API SERIES NO. 254

COTTON POLICY ANALYSIS FOR 2015-16 CROP

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

SEPTEMBER, 2015

CONTENTS

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
FAO	:	Food and Agriculture Organization
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
NFS&RD	:	National Food Security and Research Division
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
PBS	:	Pakistan Bureau of Statistics
PCCC	:	Pakistan Central Cotton Committee
PCGA	:	Pakistan Cotton Ginners Association
PCSI	:	Pakistan Cotton Standards Institute
PSC	:	Punjab Seed Corporation
SSC	:	Sindh Seed Corporation
TCP	:	Trading Corporation of Pakistan
WTO	:	World Trade Organization

SUMMARY OF FINDINGS AND RECOMMENDATIONS

- Findings

Area and Production

- Punjab and Sindh contribute 73.00 and 26.2 per cent respectively of the cotton production while the share of both KPK and Balochistan is 0.8 per cent.
- During the last decade, cotton production has shrinked @ 0.1 per cent per annum mainly due to 1.1 per cent decline in area as the yield has improved @ 1.0 per cent per year.
- Cotton production in 2014-15 is estimated at 13.498 million bales, 7.1 per cent greater than 12.607 millon bales produced in 2013-14.
- Cotton yield improved by 2.7 per cent as compared to the last year.

Major Varieties

- According to the Annual Field Survey Report of API for 2014-15 cotton crop, 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.

Domestic Prices

- Monthly average market prices of seed cotton for 2014-15 crop during the post harvest months in major producing areas have generally remained slightly below the actual export parity prices.
- The wholesale market prices of seed cotton during the post harvest period averaged at Rs 2436 per 40 kgs in the Punjab and Rs 2278 in Sindh.

- Monthly average wholesale prices of seed cotton ranged from Rs 2109 to Rs 2546 per 40 kgs during the post harvest months in major producing areas of the Punjab and Rs 1550 to Rs 2706 per 40 kgs in Sindh.

- Monthly average spot prices of cotton lint at Karachi have increased to Rs 5453 per 40 kgs in 2014-15 from Rs 7248 in 2013-14.

Cost of Production

- In the Punjab, the cost of cotton cultivation during 2015-16 season is estimated at Rs 55,033 per acre.

- The cost of production at the market / ginnery level of Punjab would be Rs 2936 per 40 kgs, reflecting a rise of 1.15 per cent over the last year.

- In Sindh, the cost of cotton cultivation for 2015-16 crop is expected at Rs 50,988 per acre.

- The cost of production at market / ginnery level of Sindh would come to Rs 2599 per 40 kgs, showing an increase of 0.461 per cent over the last year.

Economics of Cotton and Competing Crops

- The economics of cotton has a comprehensive edge over basmati and IRRI during 2014-15 in respect of entire economic criteria.

- In case of indirect competition with sugarcane, sugarcane performed better than cotton combination in returns to overall investment, purchased inputs and crop duration, but lags behind in the irrigation water.

- In Sindh, cotton farming maintained its superiority over IRRI paddy in terms of purchased inputs crop duration and irrigation water, however, lagged behind in terms of output input ratio.

- In case of indirect competition, the cotton combinations with wheat or sunflower performed better than sugarcane in crop duration and irrigation water in Sindh.

Economics of Fertilizer Use on Cotton Crop

- Benefit Cost Ratio refers to the ratio between the value of additional produce obtained by using a certain dose of fertilizer and the additional costs incurred therein. These ratios have shown favourable situation in context of cotton crop during 2014-15.

- Regarding the 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 0.39 to 1.22 tonnes while that of P fertilizer from 0.78 to 3.16.

Nominal and Real Market Prices

- The nominal prices of seed cotton in the Punjab indicate an overall increase of 71.53 per cent while the real market prices have shown a fall of 13 per cent during 2007-08 to 2014-15.

- In Sindh, the nominal market prices of seed cotton have observed overall escalation of 46 per cent while the real market prices have fall by over a quarter against the base year level.

World Production and Prices

- World cotton production estimated at 26.23 million tonnes in 2014-15 is projected to decline to 23.94 million in 2015-16.

- International prices of Index-A cottons have widely fluctuated from the lowest level of 52 cents per pound in 2004-05 to the highest level of 165 cents per pound in 2010-11. The price remained subdued during 2014-15 averaging at 69.94 US cent per pound. Orleans Texas could reach 100.53 cents in 2012-13, the highest ever during the period under review.

Export Parity Prices

- Based on actual export price of Pakistani cotton during 2014-15, the export parity price of seed cotton calculates to Rs 2438 per 40 kgs and Rs 2749 on the basis of average during 2011 to 2014.

- The export parity price comes to Rs 2042 per 40 kgs on the basis of Futures contract prices of New York No.2 Cotton.

Import Parity Prices

- Based on actual cif (Karachi) price of imported cotton during 2014-15, the import parity price of seed cotton works to Rs 3763 per 40 kgs and Rs 3719 for average of 2011 to 2014.

- Based on CFR Far Eastern quoted price of Index – A cottons, the import parity price comes to Rs 2786 per 40 kgs during 2014-15 and Rs 3519 on average of 2011 to 2014.

Economic Efficiency

- Economic efficiency of resource use in cotton production has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC).
- The NPCs have been below one under import scenario. However, under export scenario these ratios remained above one during 2012-13 and 2014-15 in the Punjab and during 2012-14 in Sindh.

- Similarly, the EPCs are below one under import scenario in the Punjab, except during 2013-14 but throughout the period in Sindh under both the export and import situation.

- The DRC indicates the opportunity cost of domestic resources employed per unit of value added in production of a commodity.

- The DRCs have been less than one during the period under analysis since 2010-11 except 2014-15 in the Punjab and for entire period in Sindh under export situation. Generally the situation implies a Comparative Advantage in domestic cotton production, both under export and import scenario.

- The findings of economic efficiency analysis warrant expansion in cotton production to meet domestic requirements of textile industry as the imports are more expensive.

- Under import scenario, both NPC and EPCs are below 1 throughout the analysis. Hence wheat growers are being taxed and resources are flowing out from the agriculture sector.

World Comparison

- Pakistan is the 4th largest cotton producer in terms of area and production but ranks at 20th number in terms of yield.

- As per data for ICAC for the year 2012-13, China has provided the highest direct assistance to cotton sector through production programmes at US $ 5813 million, followed by USA at $ 562 and Turkey at $ 312 million respectively. No such direct assistance is reported in Pakistan, India and Brazil.

- Among 6 competing countries, cost of production of seed cotton was estimated at Pak Rs 2540 per 40 kgs in USA while in India it was reported at Pak Rs 2471 per 40 kgs.

- The cost of production of seed cotton was estimated at Pak Rs 2479 per 40 kgs in China, Rs 2839 in Iran, Rs 2209 in Turkey and Rs 1929 in Pakistan as per the International Cotton Advisory Committee (ICAC), Washington DC, USA, updated after every three year cycle.

Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for seed cotton 2015-16 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 2014-15 (Aug-Feb)	2438	
	- During 2011-12 to 2013-14	2749	
	ii) Futures contract prices of New York No.2 cotton (average of October, December 2015 and March 2016	2042	
2	Import parity prices based on average:		
	i) Actual cif Karachi prices of imported cotton:		
	- During 2014-15 (Aug-Feb)	3763	
	- During 2011-12 to 2013-14	3719	
	ii) CFR Far Estern quoted price of Index-A Cottons		
	- During 2014-15 (Aug-Feb)		
	- During 2011-12 to 2013-14		
3	Average wholesale prices of seed cotton in Major Producer Area Markets during the post-harvest period in 2014-15 (Aug-Jan)		
	- Punjab	2786	
	- Sindh	3519	
4	Cost of production for 2015-16 crop		
	- Punjab	2936	
	- Sindh	2599	
5	Cost of domestic resources involved in:	At exchange rate of Pak Rs 101.8	
		Punjab	Sindh
	i) Producing cotton for import substitution based on 2014-15 prices of cotton (actual average)	62.95	53.51
	ii) Producing cotton for export based on 2014-15 prices of cotton (actual average)	1204	99.3

- Recommendations

In view of the field information, consultation with the stakeholders in the API's 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:

Intervention Price

- The Government may like to consider for maintaining of the current intervention price of seed cotton (Base grade 3 with staple length 1-1/16") for 2015-16 crop at Rs 3000 per 40 kgs, in view of world cotton situation and high input costs, if deem necessary.

- This price will provide 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 suggested Intervention Price.

- In view of trade libralization and active role of private sector, the actual incentive to cotton growers should come through the market forces.

- The government policy of encouraging the role of private sector in cotton marketing and trade may be continued.

- The TCP should be designated as the implementing agency for seed cotton through buying lint at the price determined on the basis of intervention price of seed cotton, if announced in case of need.

Improving Productivity

- Coordination among the Provincial and Federal Research Institutes should be strengthened in order to improve research activities for productive outcome.

- 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.

- Cultivation of uncertified Bt cotton varieties must be curtailed through strict measures.

- The price, date of manufacture and weight should be labelled on the bags of fertilizer and brands of pesticides/weedicides.

- There is a dire need to introduce an appropriate monitoring system to verify the performance of Bt cotton varieties in the field particularly for toxin level.
- In view of emerging climate change, new varieties of cotton seed like drought resistant and flood resistant are the dire need of the time.
- Availability of quality seed of cotton is the primary need. It must be ensured through enforcement of seed policy.
- A comprehensive National Seed Policy should be announced by the Government and implemented in true spirit.
- Availability of certified Bt Cotton Seed is a serious problem. It may be ensured in the market. Towards this end, an effective incentive and penalty structure must be put in place in order to guarantee its purity and quality.
- Awareness campaign for cotton growers should be undertaken by the research and provincial agriculture extension departments. This may include identification of pure Bt cotton seed and other important considerations in relation to the cotton crop with the adoption of updated Bt. technology.
- Early sowing of Bt cotton has raised some problems like boll rottening and pest attack which need to be addressed.
- Punjab Seed Corporation is working well. The Government of Sindh, KPK and Balochistan should also pay a special attention to seed production to meet their provincial requirements.
- Pest Scouting and Warning System should be further strengthened enabling the farmers to take timely action and apply appropriate pesticides.
- There is a need to encourage Soil Testing facilities to assess the need of appropriate fertilizers for balanced input use.
- In order to acknowledge the innovative work of the genuine breeders, the seed of a new variety should be auctioned in the open market.
- 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 educate the growers about cotton production technology.
- The NIBGE in collaboration with Cotton Research Institutes should work hard on heat / drought resistant varieties to avoid excessive boll shedding and improving boll weight.

- The Government should take strict measures in order to control the Mealy Bug through management practices and biological control.
- PARC may be advised to test EM technology, Bio-fertilizer and other relevant technologies of fertilizer for balanced use to reduce cost of production.
- In order to promote cotton cultivation in the country, there should be restriction on establishing new sugarmills in the cotton region.
- The Plant Breeders Rights Act may be approved and implemented in order to promote the varital development.
- pH value of soil has gone to the range of 8-10 due to indiscriminate use of chemical inputs and shallow tillage operations. There is a need of encouraging deep ploughing and Disc plough in cotton growing areas.
- There is a dire need to introduce Land Use Act to conserve the fertile Agriculture land for crop cultivation and not for residential accommodation.

Improving Quality and Marketing

- A comprehensive educational campaign should be launched to educate the growers about improved practices of cotton picking.
- A Ginning Research Institute may be established to deal with the issues of cotton ginning and related matters.
- In order to introduce quality assurance system, the Cotton Commissioners should be posted with strong legal and administrtive powers by provinial governments of Punjab and Sindh.
- In order to check the underweighment 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.
- Like other commodities, a Regulartory Authority may be established to control prices and quality of agriculture inputs.
- The Government may amend the Cotton Control Act according to the prevailing situation and strictly ensure its effective implementation.
- The effective Cotton Standardization and Grading System may be implemented in accordance with the provisions of the Pakistan Cotton Standardization Ordinance, 2002.

- Cotton quality can be improved if the ginneries strictly follow the policy to only procure high quality seed cotton.
- Provincial governments should implement quality standards in the true spirit in order to improve the quality of cotton in the country.
- APTMA should buy cotton on the basis of standards approved by the Pakistan Cotton Standards Institute.
- Instead of exporting raw cotton, the textile industry should be updated in order to promote production of value added cotton made ups for exports.

Director General, API

November, 2015

COTTON POLICY ANALYSIS FOR 2015-16 CROP

INTRODUCTION

Certain crops are contributing significantly to the economy of the country and cotton is one of those enterprises. Cotton is an important cash crop and the largest primary source of raw material for the textile industry of Pakistan. The crop is annually cultivated around 3.0 million hectares accounting for more than 12 per cent of the cropped area. It contributes around 7.1 per cent of the value addition in agriculture sector and about 1.5 per cent in GDP. Cotton farming is a major source of income for rural labour especially the women as pickers. The cotton sticks are also widely used as firewood at village level. Hundreds of ginneries are spread all over the country, especially at village/town level in remote areas and the livelihood of their seasonal/permanent labour depend on cotton crop. It also provides raw material to oil extraction mills and the cotton seed cake which is a key source of animal feed.

2. The textile sector depends on cotton farming to the major source of raw material. Besides, factories and textile mills in the country employing millions of skilled and unskilled labour along the entire cotton value added chain, from weaving to textile and garment export. The foreign exchange of US$ 10.22 billion fetched from textile industry during 2014-15. In view of dynamic nature and multifaceted role of cotton in the country through exports and providing livelihood to millions of farmers, traders and workmen, it has always received priority and preference of the government particularly in textile industry.

3. Pakistan produced 13.5 million bales in the year 2014-15 against 12.607 million bales last year showing an increase of 7.1 per cent. 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.

4. 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 3 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 couple of years as the market prices remained at reasonable level during the season. However, in view of the fragile market situation, the Government announced the intervention price for seed cotton at Rs 3000 per 40 kgs for 2014-15 crop.

5. The Report for Seed Cotton 2015-16 crop, has been prepared on the basis of following three important procedures:

- 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 March, 2015 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 the policy analysis.
- A meeting of the API Committee on Cotton was held on 23rd February, 2015 at API, Islamabad. It was attended by the representatives of cotton growers/ associations, Karachi Cotton Association (KCA), Trading Corporation of Pakistan (TCP), 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.

6. Under the WTO regime, the cotton trade has become increasingly quality conscious. Demand for contamination free and clean cotton is increasing in the global trade. To meet the increasing demand, the local textile industry also requires to attain the standards in manufacturing of the quality made ups. Challenges in the textile industry would become more

serious in the years ahead, which warrant for Pakistan to prepare its cotton production and marketing strategies to face the emerging issues in the domestic and global markets. The Government is well aware of the importance of improving the quality of cotton and controlling the pest attack on cotton production. The Pakistan Cotton Standards Institute (PCSI) promoting the quality control of cotton in the country was invited to provide training to the Cotton Pickers' Trainers. Accordingly, the PCSI has made a proposal for the training of Cotton Pickers' Trainers in picking for promotion of clean cotton production in the Punjab.

7. Cultivation of un-approved varieties, attack of diseases like, CLCV, Mealy bug and traditional farm management practices, are a few issues which affect the productivity of the crop. It was identified that Pakistan is lacking CLCV resistant germplasm and there is a dire need of importing global cotton germplasm to widen the cotton genetic base in the country. In order to implement the case, the government has approached the USDA. The USDA has agreed to provide funds through the Cotton Productivity Enhancement Project to be disbursed through an international agency ICARDA in Pakistan, and the Cotton Research Institutes.

8. To address the yield gaps and the low productivity issues several steps are being undertaken like 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 GM cotton varieties. Pest Scouting and Early Warning system is being strengthened by the provincial governments to control any disease attack. The private sector is being facilitated for production of Bt-cotton hybrid seeds through technical and financial assistance. Certain varieties of Bt-cotton have been approved by the government aiming at getting benefit of new technology and enhance the production of cotton at competitive level and ensuring that farmers get back returns from the enterprise.

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

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

11. An important development is the rising trend of Bt cotton by farmers. Almost 80 % of cotton growing area has become under Bt Cotton with different names in the Punjab and Sindh. There may be 30 % increase in cotton yield due to resistance against chewing pests. It may pay additional income to cotton growers in Pakistan owing to high yield and less cost on plant protection. 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 are presented in Table - 2

Table 2: ZONING FOR CULTIVATION OF BT COTTON IN THE PUNJAB AND SINDH 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	15th April to 15th May
Ali Akbar 703	Rahim Yar Khan, Rajanpur, Bahawalpur, D.G. Khan and areas of early sown cotton	1st March to 15th April
MG-6	Low Fertile Lands and less irrigation water available areas especially areas of Muzafargarh, Bahawalnagar and Bahawalpur	1st April to 15th May
Sitara-008	Central Fertile Areas of Cotton, Khanewal, Multan, Vehari and Lodhran	1st March to 15th 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	16th April to 15th May
Neelum 121	Fertile and Irrigation Water Available Non Core Areas, Especially cotton sowing areas after potato crops (Okara, Sahiwal)	1st March to 30th April
Ali Akbar 802	Highly Virus Affected Areas, Multan, Lodhran, Muzafagarh, Khanewal and Non Core Areas of Cotton	15th April to 15th May
IR-NIBGE-1524	Low Fertile Lands with less water availability areas of Southern Punjab (Bahawalpur, Bahawalnagar)	15th April to 15th May
Hybrid GN-2085	All Fertile Lands of Punjab and suitable for progressive farmers	15th April to 15th May
Bt.CIM-598	All Fertile Lands and Irrigation Water Available, Core and Non-Core Areas of Punjab	1st March to 30th April
Sitara-009	All Fertile Lands of Punjab	1st March to 15th May
MNH-886	All Fertile Lands of Punjab	1st March to 15th May
Tarzan-1	Central Fertile Lands of Punjab	15th March to 15th May
N-141	All Fertile Lands and Irrigation Water Available Areas	15th March to 30th April
A-One	Central Fertile Areas of Cotton, Khanewal, Multan, Vehari and Lodhran	1st March to 15th April
NIBGE-3	Fertile and Irrigation Water Available Areas	1st March to 1st week of April

Source:-CCRI,Multan

3. PROVINCIAL SHARES IN AREA AND PRODUCTION

12. Provincial shares in area and production of cotton based on average of 2012-13 to 2014-15 are provided in Table-2. During this period cotton production averaged at 13.045 million bales from 2.870 million hectares (7.091 million acres).

Table-3: Provincial Shares in Area and Production of Cotton: Average of 2012-13 to 2014-15

Country/ Province	Area		Production	
	000 hectares	Per cent	000 bales	Per cent
Pakistan	**2869.6**	**100.0**	**13045.3**	**100.0**
Punjab	2264.7	78.9	9524.3	73.0
Sindh	564.8	19.7	3416.5	26.2
KPK& Balochistan	40.1	1.4	104.4	0.8

Source: Annex-I.

13. Punjab and Sindh account for 78.9 and 19.7 per cent in cotton area and 73.0 and 26.2 per cent in production, respectively (Figures 1 and 2). Cotton yield in Sindh is higher than Punjab resultantly production share of Sindh exceed, its area share. The share of KPK & Balochistan together in production is 0.8 per cent from 1.4 per cent area. Cotton yield in KPK & Balochistan together is much lower than Punjab and Sindh.

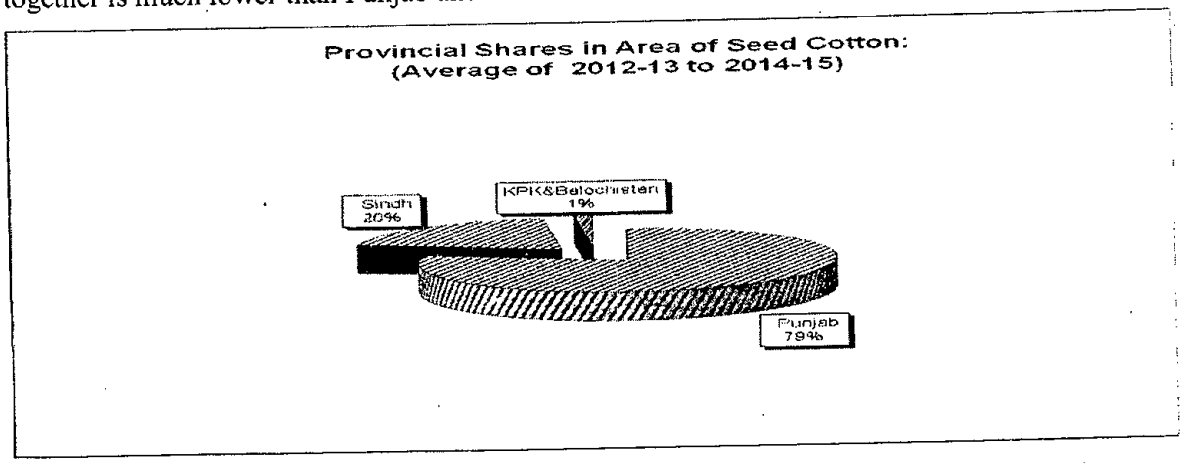


Figure-1: Provincial Shares in Area of Seed Cotton: (Average of 2012-13 to 2014-15)

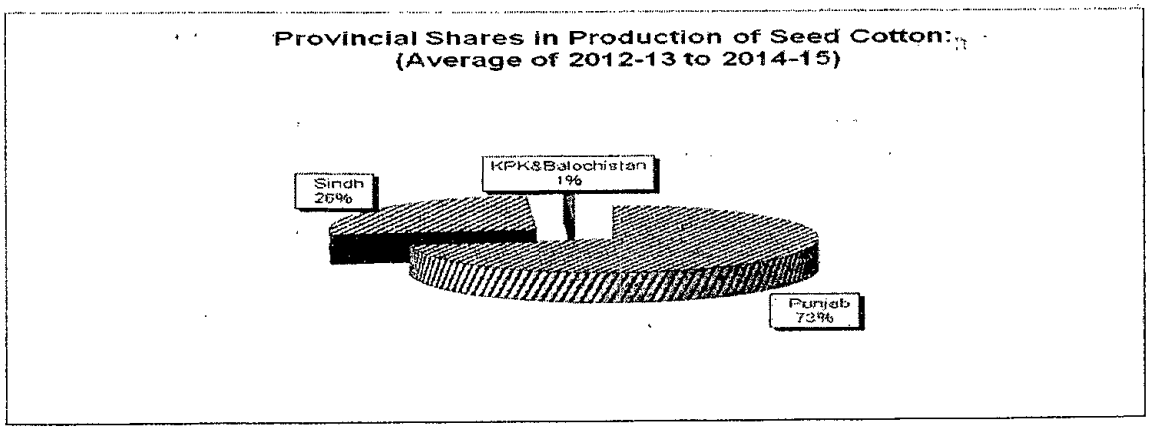


Figure-1: Provincial Shares in Production of Seed Cotton: (Average of 2012-13 to 2014-15)

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 Bahawalnagar. The districts producing more than 100 thousand bales of cotton per year each are Vehari, Rahim Yar Khan, Khanewal, Lodhran, Multan, Muzzafargarh, Rajanpur, Sahiwal, D.G.Khan, Pakpattan, T.T.Singh, Layyah, Mianwali, Jhang, and Okara in the Punjab province and Sanghar, Khairpur, Nawabshah, Ghotki, Matiari, Mirpurkhas, Naushero Feroze, Umerkot Sukkur,Tando Allahyar Badin and Jamshoro from Sindh Province. These 30 districts account for more than 96 per cent of the cotton production in the country.

15. The districts of Vehari, Rahim Yar Khan, Khanewal, Lodhran, Multan, Muzzafargarh, Rajanpur and Sanghar each producing more than half million bales per year altogether account for about 48 per cent of the cotton in the country.

5. CHANGES IN AREA, YIELD AND PRODUCTION

16. During the period 2004-05 to 2014-15, cotton area ranged between 2.689 and 3.193 million hectares (6.645 and 7.889 million acres) and yield between 649 and 816 kgs per hectare (263 to 330 kgs per acre). Therefore, cotton production oscillated between 11.460 and 14.265

million bales. Long term and short term changes in area, yield and production are discussed below:

5.1 Long-term Changes: 2004-05 to 2014-15

17. During the period under reference, cotton production at country level decreased @ 0.1 per cent per annum mainly due to 1.1 per cent decline in area even though 1.0 per cent improvement was observed in yield (Table-4).

Table-4: Average Annual Growth Rates of Area, Yield and Production of Cotton: 2004-05 to 2014-15

Country/ Province	Area	Yield	Production
	---------- Per cent ----------		
Pakistan	**-1.1**	**1.0**	**-0.1**
Punjab	-0.9	0.0	-0.9
Sindh	-2.6	5.3	2.5

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

18. In the Punjab, cotton production decreased @ 0.9 per cent annually due to decrease of 0.9 per cent in area without any change of yield. In Sindh, cotton production increased @ 2.5 per cent per annum solely due to 5.3 percent improvement in yield as there is 2.6 per cent reduction in area.

5.2 Short-term Changes 2013-14 Vs 2014-15

19. According to the Second estimates provided by the provincial Agricultural Department, cotton production during 2014-15 at country level worked out as 13.498 million bales, as compared, 12.607 million bales produced in 2013-14 (Table-5). Increase of 7.1 percent production is due to increase of 4.2 and 2.7 per cent in area and yield, respectively.

Table-5: Area, Yield and Production of Cotton: 2013-14 and 2014-15 Crops

Country/ Province	Area		Changes in 2014-15 over 2013-14	Yield		Changes in 2013-14 over 2012-13	Production		Changes in 2014-15 over 2013-14
	2013-14	2014-15		2013-14	2014-15		2013-14	2014-15	
	-- 000 hectares --		Per cent	--Kgs/hectare --		Per cent	-- 000 bales --		Per cent
Pakistan	**2805.7**	**2924.2**	**4.2**	**764.3**	**785.1**	**2.7**	**12607.1**	**13498.0**	**7.1**
Punjab	2199.0	2286.4	4.0	707.4	736.6	4.1	9145.0	9902.0	8.3
Sindh	568.0	596.2	5.0	1006.6	995.0	-1.2	3361.6	3487.6	3.7
KPK	0.3	0.4	69.2	497.2	506.4	1.9	0.8	1.3	72.4
Balochistan	38.4	41.2	7.3	441.6	442.2	0.1	99.7	107.1	7.4

Source: Annex-I

20. Cotton production for the year 2014-15 in the Punjab estimated at 9.902 million bales, 8.3 per cent higher than 9.145 million bales produced in 2013-14. Higher production is due to increase in area and yield by 4.0 and 4.1 per cent.

21. In Sindh, cotton production remained 3.488 million bales, 3.7 per cent also more than 3.362 million bales in 2013-14. Increase in production is due to increase in area by 5.0 per cent, however, decreasing in yield by 1.2 per cent.

5.3 Factors Responsible for Variation in Cotton Production

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

a) Area

❖ **Punjab**

1. Better economic returns received from the last year produce encouraged the growers to bring more area under cotton crop.

2. Shifting of some maize and sugarcane crops area into cotton crop in Sahiwal, Pakpatan, Vehari, Multan, Lodhran, Khanewal, T.T Sing, Muzafargargh and Bahawalnagar districts.

❖ **Sindh**

1. Due to late release of water particularly in upper Sindh area of Ghotki District, the area under Cotton Crop decreased by 8.28%.
2. The growers in Ghotki District also switch over to Sugarcane crop cultivation.
3. However, as compared to the last year, Cotton Crop area shows an increase of 4.97%.

b) Production

❖ **Punjab**

Production increased in the Punjab province due to the following factors:

1. Corresponding increase in area.
2. Less attack of CLCV and better management produced wholesome effect on yield.

❖ **Sindh**

Production increased in Sindh province due to the following factor:

1. Production increased due to increase in area.

6. TARGETS VS ACHIEVEMENTS: 2014-15 CROP

23. The Provincial Agriculture Departments had fixed Seed Cotton production target for 2014-15 crop which sum up at 14.605 million bales for the country. As per Second estimates of Provincial Agriculture Departments, cotton production is reported at 13.498 million bales 7.6 percent less than the target due to 6.2 and 1.4 percent shortage respectively in area and yield (Table-6).

Table-6: Targets and Estimated Achievements of Area, Yield and Production of Seed Cotton: 2014-15 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	Tonnes/ha		Per cent	-- 000 bales --		Per cent
Pakistan	**3118.2**	**2924.2**	**-6.2**	**796.6**	**785.1**	**-1.4**	**14604.6**	**13498.0**	**-7.6**
Punjab	2428.1	2286.4	-5.8	735.5	736.6	0.1	10500.0	9902.0	-5.7
Sindh	650.0	596.2	-8.3	1046.7	995.0	-4.9	4000.0	3487.6	-12.8
KPK	0.2	0.4	100	482.7	506.4	4.9	0.7	1.3	85.71
Balochistan	39.9	41.2	3.3	443.4	442.2	-0.3	103.9	107.1	3.1

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

24. Production of cotton fell short of the target by 5.7 and 12.8 percent in the Punjab and Sindh, respectively. In KPK and Balochistan, cotton production surpassed the target by 87.1 and 3.0 percent, respectively. However, the area of cotton could not achieve the target by 5.8 and 8.3 per cent in the Punjab and Sindh, respectively, but the target of KPK and Balochistan is achieved by 100 and 3.3 per cent, respectively.

7. DOMESTIC SUPPLY, DEMAND, STOCKS AND PRICE SITUATION

7.1 Domestic Supply, Demand and Stocks

25. Domestic production of cotton lint from 2014-15 crop reported at 13.498 million bales is about 5.7 percent higher than the last year's production of 12.607 million bales. Adding the opening stocks of 0.626 million bales which is 59.32 percent lower than that of 2013-14, the total supply is calculated at 14.124 million bales. Accounting for the likely consumption, imports and exports, the closing stocks of 2014-15 are likely to be 2.164 million bales, a increase of 1.54 million bales over the last year. This increase shows that Pakistan has potential to increase cotton related export, If this increase does not consume by local industries or exported, the prices of seed cotton in coming season are may fall.

Table-8: Monthly Average Wholesale Prices of Seed Cotton (Phutti) in the Main Producer Area Markets for 2014-15 Crop.

Market	Sept	Oct	Nov	Dec	Jan	Avg
Punjab	----------Rs per 40 kgs----------					
Multan	2432	2347	2551	2309	2425	**2413**
R.Y.Khan	2525	2473	2491	2535	2501	**2505**
Bahawalpur	2427	2396	2525	2491	2543	**2476**
Khanewal	2501	-	2145	2400	-	**2349**
Sahiwal	2546	-	2109	2179	2413	**2316**
Average	**2486**	**2405**	**2428**	**2434**	**2490**	**2436**
Sindh	Sept	Oct	Nov	Dec	Jan	**Avg**
Mirpur Khas	2706	2363	2038	1775	1750	**2126**
Sanghar	2647	2444	2069	1888	1900	**2190**
Hyderabad	2675	2411	2308	2213	2250	**2371**
Badin	2622	2350	1806	1550	-	**2082**
Nawabshah	2622	2350	1806	1550	-	**2082**
N.Feroz	-	2472	2401	2183	2050	**2277**
Khyerpur	-	**2456**	**2433**	**2292**	**2250**	**2358**
Sukkur	-	**2475**	**2417**	**2258**	**2350**	**2375**
Ghotki	-	-	**2500**	**2333**	**2500**	**2444**
Average	**2663**	**2424**	**2247**	**2062**	**2150**	**2278**

Sources:

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

27. Monthly average wholesale prices of seed cotton during the post harvest period averaged at Rs 2436 per 40 kgs in the Punjab and Rs 2278 in Sindh.

28. The price fluctuated in Punjab during the post-harvest months between Rs 2109 per 40 kgs in Sahiwal market during November 2014 to Rs 2551 per 40 kgs in Multan.

29. Similarly, in Sindh a high degree of variation was observed in the average wholesale price of seed cotton between Rs 1550 per 40 kgs Badin and Nawabshah markets during December 2014 to Rs 2706 per 40 kgs in Mirpur Khas during September 2014.

7.2.2 Cotton Lint (Raw Cotton)

30. Monthly average spot prices of raw cotton at Karachi during 2013-14 and 2014-15 are presented in Table-9. The spot price during 2014-15 averaged at Rs 5453 per 40 kgs, which is 24.77 percent lower than last year.

Table-9: Monthly Average Spot Prices of Raw Cotton at Karachi for 2013-14 and 2014-15 Crops (August-March)

Month	Base Grade -3, staple length 1-1/16", Micronaire Value 3.8 to 4.9 NCL (No Control Limit)	
	2013-14	2014-15
	Rupees per 40 kgs	
August	7117	5797
September	7356	5857
October	7395	5513
November	6915	5291
December	7035	5078
January	7514	5431
February	7453	5251
March	7200	5405
Average	**7248**	**5453**

Source: Karachi Cotton Association (KCA). Karachi.

8. COST OF PRODUCTION OF SEED COTTON

31. The cost of production is one of the crucial factors in preparing the price suggestions for the farm produces. However, its pragmatic evaluation involves several intangible and practical difficulties because of wide variations in agro- climatic conditions, use level of inputs, and fanning systems under which the crop is grown up.

32. The cost of production estimates of seed cotton for 2015-16 crop in the Punjab and Sindh have been put together by adopting the input-output parameters as used in the Cotton Policy Analysis Report for 2014-15 crop alongwith the latest inputs prices and custom hiring rates of field operations. To revise the inputs prices and hiring rates of different field operations involved in cotton cultivation, the API carried out a field survey in the major growing areas of the Punjab and Sindh during February 2015. The detailed cost estimates of the Punjab and Sindh are given in Annex-IV and V respectively, while a summary of the results is presented in Table-10.

Table-10: Average Farmers' Cost of Production of Seed Cotton: 2014-15 and 2015-16 Crops

S. No	*Items*	Unit	2014-15 crop	2015-16 crop	Increase in 2015-16 over 2014-15
	Punjab				
1.	Cost of cultivation	Rs/acre	54375	55033	658
2.	Yield	Kgs/acre	760	760	-
3.	Cost of production at farm level	*Rs/40* kgs	2862	2896	34
4.	Marketing cost	*Rs/40* kgs	40	40	-
5.	Cost of production at market/ ginnery	*Rs/40* kgs	2902	2936	34
	Sindh				
1.	Cost of cultivation	Rs/acre	50752	50988	236
2.	Yield	Kgs/acre	797	797	-
3.	Cost of production at farm level	*Rs/40* kgs	2547	2559	12
4.	Marketing cost	*Rs/40* kgs	40	40	-
5.	Cost of production at market/ ginner)'	*Rs/40* kg's	2587	2599	12

Note: The figures have been rounded off.
Source: Annex-IV and V.

Punjab

33. During 2015-16, the cost of raising one acre of seed cotton is likely to be Rs 55033, including land rent (Table-12). Based on an average yield of 760 kgs per acre, the cost of production works out to Rs. 2896 per 40 kgs. Adding up the marketing charges @ Rs. 40/40 kgs, the market/ginnery level cost of production comes to Rs. 2936 per 40 kgs, higher by Rs. 34 (1.2 per cent) than the corresponding cost of 2014-15 crop of Rs 2902/40 kgs.

Sindh

34. In Sindh, the cost of cultivating one acre of seed cotton is expected to be Rs50988. including land rent. Given that an average yield of 797 kgs per acre, the farm level cost of production of seed cotton works at Rs. 2559 per 40 kgs. Adding marketing cost @ Rs.40 per kgs, the market/ginnery level cost of production would come to Rs. 2599 per 40 kgs, higher by Rs. 12 (0.46 per cent) over the corresponding cost of Rs. 2587 per 40 kgs in 2014-15.

35. In both provinces, the tiny escalation in COP of seed cotton has been by and large getting higher in the cost of fertilizers whereas there is no major increase in cost of other items i.e. ploughing, irrigation etc because of decline in the prices of diesel and seed cotton.

The affects of lowering in prices of diesel on custom hiring rates i.e. ploughing, tube well irrigation etc, was discussed in the API's annual meeting on cotton and it was reported that there had been no significant downward impact on custom hiring rates. Consequently, operational costs of most operations were kept more or less at last year level.

Cost of major operations

36. The cost of major items in the gross cost of cultivation of seed cotton during 2014-15 and 2015-16 crops is presented in Table-11.

Table-11: Cost of Cultivation of Seed Cotton: 2014-15 and 2015-16 crops

S.No.	Inputs/operations	2014-15 crop	2015-16 crop	Shares in increased cost
		Rs/acre		Per cent
	Punjab			
1.	Land preparation	4394 (8)	4394 (8)	-
2.	Seed and sowing operations	3016 (5)	2634 (5)	(-) 12.7
3.	Irrigation	4760 (9)	4760 (8)	-
4.	Interculture	3458 (6)	3458 (6)	-
5.	Plant protection	4038 (7)	4615 (8)	14.3
6.	Fertilizers including FYM	8470 (16)	8801 (16)	3.9
7.	Land rent	16667 (30)	16667 (30)	-
8.	Picking charges	5700 (10)	5700 (10)	-
9.	Others	4872 (9)	5004 (9)	2.7
10.	Gross cost	55375 (100)	56033 (100)	1.2
	Sindh			
1.	Land preparation	5591 (11)	5591 (11)	-
2.	Seed and sowing operations	4190 (8)	3677 (7)	(-) 12.3
3.	Irrigation	3415 (7)	3415 (7)	-
4.	Interculture	3606 (7)	3606 (7)	-
5.	Plant protection	2940 (6)	3360 (6)	14.3
6.	Fertilizers including FYM	7459 (14)	7767 (15)	4.1
7.	Land rent	13333 (26)	13333 (26)	-
8.	Picking charges	5978 (12)	5978 (11)	-
9.	Others	5240 (9)	5261 (10)	0.4
10.	Gross cost	51752(100)	51988 (100)	05

Notes:

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

Punjab

37. In Punjab, land rent is the most important component of the cost of cultivation of seed cotton for 2015-16 crop, contributing 30 per cent. The other constituents are: fertilizers including FYM (16 %), picking charges (10 %), irrigation, land preparation and plant protection (8 % each), interculture (6 %) and seed and sowing operations (5 %).

Sindh

38. In Sindh too, land rent remains the central component of the cost of cultivation of seed cotton during 2015-16 crop year, contributing 26 per cent. The other components are: Fertilizers including FYM (15%), Picking charges and land preparation (11% each), Seed/sowing operations and Irrigation and Interculture (7% each) and Plant protection (6 %).

9. ECONOMICS OF COTTON AND COMPETING CROPS

39. Farmer's priorities and decisions regarding resource allocation among the competing crops are primarily governed by a number of economic considerations particularly focusing on gross cost, gross income, gross margin, net income, output-input ratio, etc. These indicators 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 2014-15 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:

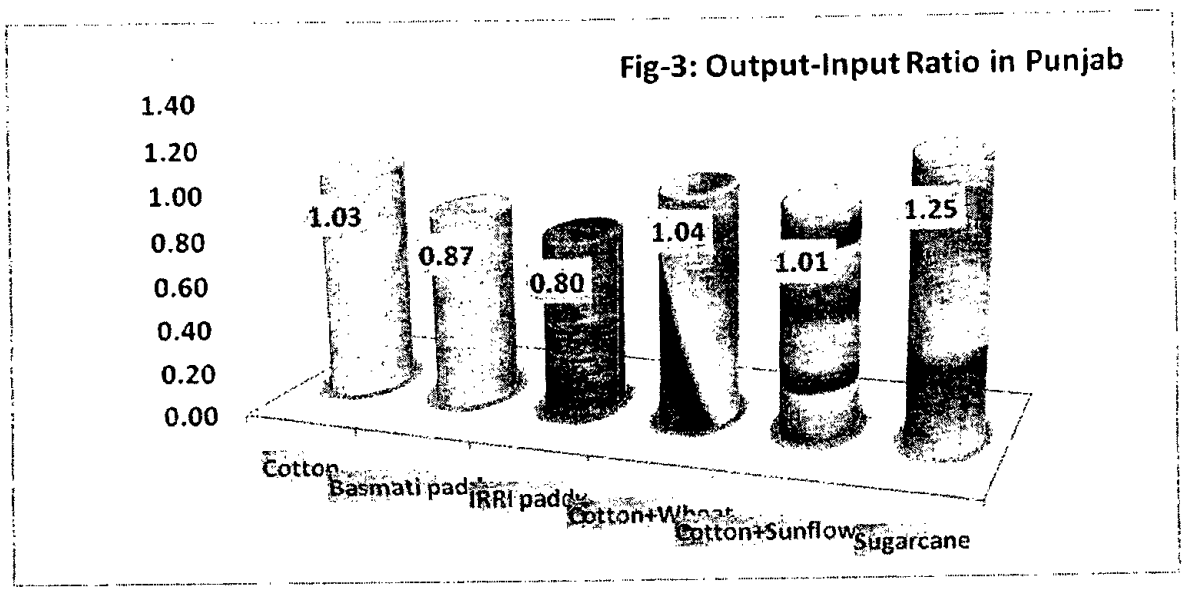
Table-12 : Economics of Cotton and Competing Crops at Prices Realized by the Growers in the Punjab: 2014-15 Crops

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	1.03	3.06	239	2602
2. Basmati paddy	0.87	1.95	227	704
3. IRRI paddy	0.80	1.84	184	533
4. Cotton + Wheat	1.04	2.98	235	2904
5. Cotton + Sunflower	1.01	2.75	232	2219
6. Sugarcane	1.25	3.96	237	1943

Source: Annex-VI

Punjab

42. Cotton in Punjab paid better returns to farmer as compared to Basmati and IRRI Paddy in terms of returns to overall investment. Also, in terms of remaining indicators, like gross revenue per rupee of purchased inputs, crop duration and irrigation water, cotton's performance was significantly higher than both Basmati and IRRI paddy.



43. In case of indirect competition, sugarcane paid better returns over both the cotton combinations in respect of Output-input ratio, purchased inputs and crop duration. While in terms of irrigation water, both the crop combinations paid better returns to farmer as compared to sugarcane crop.

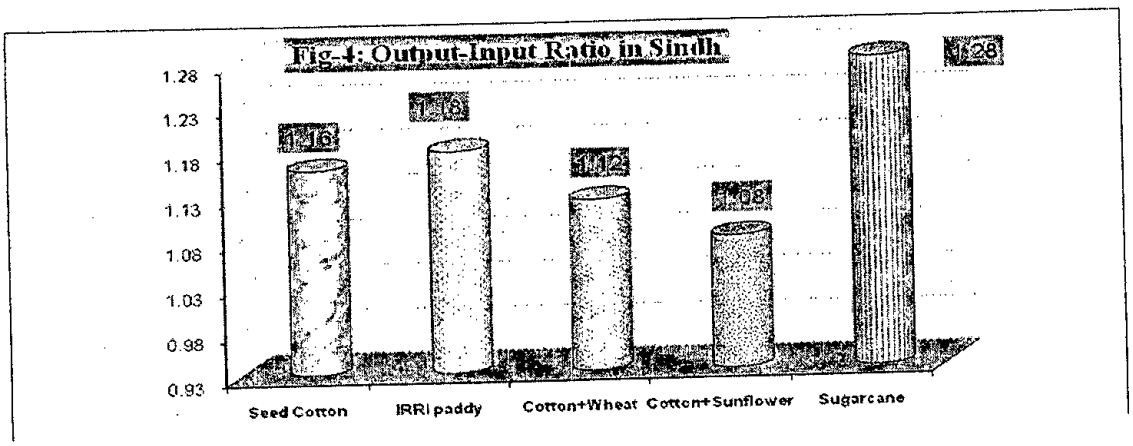
Sindh

44. In Sindh, cotton farming performed better than IRRI paddy in terms of purchased inputs, crop duration and irrigation water, while IRRI paddy out competed cotton in terms of output-input ratio.

Table-13: Economics of Cotton and Competing Crops at Prices Realized by the Growers in Sindh: 2014-15 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	1.16	3.71	250	3332
2. IRRI paddy	1.18	3.29	249	800
3. Cotton +Wheat	1.12	3.41	238	3338
4. Cotton +Sunflower	1.08	3.41	239	2509
5. Sugarcane	1.28	3.89	232	1597

Source: Annex-VI.



45. In case of indirect competition, sugarcane farming has shown better returns over the cotton combinations with wheat or sunflower in respect of certain economic criteria like returns to Overall investment and purchased inputs. However, in terms of crop duration and irrigation water, both the cotton combinations have performed hugely over the sugarcane.

10. ECONOMICS OF FERTILIZER USE IN COTTON CROP

46. The economics of using fertilizer in 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. The BCR refers to the ratio between value of additional produce 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. In order 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: 2005-06 to 2014-15

Year	Response Ratios (Seed Cotton: Nutrient) of			
	3.00:1	3.75:1	4.50:1	5.25:1
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
2012-13	1.32	1.60	1.86	2.10
2013-14	1.51	1.82	2.11	2.38
2014-15	1.19	1.46	1.64	1.84

Sources: 1. For 2005-06 to 2013-14: Cotton Policy Analysis Report for 2014-15 crop, by API.
2. For 2014-15: Annex-VII.

48. It may be seen from the above Table that the BCR is substantially higher than one even at the lowest cotton-fertilizer response ratio of 3:1. It implies that the benefits of using a certain dose of fertilizer for cotton farming are much higher than the corresponding costs.

10.2 Parity Ratio between Prices of Fertilizer and Seed Cotton

49. 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 2005-06 to 2014-15 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 1.22 tonnes. The parity ratios between prices of seed cotton and those of phosphatic fertilizer have fluctuated from 0.78 to 2.35 during the period of analysis except 2008-09 where the parity ratio jumped to 3.16 because of hike in domestic prices of DAP due to exorbitant rise in world prices. During 2014-15 the prices of phosphorus and nitrogen are fallen down as compared to last year.

Table-15: Parity Ratio between the Prices of Fertilizer and Seed Cotton: 2005-06 to 2014-15

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---------	
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
2012-13	77870	149570	63688	1.22	2.35
2013-14	74260	139980	72500	1.02	1.93
2014-15	72870	124830	72488	1.00	1.72

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

50. 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 are made in the open market. To ascertain overtime changes in the purchasing power of cotton, the nominal market prices of cotton are being deflated by the Consumer Price Index (CPI). The nominal and real market prices of seed cotton for the Punjab and Sindh for the period 2007-08 to 201 4-15 are presented in Table-16 and 17.

11.1 At Market Prices of Seed Cotton in the Punjab

51. The nominal and real market prices of seed cotton for 2007-08 to 2014-15 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: 2007-08 to 2014-15

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2007-08= 100	---- Rs per 40 kgs -
1	2	3	4 = (2/3)x100
2007-08	1486	100.00	1,486
2008-09	1557	117.03	1,330
2009-10	1916	128.85	1,487
2010-11	4003	146.45	2,733
2011-12	2558	162.57	1,573
2012-13	2552	174.53	1,462
2013-14	3044	189.69	1,605
2014-15	2549	197.74	1,289

Note: Market prices are the average monthly wholesale prices of seed cotton during post-harvest period in major producing area markets of the Punjab.
Source: For CPI 2014-15, Economic Survey of Pakistan 2014-15.

52. The nominal price of seed cotton averaging at Rs 1486 per 40 kgs for 2007-08 crop rose to Rs 4003 per 40 kgs in 2010-11, the highest ever price during the study period, which however, declined in the following two years to Rs 2558 and Rs 2552 per 40 kgs in 2011-12 and 2012-13, respectively. The nominal market price again took an upward trend and reached at Rs.3044 per

40 kgs in 2013-14 which, however once again declined to Rs 2549 per 40 kgs in 2014-15, the lowest level in the last few years.

53. During the period under review, the real market price has experienced fluctuations, touching the lowest level of Rs.1289 per 40 kgs in 2014-15 and in terms of real value the highest level of Rs 2733 per 40 kgs in 2010-11.

54. During 2014-15, the nominal market price averaged at Rs 2549 per 40 kgs, which is below by the previous year level. Consequently, the real value of seed cotton dropped by 20% over the previous year and 13 per cent over the base year level. The real price of seed cotton in 2014-15 is, in fact, the lowest in the entire period under review.

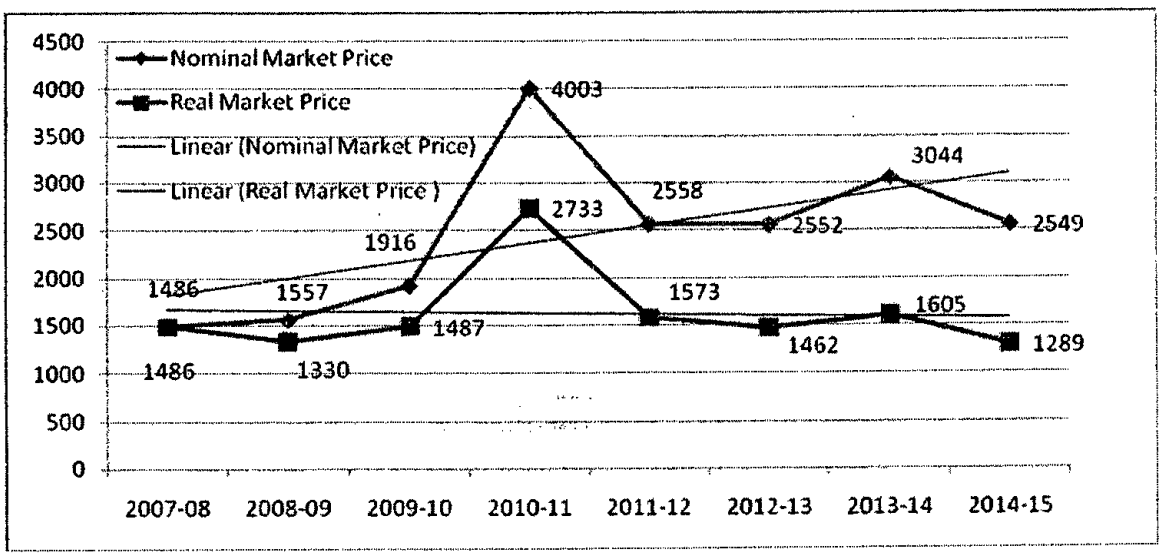


Fig: 5 Nominal and real market prices of seed cotton (Phutti) in Punjab 2007-08 to 2014-15

11.2 At Market Prices of Seed Cotton in Sindh

55. The nominal and real market prices of seed cotton in Sindh for 2007-08 to 2014-15 are presented in Table-17 and depicted in Figure-6.

Table-17: Nominal and Real Market Prices of Seed Cotton (Phutti) in Sindh: 2007-08 to 2014-15

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2007-08= 100	------ Rs per 40 kgs -------
1	2	3	4= (2/3)x100
2007-08	1456	100.00	1,456
2008-09	1525	117.03	1,303
2009-10	1903	128.85	1,477
2010-11	3874	146.45	2,645
2011-12	2051	162.57	1,262
2012-13	2543	174.53	1,457
2013-14	2755	189.69	1,452
2014-15	2125	197.74	1,074

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. Price Policy Reports of Seed Cotton by API (various issues).
2. For CPI 2014-15, Economic Survey of Pakistan, 2014-15.

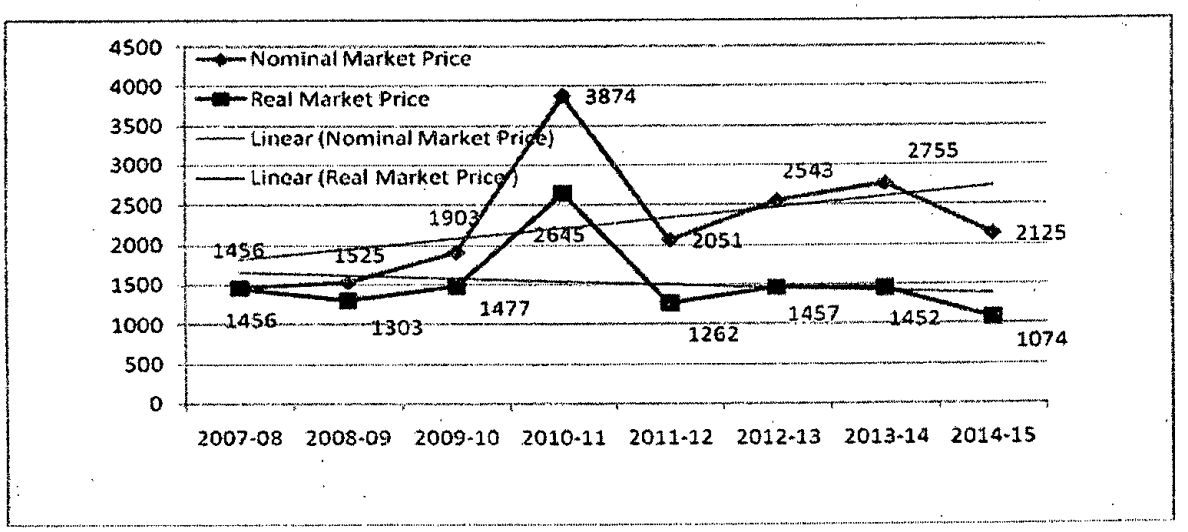


Fig-6: Nominal and real market prices of seed cotton (Phutti) in Sindh 2007-08 to 2014-15

56. It may be seen from Table-17, that there seems a steady growth trend during 2007-10 in the nominal price of seed cotton in Sindh Province. The degree of fluctuation in the nominal price reflects a similar situation as in Punjab, however, with a different degree of variation. The

nominal market price of seed cotton averaging at Rs 1456 per 40 kgs in 2007-08 shot up by 104% to Rs 3874 per 40 kgs in 2010-11 exceptionally high, which, however could not retain and dropped to Rs 2051 per 40 kgs in very next year, i.e. by 47 per cent. The price regained a rising trend in the next two years, but again declined to Rs 2125 per 40 kgs in 2014-15. The real market price has experienced same fluctuations, touching the highest value of Rs 2645 per 40 kgs in 2010-11 and the lowest level of Rs 1074 per 40 kgs in 2014-15 over the base line value by one-fourth.

57. It is important to note that for four years, the real value of seed cotton remained lower against the base year level. Similarly, due to high inflationary trend throughout the period under review, the real price remained significantly lower than the relative nominal price, which indicates that cotton growers in Sindh have received lower level of real economic returns from the crop.

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

58. The global production of cotton during 2014-15 is estimated at 26.23 million tonnes. It is about 0.19 percent lower than the production of 26.28 million in 2013-14. During 2015-16, the world production is projected to decline further significantly by 8.73 percent to the level of 23.94 million tonnes. After adding the opening stocks of 20.04 million tonnes, total supply in 2014-15 worked to 46.27 million tonnes, 5.14 percent higher than 2013-14. Due to the sharp decline in production, despite of higher opening stocks during 2015-16, the world cotton supply is projected to decrease by around 1 per cent to the level of 45.90.

59. The world consumption of cotton during 2014-15 is estimated at 24.36 million tonnes, 2.57 percent higher than the last year level. For 2015-16, cotton consumption is projected at 24.91 million tonnes that would be 2.26 percent higher than 2014-15.

60. The end year stocks during 2014-15 projected at 21.91 million tonnes which are about 9.33 percent higher than the last year, but are forecast to decrease to 20.94 million in 2015-16. The details are provided in Table-18.

Table-18: World Production, Consumption, Stocks and Trade in Cotton: 2013-14 to 2015-16

S.No.	Item	2013-14 (Actual)	2014-15 (Estimated)	2015-16 (Projection)
		---------- Million tones ----------		
1.	Opening stocks	17.73	20.04	21.96
2.	Production	26.28	26.23	23.94
3.	Total supply (1+2)	44.01	46.27	45.90
4.	Likely consumption	23.75	24.36	24.91
5.	Trade imbalance and stocks adjustment *	(-)0.23	0.00	0.00
6.	Closing stocks (3-4+5)	20.04	21.91	20.94

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, June 23, 2015.

13. INTERNATIONAL PRICES

61. The international prices of Index- A and Orleans/Texas Cottons during 2004-05 to 2014-15 are placed in Annex-VIII.

62. The prices of both the cottons were volatile and widely fluctuated with the lowest level of 52.20 US Cents per lb of Index-cottons and 51.19 of Orleans /Texas during 2004-05. The highest prices were reported at 165.13 Cents /lb for Index-cotton in 2010-11 while the highest prices of Orleans/ Texas were reported in 2011-12 at 100.53 US Cents/ lb.

63. During 2014-15 August 2014 to March 2015, the Orleans/Texas has not been traded in international market while Index-A have generally shown a volatile pattern.

14. EXPORT AND IMPORT PARITY PRICES

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

65. 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 XII 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 2014-15 (Aug-March)	68.39	2,438
	- During 2011-12 to 2013-14	78.79	2,749
	ii) Future's contract prices of New York No.2 cotton (average of Oct, Dec 2015 and March 2016)	65.15	2,042
2.	**Import parity prices based on average:**		
	i) Actual cif (Karachi) prices of imported cotton:	Rs/40 kgs	
	- During 2014-15 (Aug-March)	9264	3,763
	- During 2011-12 to 2013-14	9,131	3,719
	ii) Index-A Cottons	US cents/lb	
	- During 2014-15 (Aug-March)	69.94	2,786
	- During 2011-12 to 2013-14	92.73	3,519

Sources: Annex-IX to XIII.

15. ECONOMIC EFFICIENCY OF SEED COTTON PRODUCTION IN PAKISTAN

66. Economic efficiency measurement of a crop requires study of performance of different resources employed in production of that crop. Briefly it helps assess if it is wise enough to put resources in that crop or not?

67. There are three widely accepted measures of economic efficiency. These are; Nominal Protection Coefficient (NPC), Effective Protection Co-efficient (EPC) and Domestic Resource Cost Co-efficient (DRC). These parameters and their estimates are derived through rigorous economic analysis which is described in the following paragraphs.

15.1 Under Export Scenario

68. Raw cotton is one of the commodities being exported by Pakistan. Accordingly, it necessitates studying resource use efficiency in the crop. In this analysis we study resource use efficiency under both export and import scenarios. For both situations, analysis is based on cost of production of the foregone crop, its wholesale price in the domestic market and international market prices i.e. fob price at Karachi for export situation analysis and actual average (cif) Karachi price for import situation analysis.

69. In the following paragraphs results of analysis (NPC, EPC, DRC estimates) are described to explain effect of input/output pricing policies during 2014-15 for assessing efficiency of different resources used in production of the 2014-15 cotton crop. Estimation procedures are described in detail along with the respective Annex.

15.2 Nominal Protection Coefficient (NPC)

70. NPC is the ratio of the domestic market price to the social price of a commodity while social price is the respective import or export parity price. NPC includes domestic market price of the crop and excludes prices of respective inputs. Thus it ignores policy interventions in the input prices. As a rule of thumb if NPC is greater than one, it means local producers have price protection in lieu of the domestic pricing policy of seed cotton. On the other hand, if NPC is less than one it means that domestic producers of the crop are implicitly taxed. Implicit taxation to the growers means flow of resources from the concerned crop. For the present analysis, NPC values for the Punjab and Sindh provinces are produced in Table-20.

71. It is observed from the referred table that NPC estimates both for Punjab and Sindh under export scenario are either closer to one or slightly higher than one except in 2013-14 for Punjab. From these estimates it may be deduced that on the whole cotton growers in Pakistan have some degree of price protection. During the period 2010-11 through 2011-12 they remained taxed as

NPC was less than one. Since 2012-13 onward domestic prices exceeded the corresponding export parity prices, consequently NPC values for these years exceeded one. It reflects price incentive for increasing cotton production in Pakistan.

72. Being more specific to 2014-15 crop, NPC values for both cotton producing provinces (Punjab, Sindh) declined against 2013-14. Its main reason is that during 2013-14 price of cotton in the domestic market declined due to falling prices of the international market. This calls for revisiting domestic cotton production policy for stabilizing its price.

15.3 Effective Protection Coefficient (EPC)

73. Effective Protection Coefficient (EPC) is the ratio of the difference of revenue and total cost of tradable inputs at the private prices to the difference of the revenue and total cost of tradable inputs at social prices. As EPC reflects the net impact of both output and inputs prices. it indicates net incentive or disincentive of all policies on the grower of the crop. Decisive rule remains same i.e EPC greater than one, means private profit higher than it could be without government interventions in the input/output markets. Contrarily, EPC less than one imply net effect of input/output policies in reduction of private profits. In the former case growers of the concerned crop have policy protection while in the later they are implicitly taxed. Later situation will discourage domestic production of the crop. Estimates of EPCs under import situation are presented in Table-20. EPC values during the period 2010-11 to 2014-15 show fluctuating behavior. During earlier years of analysis, EPC remained considerably below one while in 2013-14 the estimate exceeded for Punjab. For 2014-15, it dropped for both provinces. This analysis reveals that input/ output prices of seed cotton are not stable that may suddenly affects cotton growers' profits and development of the crop.

15.4 Domestic Resource Cost Coefficient (DRC)

74. DRC is the ratio of the social cost of domestic factors to value added at social prices. If DRC is less than one it implies comparative advantage in the reference crop because in this situation domestic production may save foreign exchange at cost less than the corresponding cost of imports. When DRC is greater than one, it indicates comparative disadvantage in domestic production of a crop as domestic production is costly as compared with the importing cost.

75. DRC estimates for cotton production under export scenario are produced in Table-20. It is evident from the data in the referred Table that Pakistan has comparative advantage in cotton production as DRC values both for Punjab and Sindh are less than one except in 2014-15 for Punjab. Data on private and social profitability in background of the above estimates are produced in Annex-XIII and XIV.

76. It may be concluded from the above findings that more investment in cotton production and marketing for export purposes may benefit Pakistan by saving foreign exchange. It is supported by the cost of domestic resources to earn\save foreign exchange. These figures are derived by multiplying DRCs with exchange rates for the respective years.

Table-20: Economic Efficiency Parameters Based on Export Parity Prices

Province/Year	NPC	EPC	DRC	Cost of DR to earn /save	Exchange rate Rs./US $
Punjab					
2010-11	0.94	0.89	0.27	20.9	84.5
2011-12	0.96	0.88	0.69	46.3	90.9
2012-13	1.06	0.98	0.91	89.7	98.2
2013-14	1.17	1.15	0.87	63.5	99.0
2014-15	1.04	0.92	1.18	82.5	101.8
Sindh					
2010-11	0.91	0.86	0.26	21.7	84.5
2011-12	0.77	0.64	0.58	46.2	90.9
2012-13	1.05	0.98	0.76	74.9	98.2
2013-14	1.06	0.99	0.74	62.5	99.0
2014-15	0.96	0.82	0.98	78.2	101.8

15.5 Under Import Scenario

77. Under import scenario values of both NPC and EPCs are below one throughout the analysis period (Table-21). This indicates no economic protection to seed cotton growers in Punjab or Sindh. This implies that under import situation cotton growers are implicitly taxed and resources outflow from agriculture through cotton cultivation. DRC values are also found less than one which reflects Pakistan's comparative advantage in cotton production. Lower values of DRCs indicate that surplus potential in cotton yet remains to be exploited in Pakistan. It will be wise enough to invest domestic resources in cotton production rather to import it .in Pakistan.

Table-21: Economic Efficiency Parameters Based on Import Parity Prices

Province/ year	NPC	EPC	DRC	Cost of DR to earn /save Forex	Exchange rate Rs./US $
Punjab					
2010-11	0.76	0.71	0.21	17.81	84.5
2011-12	0.64	0.52	0.41	37.14	90.9
2012-13	0.83	0.69	0.64	62.91	98.2
2013-14	0.80	0.68	0.52	51.18	99.0
2014-15	0.66	0.48	0.62	62.95	101.8
Sindh					
2010-11	0.74	0.68	0.20	16.71	84.5
2011-12	0.51	0.38	0.35	31.80	90.9
2012-13	0.83	0.70	0.54	53.21	98.2
2013-14	0.73	0.60	0.45	44.08	99.0
2014-15	0.62	0.44	0.53	53.51	101.8

16. COTTON YIELD AMONG COMPETING COUNTRIES

78. According to the FAO Statistics Division the latest data on the cotton yield among competing countries is available for 2013 only. The area, yield and production among competing countries are detailed in Annex-XV, while a summary of these factors is presented in Table- 22.

79. Globally, the cotton crop occupied an area of 36.916 million hectares during 2013 with a total production of 73.038 million tonnes. The world top 33 cotton producing countries contribute 98 per cent of total area and 99 per cent of total production.

80. World cotton production for 2013 was estimated at 73.038 million tonnes as against 76.530 million tonnes in 2012 down 4.6 per cent with decrease of 3.492 million tonnes over the last year. High cotton production in 2012 is primarily attributed to significant increase of China and India, the cotton production decrease due to 10 per cent decline in average yield over the last year.

81. India ranks on the top with 11.700 million hectares, followed by China and USA with 4.350 and 3.053 million hectares. Pakistan occupies 4th position in this regard. In terms of cotton production, China is on the top with 18.930 million tones, followed by India with 18.913 million tonnes and USA with 7.626 million tonnes. However, Pakistan retains 4th position in cotton production with 6.200 million tonnes in the world.

82. India has the largest area under cotton in the world representing almost 32 percent of the world cotton area. However its production is very low as compared to other major cotton producing countries due to its low productivity.

83. Similarly, Pakistan ranks 4th in terms of both area and production of cotton but lies at 21st position in terms of yield during 2013. It implies that there is a lot of potential to boost cotton productivity per hectare in Pakistan. It is an alarming situation and deserves special attention by all concerned quarters. The cotton yield in Pakistan is at 2.210 tonnes per hectare against 1.616 tonnes in India. While the world average Yield of cotton is 1.978 tonnes per hectare. (Annex-XV).

Table-22:Area, Yield and Production of Seed Cotton Among Competing Countries: 2013

S.No	Country	Area (million ha)	Yield (tonnes/ha)	**Production** (million tonnes)
1	China, mainland	4.350	4.352	18.930
2	India	11.700	1.616	18.913
3	United States of America	3.053	2.498	7.626
4	**Pakistan**	**2.806**	**2.210**	**6.200**
5	Brazil	0.939	3.625	3.404
6	Uzbekistan	1.308	2.570	3.361
7	Australia	0.444	6.027	2.676
8	Turkey	0.451	4.990	2.250
9	Greece	0.250	3.440	0.860
10	Turkmenistan	5.250	0.114	0.600
11	Burkina Faso	0.500	1.180	0.590
12	Mexico	0.124	4.735	0.587
13	Argentina	0.361	1.502	0.543
14	Syrian Arab Republic	0.155	3.161	0.490
15	Mali	0.484	1.000	0.484
16	Egypt	0.140	3.107	0.435
17	Myanmar	0.330	1.288	0.425
18	Tajikistan	0.200	2.100	0.420
19	Kazakhstan	0.138	2.875	0.397
20	United Republic of Tanzania	0.490	0.724	0.355
21	Zimbabwe	0.397	0.730	0.290
22	Côte d'Ivoire	0.230	1.143	0.263
23	Mozambique	0.185	1.395	0.258
24	Benin	0.330	0.758	0.250
25	Cameroon	0.210	1.143	0.240
26	Nigeria	0.290	0.721	0.209
27	Iran (Islamic Republic of)	0.110	1.818	0.200
28	Malawi	0.185	0.861	0.159
29	Spain	0.064	2.275	0.146
30	Zambia	0.172	0.811	0.140
31	Bolivia (Plurinational State of)	0.126	0.921	0.116
32	Chad	0.190	0.553	0.105
33	Ethiopia	0.085	1.235	0.105
	Total of 33 top producing countries	**36.047**	**1.998**	**72.026**
	World Total	**36.916**	**1.978**	**73.038**

Source:World Statistics Year Book 2013

17. COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

84. Cotton being a non-food cash crop contributes significantly in foreign exchange earnings. It accounts for 7.1 per cent of the value added in agriculture sector and about 1.5 per cent in the GDP. Around two-thirds of the country's export earnings are from the cotton made-ups and textiles.

85. Despite of being the world's 4th largest cotton producer and a leading exporter of yarn in the world, Pakistan ranked 21st in the world in terms of yield during 2013. 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.

86. There are many reasons for low yield of cotton crop in Pakistan; low level of input use is a result of high price of agriculture inputs (seeds, fertilizers, pesticides etc), higher intensity of insects and pests 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.

87. 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.

88. 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.

89. Various cotton varieties sown in Pakistan in various ecological zones along with yield potential are presented at Annex-XVI. The data indicate that in the country over 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.

90. 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.

91. 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.

92. 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. COTTON SUBSIDIES UNDER THE WTO REGIME

93. Several major cotton producing countries protect their cotton sector by providing direct and indirect support to their farmers. Cotton farmers in China, USA and EU receive the highest level of direct income and price support. The U.S. cotton program supports producers through several mechanisms: a direct payment (DP), a counter-cyclical payment (CCP), a loan deficiency payment (LDP), marketing loan gain (MLG), and crop insurance. During 2011/12 and 2012/13,

the only subsidy received by producers under the U.S. cotton program was for crop insurance. In 2012/13, cotton insurance subsidies declined to an estimated $562 million or 7 cents per pound.

94. Out of ten (10) countries that provided subsidies to cotton sector in 2012-13, China stood 1st with USD 5813 million, followed by USA with USD 562 million. The subsidies for all countries averaged at 26 cents per pound in 2012-13 as compared to 14 cents per pound in 2011-12. Developing countries that grow cotton for export have been raising voice against developed countries for granting trade-distorting subsidies to cotton growers. For West African nations including Mali, Burkina Faso, Chad and Benin, the revenue drawn from exporting cotton represents most of their national income; hence, it is critical for them to receive a price that covers the cost of production incurred by their cotton growers. These countries argue that payments made to U.S and European farmers encourage over production and lead to depressed world prices for cotton, thus pushing their cotton production back to uncompetitive and unable to get due share. Table-23 and Fig.-7 illustrates level of direct assistance provided by various governments to the cotton sector through production programs:

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

Country	2011-12			2012-13**		
	Cotton Production	Average Assistance per pound	Assistance to production	Cotton Production	Average Assistance per pound	Assistance to production
	000 tonnes	US cents	US$ Millions	000 tonnes	US cents	US$ Millions
Burkina Faso	694	1	10	260	14	80
China	7,400	14	2,217	7300	36	5813
Colombia	182	9	38	21	49	22
Cote D'lvoire	59	11	14	140	5	14
Greece	750	26	433	251	47	262
Mali	45	26	26	189	12	50
Senegal	50	3	4	63	4	6
Spain	60	68	90	57	70	87
Turkey	280	44	270	550	26	312
USA	3,387	11	818	3770	7	562
All countries	12,906	14	3,919	12601	26	7209

* Income and price support programs only. Credit and other assistance not included

** Preliminary.

95. Responding to the international pressure to cut their farm subsidies, the US and the European cotton programmes were set to decline slightly over a period of time, like reduction in USA by almost a third. However, the total volume of assistance has increased by 84%. The largest contributor seems China which provided 162% increased level of assistance to its cotton producers. For a decade long, Brazil and United States have been involved in a dispute over cotton subsidies. The disputes regarding subsidies and trade issues are being investigated and settled by the World Trade Organization.

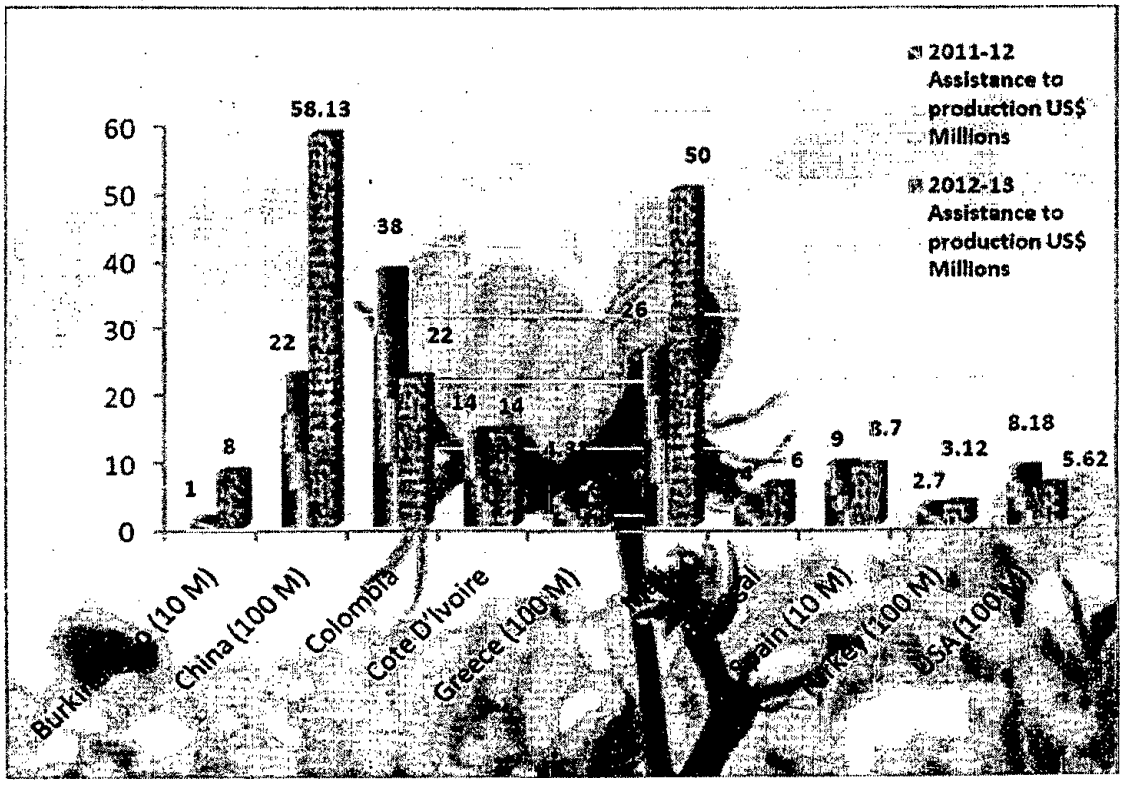


Fig-7: Assistance to Production of Cotton by Various Governments.

19. COST OF PRODUCTION OF SEED COTTON IN COMPETING COUNTRIES

96. 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 2012-13 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 2012-13 in Table-24 and also depicted in Fig-8.

Table-24: Cost of Production of Seed Cotton in Competing Countries During 2012-13

Country	Average yield per hectare		Cost of cultivation per hectare		Cost of production per 40 kgs	
	Kgs	40 Kgs	US $*	Pak Rupees	US $*	Pak Rupees
China	4,365.96	109.15	2,806.62	270,558.17	25.71	2,478.80
India	1,418.80	35.47	909.26	87,652.66	25.63	2,471.17
Iran	1,818.18	45.45	1,338.75	129,055.50	29.45	2,839.22
Turkey	4,708.26	117.71	2,697.71	260,059.24	22.92	2,209.39
USA	2,349.26	58.73	1,547.24	149,153.71	26.34	2,539.59
Pakistan	2,310.00	57.75	1,155.67	111,406.65	20.01	1929.12

Note: * One US $ = Pak Rs 96.4 (average of 2012-13)

Sources: 1. International Cotton Advisory Committee (ICAC), Washington DC, USA.
2. Cotton Policy Analysis for 2013-14 crop, API.

97. The cost of production of seed cotton calculated at Pak Rs 2839 per 40 kgs in Iran is the highest among competing countries followed by Rs 2540 in USA, Rs 2479 in China and Rs 2471 in India. The lowest production cost is reported in Pakistan at Rs 1929 per 40 kgs, while in Turkey, it is Rs 2209.39 per 40 kgs, the nearest country producing cotton at lower cost.

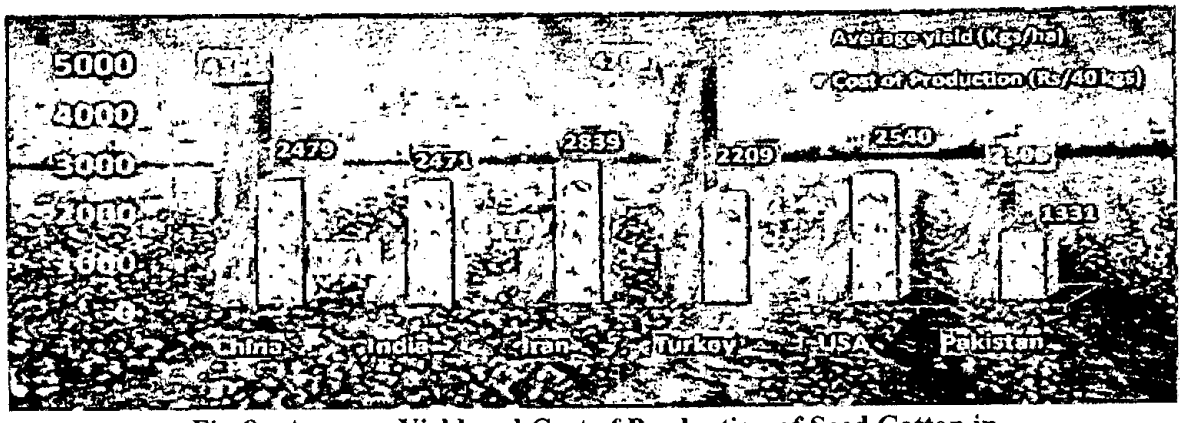


Fig-8: Average Yield and Cost of Production of Seed Cotton in Competing Countries

20. ACKNOWLEDGEMENT

98. The efforts of the following staff members are highly appreciated in completion of Cotton Policy Analysis Report for 2015-16 Crop:

	Officers	
1.	Mr. Sohail Muhammad Khan	Chief
2.	Mr. Sardar Ali Khan	Chief
3.	Mr. Abdul Karim	Chief (Coordinator)
4.	Mr. Muhammad Ijaz Ahmed	Deputy Chief
5.	Mr. Hussain Ali Turi	Assistant Chief
6.	Mr. Muhammad Amin	Assistant Chief
7.	Mr. Muhammad Azim Hakro	Assistant Chief
8.	Syed Riaz Ali Shah	Assistant Chief
9.	Ms Shagufta Tasleem	Research Officer
10.	Ms Kanwal Saleem Mehr	Research Officer
	Staff	
11.	Mr. Hafeez Ahmed	Assistant Private Secretary **(Composed the Report)**
12.	Mr. Muhammad Altaf	Assistant Private Secretary
13.	Mr. Muhammad Shamir	Assistant Private Secretary
14.	Mr. Muhammad Naeem	Machine Operator

Dr. Muhammad Aslam
Director General, API

ANNEX-I

PROVINCE-WISE AREA (HECTARES), PRODUCTION AND YIELD OF COTTON IN PAKISTAN : 2004-05 TO 2014-15

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALOCHISTAN	PAKISTAN
AREA		---------- 000 hectares ----------			
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	2533.7	259.2	0.24	41.4	2834.5
2012-13	2308.7	530.1	0.24	39.8	2878.8
2013-14	2199.0	568.0	0.26	38.4	2805.7
2014-15	2286.4	596.2	0.44	41.2	2924.2
YIELD		---------- Kgs per hectare ----------			
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	747	1547	468	446	816
2012-13	702	1091	482	443	770
2013-14	707	1007	497	442	764
2014-15	737	995	506	442	785
PRODUCTION		---------- 000 bales ----------			
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	11129.0	2356.8	0.66	108.5	13595.0
2012-13	9526.0	3400.4	0.68	103.6	13030.7
2013-14	9145.0	3361.6	0.76	99.7	12607.1
2014-15	9902.0	3487.6	1.31	107.1	13498.0

Sources:
1- For 2004-05 to 2011-12 : Agricultural Statistics of Pakistan 2012-13,NFS&R, Islamabad.
2- For 2013-14: Final estimates provided by respective Provincial Agriculture Departments.
3- For 2014-15: Second estimates provided by respective Provincial Agriculture Departments.

ANNEX-II

PROVINCE-WISE AREA (ACRES),PRODUCTION AND YIELD OF COTTON IN PAKISTAN : 2004-05 TO 2014-15

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALOCHISTAN	PAKISTAN
AREA			**000 acres**		
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	6261.0	640.5	0.59	102.3	7004.4
2012-13	5705.0	1309.9	0.59	98.3	7113.9
2013-14	5433.9	1403.6	0.64	94.9	6933.1
2014-15	5649.9	1473.3	1.09	101.8	7226.1
YIELD			**Kgs per acre**		
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	302	626	189	180	330
2012-13	284	442	195	179	312
2013-14	286	407	201	179	309
2014-15	298	403	205	179	318
PRODUCTION			**000 bales**		
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	11129.0	2356.8	0.66	108.5	13595.0
2012-13	9526.0	3400.4	0.68	103.6	13030.7
2013-14	9145.0	3361.6	0.76	99.7	12607.1
2014-15	9902.0	3487.6	1.31	107.1	13498.0

Sources:
1- For 2004-05 to 2011-12 : Agricultural Statistics of Pakistan 2012-13,NFS&R, Islamabad.
2- For 2013-14: Final estimates provided by respective Provincial Agriculture Departments.
3- For 2014-15: Second estimates provided by respective Provincial Agriculture Departments.

ANNEX-III

DISTRICT- WISE AREA, YIELD AND PRODUCTION OF SEED COTTON
AVERAGE OF 2012-13 TO 2014-15

Area: 000 ha
Production: 000 bales
Yield: Kgs/ha

S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield
	PUNJAB				
1	Bahawalpur	271.54	1188.21	9.11	744
2	Bahawalnagar	233.77	1101.30	8.44	801
3	Vehari	217.04	991.80	7.60	777
4	R.Y.Khan	217.99	957.19	7.34	746
5	Khanewal	198.42	946.12	7.25	811
6	Lodhran	190.06	813.64	6.24	728
7	Multan	156.88	708.47	5.43	768
8	Muzaffargarh	150.67	568.48	4.36	641
9	Rajanpur	109.94	473.01	3.63	731
10	Sahiwal	85.39	366.32	2.81	729
11	D.G.Khan	85.52	303.43	2.33	603
12	Pakpattan	41.55	182.44	1.40	747
13	T.T.Singh	43.97	157.45	1.21	609
14	Layyah	52.74	157.41	1.21	507
15	Mianwali	42.89	127.76	0.98	506
16	Jhang	48.29	124.55	0.95	438
17	Okara	24.82	116.02	0.89	795
18	Faisalabad	36.96	95.90	0.74	441
19	Bhakkar	27.24	85.70	0.66	535
20	Kasur	11.60	28.82	0.22	422
21	Sargodha	8.77	15.39	0.12	298
22	Chiniot	3.11	5.73	0.04	313
23	Khushab	2.43	4.75	0.04	332
24	M.B.Din	1.35	1.57	0.01	199
25	Nankana Sahib	0.95	1.19	0.01	214
26	Sheikhupura	0.27	0.78	0.01	489
27	Jhelum	0.41	0.77	0.01	319
28	Chakwal	0.14	0.14	0.00	170
	Sub Total Punjab	**2264.71**	**9524.33**	**73.01**	**715**
	SINDH				
1	Sanghar	124.40	859.09	6.59	1174
2	Khairpur	73.64	388.05	2.97	896
3	Nawabshah	55.33	314.72	2.41	967
4	Ghotki	59.46	312.86	2.40	894
5	Matiari	39.71	270.88	2.08	1160
6	Mirpurkhas	36.80	251.16	1.93	1160
7	N.Feroze	31.90	173.07	1.33	922
8	Umerkot	26.07	156.40	1.20	1020
9	Sukkur	28.14	149.83	1.15	905
10	Tando Allaahyar	22.62	141.98	1.09	1067
11	Badin	18.58	113.08	0.87	1035
12	Jamshoro	16.83	100.22	0.77	1013
13	Dadu	10.43	59.82	0.46	975
14	Hyderabad	6.55	41.00	0.31	1063
15	Thatta	6.50	37.95	0.29	992
16	Tando Muhammad Khan	3.98	25.43	0.19	1085
17	Larkana	1.98	11.01	0.08	945
18	Tharparkar	1.08	6.17	0.05	968
19	Karachi	0.71	3.70	0.03	886
20	Shikarpur	0.02	0.12	0.00	843
	Sub Total Sindh	**564.76**	**3416.54**	**26.19**	**1029**
	Sub Total of KPK	**0.31**	**0.92**	**0.01**	**498**
	Sub Total of Balochistan	**39.80**	**103.47**	**0.79**	**442**
	Total of Pakistan	**2869.59**	**13045.26**	**100.00**	**773**

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

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

ANNEX-IV

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON IN THE PUNJAB: 2014-15 AND 2015-16 CROPS

S. No.	Operations / Inputs	Average No. of ops/ units/acre	2014-15 Crop		2015-16 Crop		Change in 2015-16 over 2014-15
			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	1400.00	319.20	1400.00	319.20	0.00
	1.2 Rotavator	0.233	1600.00	372.80	1600.00	372.80	0.00
	1.3 Ploughing	3.200	700.00	2240.00	700.00	2240.00	0.00
	1.4 Planking	0.421	350.00	147.35	350.00	147.35	0.00
	1.5 Ploughing+planking	1.341	700.00	938.70	700.00	938.70	0.00
	1.6 Levelling (tractor hrs)	0.537	700.00	375.90	700.00	375.90	0.00
2	Seed and sowing operations:						
	2.1 Seed (kgs)	7.643	250.00	1910.75	200.00	1528.60	-382.15
	2.2 Sowing:						
	2.2.1 Ploughing+planking	0.394	700.00	275.80	700.00	275.80	0.00
	2.2.2 Ridging	0.228	700.00	159.60	700.00	159.60	0.00
	2.2.3 Drilling	0.772	700.00	540.40	700.00	540.40	0.00
	2.2.4 Manual labour for sowing, bund making and gap filling (m.days)	0.369	350.00	129.15	350.00	129.15	0.00
3	Irrigation: (Nos)						
	3.1 Canal	2.156	-	95.72	-	95.72	0.00
	3.2 Private tubewell	1.706	900.00	1535.40	900.00	1535.40	0.00
	3.3 Mixed	2.739	700.00	1917.30	700.00	1917.30	0.00
	3.4 Labour for irrigation and water course cleaning (m.days)	3.462	350.00	1211.70	350.00	1211.70	0.00
4	Interculture:						
	4.1 With tractor	2.640	700.00	1848.00	700.00	1848.00	0.00
	4.2 Manual weeding/thinning (m.days)	4.600	350.00	1610.00	350.00	1610.00	0.00
5	Plant Protection including application (weedicides + pesticides)	5.769	700.00	4038.30	800.00	4615.20	576.90
6	Farm Yard Manure including transport and application 50%	-	-	650.00	-	700.00	50.00
7	Fertilizers: (bags)						
	7.1 DAP	0.731	3587.00	2622.10	3768.00	2754.41	132.31
	7.2 SSP	0.071	967.00	68.66	1086.00	77.11	8.45
	7.3 SOP	0.029	4367.00	126.64	4900.00	142.10	15.46
	7.4 NPK	0.046	3048.00	140.21	3108.00	142.97	2.76
	7.5 Urea	2.297	1824.00	4189.73	1867.00	4288.50	98.77
	7.6 CAN	0.224	1547.00	346.53	1614.00	361.54	15.01
	7.7 NP	0.069	2462.00	169.88	2591.00	178.78	8.90
	7.8 Fertilizer transport and application	3.467	45.00	156.02	45.00	156.02	0.00
8	Mark up on investment @ 15 % per annum for 8 months on items 1 to 7 minus 3(1)	-	-	2804.01	-	2856.65	52.64
9	Management charges for 8 months	-	-	1375.00	-	1454.00	79.00
10	Land rent for 8 months	-	25000.00	16666.67	25000.00	16666.67	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)	-	300.00	5700.00	300.00	5700.00	0.00
14	Cutting of cotton sticks	-	-	600.00	-	600.00	0.00
15	Gross cost (item 1 to 14)	-	-	55374.50	-	56032.55	658.05
16	Value of cotton sticks	-	-	1000.00	-	1000.00	0.00
17	Net cultivation cost (item 15-16)	-	-	54374.50	-	55032.55	658.05
18	Yield per acre (kgs)	-	-	760.00	-	760.00	0.00
19	Cost of production at farm level: (Rs/40 kgs)						
	19.1 Including land rent	-	-	2861.82	-	2896.45	34.63
	19.2 Excluding land rent	-	-	1984.62	-	2019.26	34.63
20	Marketing expenses (Rs/40 kgs)	-	-	40.00	-	40.00	0.00
21	Cost of production at market/ginnery: (Rs/40 kgs)						
	21.1 Including land rent	-	-	2901.82	-	2936.45	34.63
	21.2 Excluding land rent	-	-	2024.62	-	2059.26	34.63

ANNEX-V

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON IN SINDH: 2014-15 AND 2015-16 CROPS

S. No.	Operations / Inputs	Average No. of ops/ units/acre	2014-15 Crop		2015-16 Crop		Change in 2015-16 over 2014-15
			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	1600.00	884.80	1600.00	884.80	0.00
	1.2 Ploughing	2.071	1100.00	2278.10	1100.00	2278.10	0.00
	1.3 Planking	0.030	550.00	16.50	550.00	16.50	0.00
	1.4 Ploughing+planking	1.333	1100.00	1466.30	1100.00	1466.30	0.00
	1.5 Levelling (tractor hrs)	0.859	1100.00	944.90	1100.00	944.90	0.00
2	Seed and sowing operations:						
	2.1 Seed (kgs)	10.279	250.00	2569.75	200.00	2055.80	-513.95
	2.2 Sowing:						
	2.2.1 Ploughing + planking	0.160	1100.00	176.00	1100.00	176.00	0.00
	2.2.2 Ridging	0.236	1100.00	259.60	1100.00	259.60	0.00
	2.2.3 Drilling	0.763	1100.00	839.30	1100.00	839.30	0.00
	2.2.4 Manual labour for sowing, bund making and gap filling (m. days)	0.988	350.00	345.80	350.00	345.80	0.00
3	Irrigation: (Nos)						
	3.1 Canal	3.148	-	93.09	-	93.09	0.00
	3.2 Private tubewell	2.454	700.00	1717.80	700.00	1717.80	0.00
	3.3 Mixed	0.413	600.00	247.80	600.00	247.80	0.00
	3.4 Lift irrigation	0.251	200.00	50.20	200.00	50.20	0.00
	3.5 Labour for irrigation and water course cleaning (m.days)	3.732	350.00	1306.20	350.00	1306.20	0.00
4	Interculture:						
	4.1 With tractor	0.524	1100.00	576.40	1100.00	576.40	0.00
	4.2 With bullocks	1.259	1100.00	1384.90	1100.00	1384.90	0.00
	4.3 Manual weeding/thinning (m.days)	4.700	350.00	1645.00	350.00	1645.00	0.00
5	Plant Protection including application (weedicides + pesticides)	4.200	700.00	2940.00	800.00	3360.00	420.00
6	Farm Yard Manure including transport and application 50 %	-	-	550.00	-	600.00	50.00
7	Fertilizers: (bags)						
	7.1 DAP	0.893	3467.00	3096.03	3633.00	3244.27	148.24
	7.2 Urea	1.834	1805.00	3310.37	1853.00	3398.40	88.03
	7.3 CAN	0.016	1533.00	24.53	1577.00	25.23	0.70
	7.4 NPK	0.056	3000.00	168.30	3100.00	173.91	5.61
	7.5 NP	0.076	2370.00	180.12	2577.00	195.85	15.73
	7.6 Fertilizer transport and application	2.880	45.00	129.60	45.00	129.60	0.00
8	Mark up on investment @ 15 % per annum for 8 fmonths on items 1 to 7 minus 3(1)	-	-	2710.83	-	2732.27	21.44
9	Management charges for 8 months	-	-	1375.00	-	1375.00	0.00
10	Land rent for 8 months	-	20000.00	13333.33	20000.00	13333.33	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)	-	300.00	5977.50	300.00	5977.50	0.00
15	Cutting of cotton sticks	-	-	1000.00	-	1000.00	0.00
16	Gross cost (item 1 to 15)	-	-	51752.39	-	51988.19	235.80
17	Value of cotton sticks	-	-	1000.00	-	1000.00	0.00
18	Net cultivation cost (item 16-17)	-	-	50752.39	-	50988.19	235.80
19	Yield per acre (kgs)	-	-	797.00	-	797.00	0.00
20	Cost of production at farm level: (Rs/40 kgs)						
	20.1 Including land rent	-	-	2547.17	-	2559.01	11.83
	20.2 Excluding land rent	-	-	1878.00	-	1889.83	11.83
21	Marketing expenses (Rs/40 kgs)	-	-	40.00	-	40.00	0.00
22	Cost of production at market/ginnery: (Rs/40 kgs)						
	22.1 Including land rent	-	-	2587.17	-	2599.01	11.83
	22.2 Excluding land rent	-	-	1918.00	-	1929.83	11.83

Notes for Annex- IV and V

1. The input-output parameters for estimating cost of production of Seed Cotton, 2015-16 Crop have been adopted from the Report of Cotton Policy Analysis for 2014-15 crop, API's Series No 250.

2. The inputs prices, hiring rates of field operations, wage rate and picking charges have been revised in the light of data collected through annual field survey conducted by the API in the major cotton producing areas during February 2015 in the Punjab and Sindh, discussions made and information provided by the representatives of Provincial Agriculture Departments and Farmers' Association in the API's Annual Meeting on Seed Cotton, held on 23rd February 2015 at Islamabad.

3. The prices of chemical fertilizers have been revised in the light of fertilizer prices published by the Pakistan Bureau of Statistics, Islamabad for the week ending on 2nd April 2015.

4. The cost of plant protection has been revised keeping in view of rising trend in the prices of insecticides and pesticides and wage rate.

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 18175 per month for a Field Assistant at the 15th stage in BPS-6 as per revised scale of July 2011, including 15 & 10 % Ad hoc Relief in 2012, 2013and 2014 respectively.

6. In both provinces, land rent is a very important component of the cost of production. It is affected by several factors and widely varies from field to field and region to region. For updating the land rentals, there is no precise measure available at hand. However, keeping in view the observations obtained during the field survey during February 2015 and discussion made in the meeting of the API's Annual meeting on Cotton, the land rentals have been adjusted accordingly.

ANNEX-VI

ECONOMICS OF SEED COTTON AND COMPETING CROPS AT PRICES REALIZED BY THE GROWERS, 2014-15 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	Revenue per Crop day	Revenue per Acre inch of water used
		Days	Acre inches	.....Rupees per acre.....					Ratio	.....Rupees.....		
	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	55529	18683	57240	38557	1711	1.03	3.06	239	2602
2	Basmati paddy	180	58	46676	20973	40828	19855	-5848	0.87	1.95	227	704
3	IRRI paddy	180	62	41128	17999	33039	15040	-8089	0.80	1.84	184	533
4	Wheat	180	12	39490	14438	41510	27072	2020	1.05	2.88	231	3459
5	Sunflower (spring)	180	22	40792	16768	40400	23633	-392	0.99	2.41	224	1836
6	Seed cotton + wheat	420	34	95019	33122	98750	65628	3731	1.04	2.98	235	2904
7	Seed cotton+ sunflower	420	44	96321	35451	97640	62189	1319	1.01	2.75	232	2219
8	Basmati paddy+ wheat	360	70	86166	35411	82338	46927	-3828	0.96	2.33	229	1176
9	Basmati paddy+ sunflower	360	80	87467	37740	81228	43487	-6240	0.93	2.15	226	1015
10	IRRI paddy + wheat	360	74	80618	32437	74549	42112	-6069	0.92	2.30	207	1007
11	IRRI paddy+ sunflower	360	84	81920	34767	73439	38672	-8481	0.90	2.11	204	874
12	Sugarcane	394	48	74550	23533	93250	69717	18700	1.25	3.96	237	1943
	Sindh											
1	Seed cotton	240	18	51752	16155	59978	43823	8226	1.16	3.71	250	3332
2	IRRI paddy	180	56	38008	13613	44780	31168	6772	1.18	3.29	249	800
3	Wheat	180	12	37525	13253	40173	26920	2648	1.07	3.03	223	3348
4	Sunflower (spring)	180	22	41316	16318	40400	24083	-916	0.98	2.48	224	1836
5	Seed cotton + wheat	420	30	89277	29408	100151	70743	10874	1.12	3.41	238	3338
6	Seed cotton + sunflower	420	40	93068	29408	100378	70970	7310	1.08	3.41	239	2509
7	IRRI paddy+ wheat	360	68	75533	26866	84953	58087	9420	1.12	3.16	236	1249
8	IRRI paddy+ sunflower	360	78	79324	29930	85180	55250	5856	1.07	2.85	237	1092
9	Sugarcane	488	71	88853	29138	113355	84217	24502	1.28	3.89	232	1597

Notes for Annex – VI

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2014-15 crops.

2. The data regarding input-output parameters have been adopted from the API's price policy papers for sugarcane, seed cotton, rice paddy and wheat, 2014-15 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 2014-15 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2014-15 crops, some marginal revisions have been made as under:

   2.1 The cost of fertilizers has been revised in view of their prices prevailed at the time of application for the respective crops in 2014-15 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 1300 per 40 kgs, as maintained by the government for 2014-15 crop, has been adopted for the current analysis.

   4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post-harvest period in major producer area markets have averaged at Rs 1330 and Rs 801 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs 844 per 40 kgs.

   4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug - Feb 2014-15 in the main producer area markets have averaged at Rs 3000 per 40 kgs in the Punjab and Sindh.

   4.4 The price of sunflower 2014-15 crop has been reported hovering around Rs 2050/40 kgs and Rs 2100 for canola.

   4.5 The market prices of sugarcane at mill-gate in the major cane producing areas are reported to hover around Rs 180 per 40 kgs in the Punjab and Rs 182 per 40 kgs 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 15 per 40 kgs in Punjab and Rs 14.32 in Sindh for sugarcane, Rs 40 for seed cotton in Punjab and Sindh, Rs 45 for rice paddy in Punjab and Rs 40 in Sindh, and Rs 30 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.

ANNEX-VII

PROFITABILITY OF FERTILIZER USE ON SEED COTTON AT THE MARKET PRICE: 2014-15

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 Rs 1113.1 per nutrient kg (i.e. Rs 74.26, 139.98 and Rs.158.52 per nutrient kg of N,P and K at the recommended NPK ratio of 2:1:1(a)		1113.1	1113.1	1113.1	1113.1
3	Indirect cost due to the application of additional fertilizer as detailed below(b)		386.1	449.8	513.6	577.3
	3.1	Transportation and application charges of 20 kgs of fertilizer @ Rs 45.0 per bag of fertilizer	18.0	18.0	18.0	18.0
	3.2	Picking charges for additional produce @ Rs 300.0 per 40 kgs	225	281.2	337.5	393.7
	3.3	Marketing charges for additional produce @ Rs 40.0 per 40 kgs	30	37.5	45.0	52.5
	3.4	Mark up on direct cost of fertilizer (item2+3.1) for 8 months @ 15 % per annum	113.1	113.1	113.1	113.1
4	Total additional cost (item 2+3)		1499.2	1562.9	1626.7	1690.4
5	Value of additional produce @ Rs 2376 per 40 kgs(c)		1783	2277.5	2673	3118.4
6	Benefit cost ratio (item 5 divided by item 4)		1.19	1.46	1.64	1.84

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 2014-15 crop taken respectively as Rs 1676, 3527 and 4367 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 2014-15 crop.

c) Average market prices of seed cotton for 2014-15 crop in the Punjab and Sindh during September to January, 2015 have been used.

ANNEX- VIII

INTERNATIONAL PRICES OF COTTONS: 2004-05 TO 2014-15

Years Aug-Jul	Index- A Cottons	Orleans/ Texas SLM 1-1/32"
	-----US Cent per pound-----	
2004-05	52.2	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	99.75	100.53
2012-13	87.84	88.32
2013-14	90.53	N.Q
2014-15	**69.94**	**N.Q**
August	74.08	N.Q
September	73.64	N.Q
October	70.33	N.Q
November	67.43	N.Q
December	68.56	N.Q
January	67.49	N.Q
Februry	67.91	N.Q
March	70.06	N.Q

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).

ANNEX- IX

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

S.No	Item	2014-15 (Aug-Mar)	2011-12 to 2013-14
		US Cents per pound	
1.	Actual average export price	68.39	78.79
		OR Rupees (a)	
	Actual average export price per 40 Kgs	6139	7072
2.	Marketing expenses (export & purchase incidentals, insurance & financial expenses) per 40 Kgs	425	425
3.	Ex- gin price of lint per 40 Kgs (item 1- item 2)	5714	6647
4.	Value of 80 kgs of cotton seed (b)	2200	2200
5.	Ginning charges for 120 kgs of seed cotton	600	600
6.	Value of 120 kgs of seed cotton (c) (items 3 +4 - item 5)	7314	8247
7.	Seed cotton price per 40 kgs (item 6 / 3)	2438	2749

Notes:

a) One US $ = 101.79 Pak rupees.
b) Average price of cotton seed for Sept 2014 to March, 2015 in Multan market was Rs 1100 per 40kgs
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.

ANNEX- X

EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF FUTURE'S CONTRACT PRICE OF NEW YORK NO. 2 COTTON (AVERAGE OF OCTOBER, DECEMBER, 2015 AND MARCH, 2016)

S.No	Item	Price calculations
		US Cents per poun
1.	Future's contract price as reported by KCA June 22, 2015	65.15
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	55.15
		OR Rupees
	Parity price per 40 kgs	4950
5.	Marketing expenses (export & purchase incidentials, insurance & financial expenses) per 40 kgs	425
6.	Ex- gin price of cotton lint per 40 kgs (item 4 - item 5)	4525
7.	Value of 80 kgs of cotton seed (b)	2200
8.	Ginning charges for 120 kgs of seed cotton	600
9.	Value of 120 kgs of seed cotton (c) (items 6 + 7 - item 8)	6125
10.	Seed cotton price per 40 kgs (item 9 / 3)	2042

Notes:

a) One US $ = 101.79 Pak rupees.

b) Average price of cotton seed for Sept 2014 to March, 2015 in Multan market was Rs 1100 per 40kgs

c) 120 kgs of seed cotton = 80 kgs of cotton seed + 40 kgs of lint.

Sources:

1. KCA, Karachi for marketing expenses and future contract prices.
2. Pakistan Cotton Ginners Association, Karachi for ginning charges.

ANNEX- XI

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

S. No	Item	2014-15 (Aug-Mar)	2011-12 to 2013-14
		Rupees per 40 kgs	
1.	Actual average cif (Karachi) price	9264	9131
2.	Handling charges at port and transport cost from port to textile mill at Karachi @ 5 % of cif price	425	425
3.	Ex- gin price of cotton lint (Item 1+ item 2)	9689	9556
4.	Value of 80 kgs of cotton seed (a)	2200	2200
5.	Ginning charges for 120 kgs of seed cotton including ginning losses	600	600
6.	Value of 120 kgs of seed cotton (item 3 +item 4 - item 5)	11289	11156
7.	Seed cotton price (item 6/ 3)	3763	3719

Note:

a) Average price of cotton seed for Sept 2014 to March, 2015 in Multan market was Rs 1100 per 40kgs

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.

ANNEX- XII

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

S. No	Item	2014-15 (Aug-Mar)	2011-12 to 2013-14
		US cent per pound	
1.	Index-A cottons assumed as cif (Karachi) price	69.94	92.73
2.	Insurance, agents commission, and port handling charges @ 5% cif price	3.50	4.64
3.	Landed cost at Karachi	73.44	97.37
		OR Rupees (a)	
	Landed cost at Karachi per 40 kgs	6592	8740
4.	Handling charges at port and transport cost from port to textile mills at Karachi @ 2.5 % of cif price	165	218
5.	Ex- gin price of cotton lint (item 3 + item 4)	6757	8958
6.	Value of 80 kgs of cotton seed (b)	2200	2200
7.	Ginning charges for 120 kgs of seed cotton including ginning losses	600	600
8.	Value of 120 kgs of seed cotton (item 5 +item 6 - item 7)	8357	10558
9.	Seed cotton price per 40 kgs (item 8/ 3)	2786	3519

Notes:

a) One US $ = 101.79 Pak rupees.
b) Average price of cotton seed for Sept 2014 to March, 2015 in Multan market was Rs 1100 per 40kgs

Sources:

1. Index-A cotton price Annex - VIII
2. KCA, for incidental charges.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.

ANNEX-XIII

Based on Export Parity Prices

ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON

(POLICY ANALYSIS MATRIX)

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
	Rupees per acre			
PUNJAB				
2010-11				
Private Prices	70227	13376	16782	40069
Social Prices	75012	11236	16978	46798
Transfers	-4785	2140	-196	-6729
2011-12				
Private Prices	48535	16377	24974	7184
Social Prices	50292	13757	25175	11361
Transfers	-1758	2620	-201	-4177
2012-13				
Private Prices	48522	20329	26177	2017
Social Prices	45923	17076	26375	2472
Transfers	2599	3253	-198	-455
2013-14				
Private Prices	57723	20939	27711	9073
Social Prices	49514	17589	27910	4015
Transfers	8209	3350	-199	5058
2014-15				
Private Prices	47759	22451	32923	-7616
Social Prices	46562	18998	32613	-5049
Transfers	1197	3453	310	-2566
SINDH				
2010-11				
Private Prices	68565	12404	16047	40114
Social Prices	75600	10419	16224	48957
Transfers	-7035	1985	-177	-8842
2011-12				
Private Prices	40048	15554	22206	2288
Social Prices	51512	13065	22389	16058
Transfers	-11464	2489	-182	-13770
2012-13				
Private Prices	49508	19206	23403	6898
Social Prices	47028	16133	23584	7311
Transfers	2480	3073	-181	-413
2013-14				
Private Prices	53552	19851	24980	8721
Social Prices	50690	16674	25166	8850
Transfers	2861	3176	-185	-129
2014-15				
Private Prices	46648	21356	30440	-5148
Social Prices	48780	17939	30091	751
Transfers	-2132	3417	350	-5899

ANNEX-XIV

Based on Import Parity Price

ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON

(POLICY ANALYSIS MATRIX)

Province/Year	Gross Revenue	Traded cost	Domestic Factors Cost	Profits
PUNJAB		Rupees per acre		
2010-11				
Private Prices	70227	13376	16782	40069
Social Prices	91821	11236	16978	63606
Transfers	-21593	2140	-196	-23538
2011-12				
Private Prices	48535	16377	24974	7184
Social Prices	75350	13757	25175	36419
Transfers	-26816	2620	-201	-29235
2012-13				
Private Prices	48522	20329	26177	2017
Social Prices	58228	17076	26375	14776
Transfers	-9705	3253	-198	-12759
2013-14				
Private Prices	57723	20939	27711	9073
Social Prices	71580	17589	27910	26081
Transfers	-13857	3350	-199	-17008
2014-15				
Private Prices	47759	22451	32923	-7616
Social Prices	71737	18998	32613	20126
Transfers	-23978	3453	310	-27741
SINDH				
2010-11				
Private Prices	68565	12404	16047	40114
Social Prices	92505	10419	16224	65861
Transfers	-23940	1985	-178	-25747
2011-12				
Private Prices	40048	15554	22206	2288
Social Prices	77034	13065	22389	41580
Transfers	-36986	2489	-182	-39293
2012-13				
Private Prices	49508	19206	23403	6898
Social Prices	59637	16133	23584	19919
Transfers	-10129	3073	-181	-13021
2013-14				
Private Prices	53552	19851	24980	8721
Social Prices	73199	16674	25166	31358
Transfers	-19647	3176	-185	-22638
2014-15				
Private Prices	46648	21356	30440	-5148
Social Prices	75181	17939	30091	27151
Transfers	-28533	3417	350	-32299

ANNEX-XV

AREA, YIELD AND PRODUCTION OF SEED COTTON AMONG COMPETING COUNTRIES: 2013

Area (million ha)
Yield (tonnes/ha)
Prod. (million tonnes)

S.No	Country	Area	Yield	Production	S.No	Country	Area	Yield	Production
1	Australia	0.444	6.027	2.676	27	Angola	0.003	1.833	0.006
2	Turkey	0.451	4.990	2.250	28	Iran (Islamic Republic of)	0.110	1.818	0.200
3	Mexico	0.124	4.735	0.587	30	Nicaragua	0.002	1.818	0.004
4	China, mainland	4.350	4.352	18.930	31	Morocco	0.000	1.680	0.000
5	Brazil	0.939	3.625	3.404	32	**India**	**11.700**	**1.616**	**18.913**
6	Greece	0.250	3.440	0.860	33	Argentina	0.361	1.502	0.543
7	South Africa	0.007	3.286	0.023	34	Mozambique	0.185	1.395	0.258
8	Bangladesh	0.017	3.247	0.055	35	Viet Nam	0.007	1.308	0.009
9	Guatemala	0.001	3.182	0.004	36	Cambodia	0.000	1.300	0.000
10	Israel	0.009	3.178	0.029	37	Myanmar	0.330	1.288	0.425
11	Syrian Arab Republic	0.155	3.161	0.490	38	Ecuador	0.003	1.277	0.004
12	Lao People's Democratic Republic	0.002	3.158	0.006	39	Ethiopia	0.085	1.235	0.105
13	Egypt	0.140	3.107	0.435	40	Sudan (former)	0.068	1.225	0.084
14	Kyrgyzstan	0.023	2.925	0.069	41	Yemen	0.018	1.194	0.022
15	Kazakhstan	0.138	2.875	0.397	42	Thailand	0.007	1.185	0.008
16	Peru	0.031	2.649	0.082	43	Burkina Faso	0.500	1.180	0.590
17	Uzbekistan	1.308	2.570	3.361	44	Afghanistan	0.036	1.162	0.042
18	United States of America	3.053	2.498	7.626	45	Côte d'Ivoire	0.230	1.143	0.263
19	Iraq	0.015	2.483	0.036	46	Cameroon	0.210	1.143	0.240
20	Spain	0.064	2.275	0.146	47	Albania	0.001	1.108	0.001
21	**Pakistan**	**2.806**	**2.210**	**6.200**	48	Paraguay	0.045	1.100	0.050
22	Botswana	0.000	2.128	0.001	49	Madagascar	0.013	1.100	0.014
23	Tajikistan	0.200	2.100	0.420	50	Guinea-Bissau	0.005	1.064	0.005
24	Democratic People's Republic of Korea	0.019	2.053	0.039	51	Colombia	0.032	1.056	0.033
25	El Salvador	0.000	1.947	0.001	52	Senegal	0.032	1.031	0.033
26	Azerbaijan	0.024	1.923	0.045	53	Mali	0.484	1.000	0.484
27	Honduras	0.002	1.875	0.003	54	Venezuela (Bolivarian Rep)	0.025	1.000	0.025
	World Avg. Yield		**1.978**						

Source:World Statistics Year Book 2013

COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

ANNEX-XVI

S.No.	Name of variety	Yield (Kgs/hect.)	S.No.	Name of variety	Yield (Kgs/hect.)
	Upland				
1	Sindh-1, ARI, Tando Jam	4500	56	MNH 554, CRS, Multan	2800
2	CRIS-134, CCRI-Sakrand	4500	57	FH 634, CRI, Faisalabad	2800
3	Malmal, ARI, Tando Jam	4238	58	Gomal 93, CRS, D.I.Khan	2800
4	CRIS-342, CCRI-Sakrand	4000	59	NIAB 86, NIAB, Faisalabad	2800
5	CRIS-121, CCRI-Sakrand	4000	60	CRIS 134, CRI, Sakrand	2700
6	Hari Dost, ARI, Tando Jam	3948	61	Niab 111 Nhiab, Faisalabad	2600
7	Marvi, CCRI-Sakrand	3900	62	Sohani NIA, Tandojam	2500
8	S 12, CRS, Multan	3900	63	Reshmi, ARI, Tando Jam	2290
9	CRIS-467, CCRI-Sakrand	3800	64	BH 160 CRS, Bahawalpur	2500
10	Chandi-95, NIA, Tando Jam	3800	65	Marvi, CRI, Sakrand	2500
11	Sadori, ARI, Tando Jam	3500	66	Shahbaz 95 ARI, Tandojam	2500
12	Sohni, NIA, Tando Jam	3500	67	B557, CRI, Faisalabad	2500
13	SLS 1, CRS, Sahiwal	3500	68	Shaheen, CRS, Ghotki	2200
14	NIAB 78, NIAB, Faisalabad	3500	69	SLH 41, CRS, Sahiwal	2200
15	MNH 93, CRS, Multan	3500	70	MS 84, CRS, Multan	2100
16	MNH 147, CRS, Multan	3300	71	K 68/9, CRS, Ghotki	2000
17	NIA-Ufaq, NIA, Tando Jam	3200	72	Qalandari, CRS, Tandojam	2000
18	FH 682, CRI Faisalabad	3200	73	149 F, CRS, Multan	2000
19	CRIS-9, CCR-Sakrand	3100	74	Sar,ast. CRS. Tandojam	1800
20	CRIS 9, CRI, Sakrand	3100	75	MS 40, CRS, Multan	1700
21	BH36, CRS, Bahawalpur	3100	76	MS 39, CRS, Multan	1650
22	CIM 70, CCRI, Multan	3100	77	AC 134, CRI, Faisalabad	1600
23	CIM 496, CCRI, Multan	3000	78	Lasani 11, CRI, Faisalabad	1600
24	CRIS 467 CRI Sakrand	3000	79	M 100, CRS, Tandojam	1500
25	CIM 707 CCRI, Multan	3000	80	362 F, CRI, Faisalabad	1500
26	CIM 506 CCRI, Multan	3000	81	BS1 CRSS, Khanpur	1200
27	CIM 499 CCRI, Multan	3000	82	238F, CRI, Faisalabad	1000
28	FH 1000, Faisalabad	3000	83	268F, CRI, Faisalabad	1000
29	NIAB 78, NIAB, Faisalabad	3000	84	216F, CRI, Faisalabad	1000
30	CIM 473, CCRI, Multan	3000	85	LSS, CRI, Faisalabad	1000
31	FH 118, CRS, Bahawalpur	3000	86	289F/K25, BCGA, Khanewal	1000
32	CIM 482, CCRI, Multan	3000	87	289F, CRI, Faisalabad	950
33	FH 900, CRI, Faisalabad	3000	88	199F, CRS, Multan	900
34	FH 901, CRI, Faisalabad	3000	89	124 F, CRI, Faisalabad	900
35	CIM 443 CCRI, Multan	3000	90	M 4, CRS, Tandojam	900
36	CIM 446 CCRI, Multan	3000	91	289 F/43, CRI, Faisalabad	900
37	FVH 53, CRS, Vehai	3000	92	4F, CRI, Faisalabad	800
38	Chandi 95, NIA Tandojam	3000	93	3F, CRI, Faisalabad	600
39	CIM 448, CCRI, Multan	3000		Hybrid	
40	CIM 1100, CCRI, Multan	3000	1	H151, Alseemi, Multan	3500
41	Krishma, NIAB, Faisalabad	3000	2	H115, Alseemi, Multan	3500
42	MNH 329, RS, Multan	3000	3	H160, Alseemi, Multan	3500
43	RH 112, CRS, R.Y. Khan	3000	4	Desi	
44	S 14, CRS, Multan	3000	5	FDH 170, CRI, Faisalabad	2500
45	CIM 240, CCRI, Multan	3000	6	FDH 228, CRI, Faisalabad	2000
46	NIAB 26N, NIAB, Faisalabad	3000	7	Rohi, CRI, Bahawalpur	2000
47	Rehmani 90, CRO, Tandojam	3000	8	Ravi, CRI, Faisalabad	1900
48	CIM 109, CCRI, Multan	3000	9	SKD 10/19, CRI Sakrand	1700
49	Gohar 87, CRS, Bahawalpur	3000	10	D9, CRI, Faisalabad	1400
50	RH1, CRS, R.Y.Khan	3000	11	TD 1, CRS Tandijam	1000
51	FH 87, CRI, Faisalabad	3000	12	231 R, CRI, Multan	1000
52	MNH 129, CRS, Multan	3000	13	119 S, CRI, Multan	800
53	Rehmani, CRS, Tandojam	3000			
54	Shahbaz, ARI, Tando Jam	2992			
55	MNH 552, CRS, Multan	2900			

Sources: 1. A booklet titled as "Cotton Varieties of Pakistan", FSC & RD, Islamabad.
2. Cotton Research Institute ,Faisalabad