2.1 Seed (kgs)	10.279	200.00	2055.80	200.00	2055.80	0.00
	2.2 Sowing:						
	2.2.1 Ploughing + planking	0.160	750.00	120.00	900.00	144.00	24.00
	2.2.2 Ridging	0.236	750.00	177.00	900.00	212.40	35.40
	2.2.3 Drilling	0.763	750.00	572.25	900.00	686.70	114.45
	2.2.4 Manual labour for sowing, bund making and gap filling (m. days)	0.988	300.00	296.40	300.00	296.40	0.00
3	Irrigation: (Nos)						
	3.1 Canal	3.148	-	93.09	-	93.09	0.00
	3.2 Private tubewell	2.454	485.00	1190.19	600.00	1472.40	282.21
	3.3 Mixed	0.413	410.00	169.33	500.00	206.50	37.17
	3.4 Lift irrigation	0.251	115.00	28.87	150.00	37.65	8.79
	3.5 Labour for irrigation and water course cleaning (m.days)	3.732	300.00	1119.60	300.00	1119.60	0.00
4	Interculture:						
	4.1 With tractor	0.524	750.00	393.00	900.00	471.60	78.60
	4.2 With bullocks	1.259	750.00	944.25	900.00	1133.10	188.85
	4.3 Manual weeding/thinning (m.days)	4.700	300.00	1410.00	300.00	1410.00	0.00
5	Plant Protection including application (weedicides + pesticides)	4.200	525.00	2205.00	525.00	2205.00	0.00
6	Farm Yard Manure including transport and application 50 %	-	-	400.00	-	500.00	100.00
7	Fertilizers: (bags)						
	7.1 DAP	0.893	3117.00	2783.48	4125.00	3683.63	900.14
	7.2 TSP	0.009	2400.00	21.60	3100.00	27.90	6.30
	7.3 Urea	1.834	1057.00	1938.54	1805.00	3310.37	1371.83
	7.4 CAN	0.016	850.00	13.60	1439.00	23.02	9.42
	7.5 AS	0.010	1150.00	11.50	1414.00	14.14	2.64
	7.6 NPK	0.042	2209.00	92.78	3200.00	134.40	41.62
	7.7 NP	0.076	2075.00	157.70	2650.00	201.40	43.70
	7.8 Fertilizer transport and application	2.880	35.00	100.80	35.00	100.80	0.00
8	Mark up on investment @ 12% per annum for 8 months on items 1 to 7 minus 3(1)	-	-	1610.33	-	1925.70	315.37
9	Management charges for 8 months	-	-	1000.00	-	1100.00	100.00
10	Land rent for 8 months	-	15000.00	10000.00	15000.00	10000.00	0.00
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	16.00	0.00
14	Payment to pickers (Rs/ 40 kgs)	19.075	200.00	3815.00	225.00	4291.88	476.88
15	Cutting of cotton sticks	-	-	925.00	-	925.00	0.00
16	Gross cost (Item 1 to 15)	-	-	37726.83	-	42561.20	4834.37
17	Value of cotton sticks	-	-	925.00	-	1000.00	75.00
18	Net cultivation cost (item 16-17)	-	-	36801.83	-	41561.20	4759.37
19	Yield per acre (kgs)	-	-	763.00	-	763.00	0.00
20	Cost of production at farm level: (Rs/40 kgs)						
	20.1 Including land rent	-	-	1929.32	-	2178.83	249.51
	20.2 Excluding land rent	-	-	1405.08	-	1654.58	249.51
21	Marketing expenses (Rs/40 kgs)	-	-	35.00	-	35.00	0.00
22	Cost of production at market/ginnery: (Rs/40 kgs)						
	22.1 Including land rent	-	-	1964.32	-	2213.83	249.51
	22.2 Excluding land rent	-	-	1440.08	-	1689.58	249.51

Note:

The yield estimates have been adjusted in view of recent improvements.

Notes for Annex- IV and V

1. The input-output parameters for estimating cost of production of Seed Cotton, 2012-13 crop have been taken from the Cotton Policy Analysis Report for 2011-12 crop, API's Series No 236.
2. The inputs prices, hiring rates of field operations, wage rate and picking charges have been updated in the light of data collected through mini field survey conducted by the API in the major cotton producing areas during December 2011 in the Punjab and Sindh, the discussion made and information provided by the Provincial Agriculture Departments and Farmers' Associations in the meeting of the Standing Committee on Seed Cotton, held on 9th January 2012 at Islamabad.
3. 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 23rd February 2012. As the market price of NPK fertilizer is not available, therefore, its average price is worked out on the basis of increase in prices of Urea, DAP and SOP fertilizers.
4. The cost of supplementary irrigation has been adjusted in view of rises in the prices of diesel and power tariff during February 2011 to February 2012. Based on the ratios of electric and diesel tube-wells of 10: 90 in the Punjab and 23:77 in Sindh as reported in the Agriculture Statistics of Pakistan, 2009-10, the average increases worked out to 23 per cent in the Punjab and 24 per cent in Sindh.
5. 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 14,189 per month for a Field Assistant at the 15th stages in BPS-6 as per revised scale of July 2011, including 15 % Ad hoc Relief.

**ECONOMICS OF SEED COTTON AND COMPETING CROPS AT
PRICES REALIZED BY THE GROWERS: 2011-12 CROPS**

S #	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	Acre inch of water used
		Days	Acre inchesRupees per acre:.....						RatioRupees.....	
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3	

Punjab

1	Seed cotton	240	22	41091	13732	47880	34148	6789	1.17	3.49	200	2176
2	Basmati paddy	180	58	34744	17399	39829	22429	5085	1.15	2.29	221	687
3	IRRI paddy	180	62	32397	15283	34594	19311	2197	1.07	2.26	192	558
4	Wheat	180	12	31898	13200	32393	19192	495	1.02	2.45	180	2699
5	Sunflower (spring)	180	22	34382	14355	43500	29146	9118	1.27	3.03	242	1977
6	Seed cotton + wheat	420	34	72989	26932	80273	53340	7284	1.10	2.98	191	2361
7	Seed cotton + sunflower	420	44	75473	28086	91380	63294	15907	1.21	3.25	218	2077
8	Basmati paddy+wheat	360	70	66642	30600	72221	41621	5579	1.08	2.36	201	1032
9	Basmati paddy+sunflower	360	80	69126	31754	83329	51575	14203	1.21	2.62	231	1042
10	IRRI paddy + wheat	360	74	64295	28483	66986	38503	2691	1.04	2.35	186	905
11	IRRI paddy+sunflower	360	84	68770	29637	78094	48456	11315	1.17	2.63	217	930
12	Sugarcane	394	48	68201	21839	77849	56011	9648	1.14	3.56	198	1622

Sindh

1	Seed cotton	240	18	36950	11982	39380	27398	2430	1.07	3.29	164	2188
2	IRRI paddy	180	56	30088	11738	39626	27888	9539	1.32	3.38	220	708
3	Wheat	180	12	28569	11788	28800	17012	231	1.01	2.44	160	2400
4	Sunflower (spring)	180	22	33229	13657	43500	29843	10271	1.31	3.19	242	1977
5	Seed cotton + wheat	420	30	65519	23770	68180	44411	2662	1.04	2.87	162	2273
6	Seed cotton + sunflower	420	40	70179	23770	82880	59111	12701	1.18	3.49	197	2072
7	IRRI paddy+ wheat	360	68	58656	23526	68426	44900	9770	1.17	2.91	190	1006
8	IRRI paddy+sunflower	360	78	63317	25395	83126	57731	19810	1.31	3.27	231	1066
9	Sugarcane	488	71	79860	26652	95779	69126	15919	1.20	3.59	196	1349

Notes for Annex - VI

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2011-12 crops.
2. The data regarding input-output parameters have been adopted from the API's Crop Policy Analysis Reports for sugarcane, seed cotton, rice paddy and wheat, 2011-12 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 2011-12 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2011-12 crops, some marginal revisions have been made as under:
 - 2.1 The cost of supplementary irrigation has been adjusted in accordance with the variation in the electric charges; @ 22 % for sugarcane, seed cotton, & rice paddy and 8.23% for wheat. Similarly, diesel rates have also been adjusted @ 34% for sugarcane, 7% for seed cotton, 17.85 % for rice paddy and 11 % for wheat crop.
 - 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 2011-12 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. 1050 per 40 kgs as announced by the Government for 2011-12 wheat crop has been used for current analysis.
 - 4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post harvest period of 2011-12 in major producer area markets have averaged at Rs 1448 and Rs 904 per 40 kgs for Punjab. The market prices of IRRI paddy averaged at Rs. 791 per 40 kgs for Sindh..
 - 4.3 The wholesale market prices of seed cotton during the post-harvest period of 2011-12 in the main producer area markets of Punjab have averaged at Rs 2558 per 40 kgs. In Sindh, the corresponding prices averaged at Rs 2051 per 40 kgs.
 - 4.4 The purchase price of Rs. 2200 per 40 kgs for sunflower 2011-12 crop as reported by PO DB is used for current analysis.

4.5 The market prices of sugarcane at mill-gate for 2011 – 12 crop in the major cane producing areas are reported to hover around Rs 150 40 kgs in the Punjab and Rs 154 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 10.25 per 40 kgs in Punjab and Rs 10.32 in Sindh for sugarcane, Rs 30 for seed cotton in Punjab and Rs 32 in Sindh, Rs 25 for rice paddy, and Rs 22 for 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: 2011-12**

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	30.00	37.50	45.00	52.50
		----- Rupees -----			
2	Direct cost of 10 kgs of NPK fertilizer at the weighted average price of Rs80.3 per nutrient kg (i.e. Rs 49.9, 118.8 and Rs.102.6 per nutrient kg of N,P and K at the recommended NPK ratio of 2:1:1(a)	803.0	803.0	803.0	803.0
3	Indirect cost due to the application of additional fertilizer as detailed below(b)	255.7	299.7	343.8	387.8
	3.1 Transportation and application charges of 20 kgs of fertilizer @ Rs 35.0 per bag of fertilizer	14.0	14.0	14.0	14.0
	3.2 Picking charges for additional produce @ Rs 200.0 per 40 kgs	150.0	187.5	225.0	262.5
	3.3 Marketing charges for additional produce @ Rs 35.0 per 40 kgs	26.3	32.8	39.4	45.9
	3.4 Mark up on direct cost of fertilizer (item2+3.1) for 8 months @ 12 % per annum	65.4	65.4	65.4	65.4
4	Total additional cost (item 2+3)	1058.7	1102.7	1146.8	1190.8
5	Value of additional produce @ Rs 2305 per 40 kgs(c)	1728.8	2160.9	2593.1	3025.3
6	Benefit cost ratio (item 5 divided by item 4)	1.63	1.96	2.26	2.54

Notes:

- a) The prices of N,P and K have been worked out from average prices of Urea, DAP and SOP used in COP estimates of the Punjab and Sindh for 2011-12 crop taken respectively as 1055,3144 and 2566 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 2011-12 crop.
- c) Average market prices of seed cotton for 2011-12 crop in the Punjab and Sindh during September to December 2011, *have been used.*

ANNEX- VIII

INTERNATIONAL PRICES OF COTTONS: 2004-05 TO 2011-12

Years Aug-Jul	Index- A Cottons	Orleans/ Texas SLM 1-1/32"
-----US Cent per pound-----		
2004-05	52.20	51.19
2005-06	56.15	54.39
2006-07	59.15	56.13
2007-08	72.90	69.83
2008-09 *	61.14	56.05
2009-10	70.80	77.58
2010-11	165.13	89.00
2011-12	107.14	109.50
August	114.10	121.75
September	116.86	119.08
October	110.61	116.06
November	104.68	103.19
December	95.45	94.50
January	101.12	102.44

Note:

* From 2008-09, the prices of Orleans/ Texas 1-1/32" and Index-A cottons are for CFR Eastren Quotation.

Source: Cotton Outlook (various issues).

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

S.No	Item	2011-12 (Aug-Dec)	2008-09 to 2010-11
1.	Actual average export price	US Cents per pound 90.08	75.30
		OR Rupees (a)	
	Actual average export price per 40 Kgs	7218	6033
2.	Marketing expenses (export & purchase incidentals, insurance & financial expenses) per 40 Kgs	450	450
3.	Ex- gin price of lint per 40 Kgs (item 1- item 2)	6768	5583
4.	Value of 80 kgs of cotton seed (b)	1794	1794
5.	Ginning charges for 120 kgs of seed cotton	500	500
6.	Value of 120 kgs of seed cotton (c) (items 3 +4 - item 5)	8062	6877
7.	Seed cotton price per 40 kgs (item 6 / 3)	2687	2292

Notes:

- a) One US \$ = 90.86 Pak rupees.
- b) Average price of cotton seed for October 2011 to January, 2012 in Multan market was Rs 897 per 40 kgs.
- c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

Sources:

1. PBS for export prices.
2. KCA, Karachi for marketing expenses.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Directorate of Agriculture (E&M), Punjab, Lahore.

**EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF FUTURE'S
CONTRACT PRICE OF NEW YORK NO. 2 COTTON (AVERAGE OF
OCTOBER, DECEMBER, 2012 AND MARCH, 2013)**

S.No	Item	Price calculations
		US Cents per pound
1.	Future's contract price as on January 25, 2012	95.83
2.	Grade and staple discount	4.5
3.	Discount on account of inland transportation and certification of stocks	5.5
4.	Parity price of Afzal 1-1/32" at Karachi	85.83
		OR Rupees (a)
	Parity price per 40 kgs	6877
5.	Marketing expenses (export & purchase incidentals, insurance & financial expenses) per 40 kgs	450
6.	Ex- gin price of cotton lint per 40 kgs (item 4 - item 5)	6427
7.	Value of 80 kgs of cotton seed (b)	1794
8.	Ginning charges for 120 kgs of seed cotton	500
9.	Value of 120 kgs of seed cotton (c) (items 6 + 7 - item 8)	7721
10.	Seed cotton price per 40 kgs (item 9 / 3)	2574

Notes:

- a) One US \$ = 90.86 Pak rupees.
- b) Average price of cotton seed for October 2011 to January, 2012 in Multan market was Rs 897 per 40 kgs.
- c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

Sources:

1. Cotton Outlook of January 27, 2012 for future contract price.
2. KCA, Karachi for marketing expenses.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.

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

S.No	Item	2011-12 (Aug-Jan)	2008-09 to 2010-11
		US Cents per kg	
1.	Average fob price	292.00	280.00
		OR Rupees	(a)
		265.31	254.41
2.	Fob expenses per kg (transport cost, wharfage, port handling & forwarding, adhesive & EDS)	4.19	4.19
3.	Export packing cost per kg	3.88	3.88
4.	Sales tax	0.00	0.00
5.	Value of 1 kg yarn (item 1 - (items 2+3+4)	223.79	246.34
6.	Recovery from 0.16 kgs cotton waste	5.62	5.62
7.	Conversion charges of lint into yarn per kg	39.81	39.81
8.	Value of 1.16 kgs cotton lint (b) (items 5 +6 -item 7)	189.60	212.15
9.	Price of one kg cotton lint (item 8/1.16)	163.45	182.89
		OR	
	Price of 40 kgs cotton lint	6537.93	7315.45
10.	Transport cost from ginnery to mill, local tax(per 40kgs)	37.00	37.00
11.	Ex-gin price of 40 kgs lint (item 9 - item 10)	6500.93	7278.45
12.	Value of 80 kgs cotton seed (c)	1794.00	1794.00
13.	Ginning charges for 120 kgs of seed cotton	500.00	500.00
14.	Seed cotton price of 120 kgs (item11+12- item13) (d)	7794.93	8572.45
15.	Seed cotton price per 40 kgs (item 14/3)	2598.31	2857.48

Notes:

- One US \$ = 90.86 Pak rupees.
- 1.16 kgs of lint = 1 kg yarn+0.16 kgs of waste.
- Average price of cotton seed for October 2011 to January, 2012 in Multan market was Rs 897 per 40 kgs.
- 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

Sources:

- Cotton Outlook various issues for fob price.
- APTMA, Karachi for items, 2, 3 and 10.
- Pakistan Cotton Ginners Association, Karachi for ginning charges.

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

S. No	Item	2011-12 (Aug-Dec)	2008-09 to 2010-11
		Rupees per 40 kgs	
1.	Actual average cif (Karachi) price	10259	7234
2.	Handling charges at port and transport cost from port to textile mill at Karachi @ 5 % of cif price	513	362
3.	Ex- gin price of cotton lint (Item 1+ item 2)	10772	7596
4.	Value of 80 kgs of cotton seed (a)	1794	1794
5.	Ginning charges for 120 kgs of seed cotton including ginning losses	500	500
6.	Value of 120 kgs of seed cotton (item 3 +item 4 - item 5)	12066	8890
7.	Seed cotton price (item 6/ 3)	4022	2963

Note:

- a) Average price of cotton seed for October 2011 to January, 2012 in Multan market was Rs 897 per 40 kgs.

Sources:

1. PBS, for cif (Karachi price).
2. KCA, for incidental charges.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Directorate of Agriculture (E&M), Punjab, Lahore.

**IMPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF AVERAGE
CFR FAR EASTREN QUOTED PRICE OF INDEX A-COTTONS**

S. No	Item	2011-12 (Aug-Jan)	2008-09 to 2010-11
		US cent per pound	
1.	Index-A cottons assumed as cif (Karachi) price	107.14	99.02
2.	Insurance, agents commission, and port handling charges @ 5% cif price	5.36	4.95
3.	Landed cost at Karachi	112.50	103.97
		OR Rupees (a)	
	Landed cost at Karachi per 40 kgs	9014	8331
4.	Handling charges at port and transport cost from port to textile mills at Karachi @ 2.5 % of cif price	225	208
5.	Ex- gin price of cotton lint (item 3 + item 4)	9239	8539
6.	Value of 80 kgs of cotton seed (b)	1794	1794
7.	Ginning charges for 120 kgs of seed cotton including ginning losses	500	500
8.	Value of 120 kgs of seed cotton (item 5 +item 6 - item 7)	10533	9833
9.	Seed cotton price per 40 kgs (item 8/ 3)	3511	3278

Notes:

- a) One US \$ = 90.51 Pak rupees.
- b) Average price of cotton seed for October 2011 to January, 2012 in Multan market was Rs 897 per 40 kgs.

Sources:

1. CFR Far Eastren Quoted price Annex - VIII
2. KCA, for incidental charges.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.

ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON

Based on Export parity prices

(POLICY ANALYSIS MATRIX)

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
PUNJAB				
Rupees per acre				
2007-08				
Private Prices	25756	8413	12075	5268
Social Prices	23755	8032	12436	3287
Transfers	2001	381	-361	1982
2008-09				
Private Prices	27002	11328	12983	2691
Social Prices	24496	11065	13398	33
Transfers	2506	263	-415	2658
2009-10				
Private Prices	32590	11110	13961	7519
Social Prices	29173	10612	14359	4201
Transfers	3417	498	-398	3318
2010-11				
Private Prices	68116	13163	15304	39649
Social Prices	73301	12739	15747	44815
Transfers	-5185	424	-443	-5166
2011-12				
Private Prices	43591	16115	18086	9389
Social Prices	45784	15673	18577	11534
Transfers	-2193	442	-490	-2145
Sind				
2007-08				
Private Prices	25443	6926	12314	6203
Social Prices	23955	6967	12723	4265
Transfers	1488	-41	-409	1938
2008-09				
Private Prices	26675	9853	13283	3539
Social Prices	24715	9993	13745	978
Transfers	1960	-139	-462	2561
2009-10				
Private Prices	33428	9604	14328	9496
Social Prices	30981	9693	14790	5496
Transfers	2447	-88	-462	2997
2010-11				
Private Prices	70502	11719	15945	42838
Social Prices	77738	11789	16446	49504
Transfers	-7236	-70	-501	-6665
2011-12				
Private Prices	37843	4846	28514	4484
Social Prices	48661	4907	29066	14689
Transfers	-10818	-61	-552	-10205

ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON
(POLICY ANALYSIS MATRIX)

Based on Import parity prices

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
PUNJAB				
Rupees per acre				
2007-08				
Private Prices	25756	8413	12075	5268
Social Prices	24047	8032	12436	3578
Transfers	1709	381	-361	1690
2008-09				
Private Prices	27002	11328	12983	2691
Social Prices	37045	11065	13398	12582
Transfers	-10043	263	-415	-9891
2009-10				
Private Prices	34480	11110	13961	9409
Social Prices	40680	10612	14359	15708
Transfers	-6200	498	-398	-6299
2010-11				
Private Prices	69767	13163	15304	41300
Social Prices	77579	12739	15747	49093
Transfers	-7812	424	-443	-7793
2011-12				
Private Prices	46079	16115	18086	11877
Social Prices	72431	15673	18577	38181
Transfers	-26352	442	-490	-26304
Sind				
2007-08				
Private Prices	25443	6926	12314	6203
Social Prices	24550	6967	12723	4860
Transfers	893	-41	-409	1343
2008-09				
Private Prices	26675	9853	13283	3539
Social Prices	37683	9993	13745	13945
Transfers	-11008	-139	-462	-10406
2009-10				
Private Prices	33428	9604	14328	9496
Social Prices	41259	9693	14790	16776
Transfers	-7832	-88	-462	-7281
2010-11				
Private Prices	70502	11719	15945	42838
Social Prices	77738	11789	16446	49504
Transfers	-7236	-70	-501	-6665
2011-12				
Private Prices	37843	11789	18587	7467
Social Prices	72745	14772	19141	38832
Transfers	-34902	-2984	-554	-31365

Area, Yield and Production of Seed Cotton among competing countries: 2010 CROP

Annex XVI

S.No	Country	Area (M)ha	Yield Tons/ha	Production (M)Tons	S.No	Country	Area (M)ha	Yield Tons/ha	Production (M)Tons
1	Botswana	0.0001	6.9231	0.0009	45	Albania	0.0006	1.1667	0.0007
2	Israel	0.0039	4.6462	0.0181	46	Ecuador	0.0032	1.1563	0.0037
3	Australia	0.2083	4.5079	0.9390	47	Burkina Faso	0.4628	1.1444	0.5296
4	Mexico	0.1129	3.9003	0.4405	48	Paraguay	0.0137	1.0967	0.0151
5	Syrian Arab Republic	0.2013	3.7109	0.7470	49	Afghanistan	0.0500	1.0720	0.0536
6	China	4.8490	3.6935	17.9100	50	Guinea	0.0380	1.0579	0.0402
7	Brazil	0.8231	3.5608	2.9307	51	Mali	0.2503	1.0428	0.2610
8	South Africa	0.0060	3.4768	0.0208	52	Côte d'Ivoire	0.1410	1.0284	0.1450
9	Bangladesh	0.0140	3.3786	0.0473	53	Ghana	0.0259	1.0232	0.0265
10	Greece	0.2500	2.8000	0.7000	54	Niger	0.0080	1.0000	0.0080
11	Kyrgyzstan	0.0265	2.7925	0.0740	55	Burundi	0.0030	1.0000	0.0030
12	Lao People's Democratic Republic	0.0025	2.6800	0.0067	56	Tunisia	0.0026	1.0000	0.0026
13	Honduras	0.0009	2.6667	0.0024	57	Saint Kitts and Nevis	0.0000	1.0000	0.0000
14	Turkey	0.4804	2.6492	1.2728	58	Sudan	0.1380	0.9841	0.1358
15	Uzbekistan	1.3300	2.5886	3.4428	59	Guinea-Bissau	0.0057	0.9649	0.0055
16	Iran (Islamic Republic of)	0.0910	2.5536	0.2324	60	Senegal	0.0276	0.9441	0.0260
17	Egypt	0.1550	2.4350	0.3775	61	Costa Rica	0.0003	0.9286	0.0003
18	Peru	0.0280	2.2801	0.0638	62	Nepal	0.0001	0.9008	0.0001
19	El Salvador	0.0001	2.2603	0.0002	63	Zambia	0.1200	0.8917	0.1070
20	Iraq	0.0206	2.2011	0.0453	64	Ethiopia	0.0790	0.8861	0.0700
21	United States of America	4.3297	2.1881	9.4738	65	Bolivia (Plurinational State of)	0.1213	0.8821	0.1070
22	Guatemala	0.0014	2.1429	0.0030	66	Colombia	0.0445	0.8009	0.0356
23	Pakistan	2.6890	2.1197	5.7000	67	Malawi	0.0200	0.8000	0.0160
24	Nicaragua	0.0019	2.0526	0.0039	68	United Republic of Tanzania	0.3600	0.7639	0.2750
25	Tajikistan	0.1624	1.9120	0.3106	69	Chad	0.1000	0.7600	0.0760
26	Namibia	0.0024	1.8987	0.0045	70	Zimbabwe	0.1563	0.7375	0.1153
27	Kazakhstan	0.1340	1.7899	0.2399	71	Kenya	0.0246	0.7331	0.0180
28	Argentina	0.4409	1.7090	0.7535	72	Madagascar	0.0210	0.6952	0.0146
29	Democratic Republic of Korea	0.0186	1.6882	0.0314	73	Philippines	0.0001	0.6731	0.0000
30	India	11.0000	1.6179	17.7970	74	Myanmar	0.3000	0.6667	0.2000
31	Turkmenistan	0.6400	1.5625	1.0000	75	Venezuela (Bolivarian Republic of)	0.0150	0.6667	0.0100
32	Morocco	0.0001	1.5385	0.0002	76	Uganda	0.1300	0.6154	0.0800
33	Angola	0.0021	1.5238	0.0032	77	Somalia	0.0132	0.6136	0.0081
34	Bulgaria	0.0006	1.5000	0.0009	78	Swaziland	0.0030	0.6102	0.0018
35	Cambodia	0.0002	1.5000	0.0003	79	Togo	0.0669	0.5037	0.0337
36	Indonesia	0.0230	1.4739	0.0339	80	Montserrat	0.0000	0.5000	0.0000
37	Viet Nam	0.0091	1.4580	0.0133	81	Mozambique	0.3700	0.4730	0.1750
38	Cameroon	0.1450	1.3103	0.1900	82	Grenada	0.0001	0.4545	0.0001
39	Nigeria	0.3738	1.3000	0.4859	83	Democratic Republic of the Congo	0.0620	0.4113	0.0255
40	Spain	0.0629	1.2909	0.0812	84	Gambia	0.0016	0.3375	0.0005
41	Azerbaijan	0.0302	1.2665	0.0382	85	Algeria	0.0002	0.3100	0.0001
42	Yemen	0.0200	1.2600	0.0252	86	Central African Republic	0.0349	0.2999	0.0105
43	Benin	0.1800	1.2494	0.2249	87	Haiti	0.0031	0.2935	0.0009
44	Thailand	0.0072	1.1944	0.0086	88	Antigua and Barbuda	0.0006	0.1111	0.0001
World Avg. Yield			2.129						

Source: FAO, Stat.

COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

ANNEX- XVII

S.No.	Name of variety	Yield (Kgs/hect.)	S.No.	Name of variety	Yield (Kgs/hect.)
Upland					
1	Sindh-1, ARI, Taando Jam	4500	57	FH 634, CRI, Faisalabad	2800
2	CRIS-134, CCRI-Sakrand	4500	58	Gomal 93, CRS, D.I.Khan	2800
3	Maimal, ARI, Tando Jam	4238	59	NIAB 86, NIAB, Faisalabad	2800
4	CRIS-342, CCRI-Sakrand	4000	60	CRIS 134, CRI, Sakrand	2700
5	CRIS-121, CCRI-Sakrand	4000	61	Niab 111 Nhiab, Faisalabad	2600
6	Hari Dost, ARI, Tando Jam	3948	62	Sohani NIA, Tandojam	2500
7	Marvi, CCRI-Sakrand	3900	63	Reshmi, ARI, Tando Jam	2290
8	S 12, CRS, Multan	3900	64	BH 160 CRS, Bahawalpur	2500
9	CRIS-467, CCRI-Sakrand	3800	65	Marvi, CRI, Sakrand	2500
10	Chandi-95, NIA, Tando Jam	3800	66	Shahbaz 95 ARI, Tandojam	2500
11	Sadori, ARI, Tando Jam	3500	67	B557, CRI, Faisalabad	2500
12	Sohni, NIA, Tando Jam	3500	68	Shaheen, CRS, Ghotki	2200
13	SLS 1, CRS, Sahiwal	3500	69	SLH 41, CRS, Sahiwal	2200
14	NIAB 78, NIAB, Faisalabad	3500	70	MS 84, CRS, Multan	2100
15	MNH 93, CRS, Multan	3500	71	K 68/9, CRS, Ghotki	2000
16	MNH 147, CRS, Multan	3300	72	Qalandari, CRS, Tandojam	2000
17	NIA-Ufaq, NIA, Tando Jam	3200	73	149 F, CRS, Multan	2000
18	FH 682, CRI Faisalabad	3200	74	Sar,ast. CRS. Tandojam	1800
19	CRIS-9, CCR-Sakrand	3100	75	MS 40, CRS, Multan	1700
20	CRIS 9, CRI, Sakrand	3100	76	MS 39, CRS, Multan	1650
21	BH36, CRS, Bahawalpur	3100	77	AC 134, CRI, Faisalabad	1600
22	CIM 70, CCRI, Multan	3100	78	Lasani 11, CRI, Faisalabad	1600
23	CIM 496, CCRI, Multan	3000	79	M 100, CRS, Tandojam	1500
24	CRIS 467 CRI Sakrand	3000	80	362 F, CRI, Faisalabad	1500
25	CIM 707 CCRI, Multan	3000	81	BS1 CRSS, Khanpur	1200
26	CIM 506 CCRI, Multan	3000	82	238F, CRI, Faisalabad	1000
27	CIM 499 CCRI, Multan	3000	83	268F, CRI, Faisalabad	1000
28	FH 1000, Faisalabad	3000	84	216F, CRI, Faisalabad	1000
29	NIAB 78, NIAB, Faisalabad	3000	85	LSS, CRI, Faisalabad	1000
30	CIM 473, CCRI, Multan	3000	86	289F/K25, BCGA, Khanewal	1000
31	FH 118, CRS, Bahawalpur	3000	87	289F, CRI, Faisalabad	950
32	CIM 482, CCRI, Multan	3000	88	199F, CRS, Multan	900
33	FH 900, CRI, Faisalabad	3000	89	124 F, CRI, Faisalabad	900
34	FH 901, CRI, Faisalabad	3000	90	M 4, CRS, Tandojam	900
35	CIM 443 CCRI, Multan	3000	91	289 F/43, CRI, Faisalabad	900
36	CIM 446 CCRI, Multan	3000	92	4F, CRI, Faisalabad	800
37	FVH 53, CRS, Vehai	3000	93	3F, CRI, Faisalabad	600
38	Chandi 95, NIA Tandojam	3000		Hybrid	
39	CIM 448, CCRI, Multan	3000	1	H151, Alseemi, Multan	3500
40	CIM 1100, CCRI, Multan	3000	2	H115, Alseemi, Multan	3500
41	Krishma, NIAB, Faisalabad	3000	3	H160, Alseemi, Multan	3500
42	MNH 329, RS, Multan	3000		Desi	
43	RH 112, CRS, R.Y. Khan	3000	1	FDH 176, CRI, Faisalabad	2500
44	S 14, CRS, Multan	3000	2	FDH 228, CRI, Faisalabad	2000
45	CIM 240, CCRI, Multan	3000	3	Rohi, CRI, Bahawalpur	2000
46	NIAB 26N, NIAB, Faisalabad	3000	4	Ravi, CRI, Faisalabad	1900
47	Rehmani 90, CRO, Tandojam	3000	5	SKD 10/19, CRI Sakrand	1700
48	CIM 109, CCRI, Multan	3000	6	D9, CRI, Faisalabad	1400
49	Gohar 87, CRS, Bahawalpur	3000	7	TD 1, CRS Tandijam	1000
50	RH1, CRS, R.Y.Khan	3000	8	231 R, CRI, Multan	1000
51	FH 87, CRI, Faisalabad	3000	9	119 S, CRI, Multan	800
52	MNH 129, CRS, Multan	3000	10	SNR, CRS, Tandojam	800
53	Rehmani, CRS, Tandojam	3000	11	39 M, CRI, Faisalabad	650
54	Shahbaz, ARI, Tando Jam	2992	12	15 M, CRI, Faisalabad	600
55	MNH 552, CRS, Multan	2900	13	SNR, CRS, Tandojam	800
56	MNH 554, CRS, Multan	2800			

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