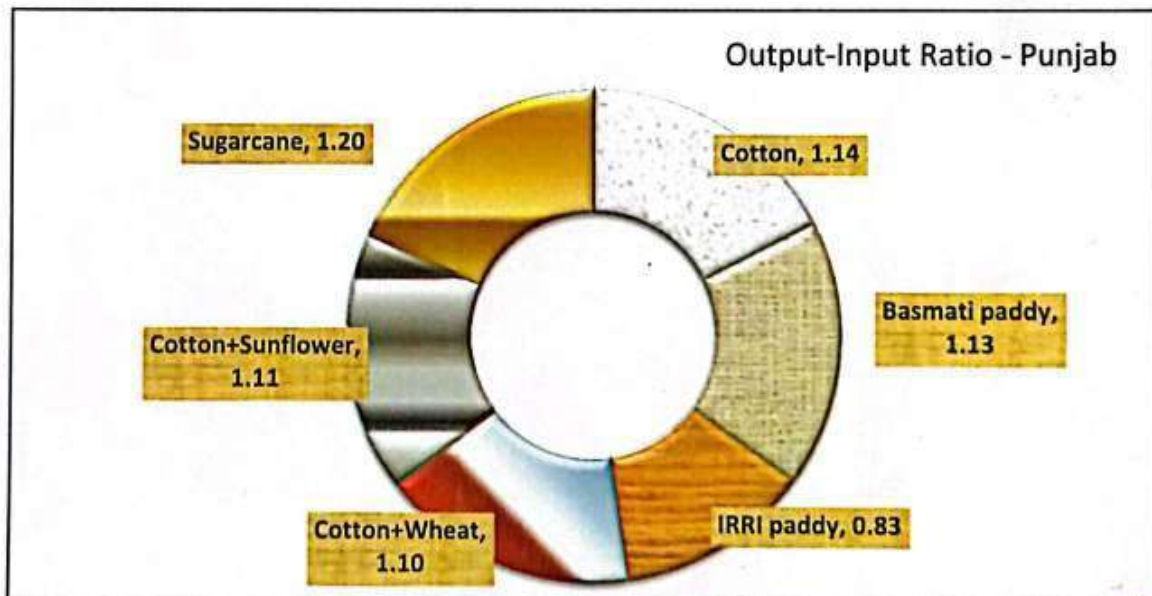




COTTON POLICY ANALYSIS FOR 2020-21 CROP



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ABBREVIATIONS

AARI	:	Ayub Agricultural Research Institute
API	:	Agriculture Policy Institute
APTMA	:	All Pakistan Textile Mills Association
BCR	:	Benefit Cost Ratio
BPS	:	Basic Pay Scale
CFR	:	Cost and Freight
CIF	:	Cost, Insurance and Freight
CLCV	:	Cotton Leaf Curl Virus
COP	:	Cost of Production
CPI	:	Consumer Price Index
CRI	:	Cotton Research Institute
DAP	:	Di. Ammonium Phosphate
DRC	:	Domestic Resource Cost
ECC	:	Economic Coordination Committee
E&M	:	Economics & Marketing
EPC	:	Effective Protection Coefficient
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

COTTON POLICY ANALYSIS FOR 2020-21 CROP

SUMMARY OF FINDINGS AND RECOMMENDATIONS

- Findings

Area and Production

- Punjab and Sindh contribute 69.0 and 30.1 per cent of the cotton production while the share of both Khyber Pakhtunkhwa and Balochistan is 0.9 per cent.
- During the last decade, cotton production at country level decreased @ 2.9 per cent per annum mainly due to 1.7 per cent decline in area while 1.1 per cent reduction in yield.
- Cotton production in 2019-20 is produced at 9.45 million bales, as compared to last year 9.86 million bales, which is 4.1 per cent lower than 2018-19.
- Cotton production has fallen short of the target by 25.7 per cent during 2019-20 due to mostly 12.8 and 14.8 per cent shortage in area and yield respectively.

Major Varieties

- According to the Annual Field Survey Report of API for 2015-16 to 2019-20 and Pakistan Central Cotton Research Institute, Multan, major cotton varieties sown in Pakistan were Bt.cotton, CIM-598, Hybrid GN-2085, MG-6, FH-113, Ali Akber-802, Ali Akber-703, N-141, A-One, NIBGE-3, MNH-886 and MNH-121, CIM-602, BGC-09, Cyto-178, RH-647, VH-327, FH-326, NIAB-878B, Cyoto-128, Cyoto-179, CIM-600, CRIS-508, Rarzan-1, IR-NIBGE-1524, Neelum-121.

Domestic Prices

- Monthly average market prices of seed cotton for 2019-20 crop during the post harvest months in major producing areas have generally remained slightly below the actual export parity prices.
- The monthly wholesale market prices of seed cotton during the post harvest period averaged at Rs 3932 per 40 kgs in the Punjab and Rs 3634 in Sindh.
- Monthly average wholesale prices of seed cotton ranged from Rs 3549 to Rs 4653 per 40 kgs during the post harvest months in major producing areas of the Punjab and Rs 2700 to Rs 4150 per 40 kgs in Sindh.

- Monthly average spot prices of cotton lint at Karachi averaged at Rs 9306 per 40 kgs in 2019-20 which is 1.43 per cent higher than the last year.

Cost of Production

- In the Punjab, the cost of cotton cultivation during 2020-21 season is estimated at Rs 76,796 per acre.
- The cost of production at the market / ginnery level of Punjab would be Rs 3880 per 40 kgs, reflecting gain of 13.4 per cent over the last year.
- In Sindh, the cost of cotton cultivation for 2020-21 crop is expected at Rs 81,210 per acre.
- The cost of production at market / ginnery level of Sindh would come to Rs 3731 per 40 kgs, shown enlargement of 14 per cent over the last year.

Economics of Cotton and Competing Crops

- The economics of cotton and competing crop has been analysed in terms of input-output prices paid and received by the growers 2019-20 crop year.
- Cotton in Punjab has rewarded the farmer with better returns as compared to Basmati and IRRI Paddy in terms of returns to overall investment and other indicators analyzed. In terms of gross revenue per rupee of purchased inputs and irrigation water, cotton's performance was significantly better than both Basmati and IRRI paddy.
- In case of indirect competition, sugarcane farmers were reported receiving the indicative price as announced by the provincial government, paid relatively better returns over the cotton combination with sunflower particular in respect of output – input and purchased input cost.
- In Sindh, cotton farming performed better than IRRI paddy in terms of returns to all the economic criteria.
- In case of indirect competition, sugarcane farming has shown better return over the cotton combination with wheat or sunflower in respect of the economic criteria. However, the cotton combination have performed hugely over the sugarcane in respect of crop duration and irrigation water.

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 2019-20.

- 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 between 0.39 and 1.24 tonnes while that of P fertilizer between 1.10 and 2.35.

Nominal and Real Market Prices

- The nominal prices of seed cotton in the Punjab indicate an overall increase of 50 per cent while the real market prices have shown an increase of 15 per cent during 2015-16 to 2019-20.
- In Sindh, the nominal market prices of seed cotton have observed overall increase of 48 per cent while the real market prices have increased 13.28 per cent against the base year level.

World Production and Prices

- World cotton production estimated at 25.69 million tonnes in 2018-19 and in projected to increase at 25.98 million tonnes in 2019-20 which is higher than the last year.
- International prices of Index-A cottons have widely fluctuated from the lowest level of 70.30 cents per pound in 2015-16 to the highest level of 99.75 cents per pound in 2011-12. The price remained subdued during 2019-20 averaging at 74.26 US cent per pound.

Export Parity Prices

- Based on actual export price of Pakistani cotton during 2019-20, the export parity price of seed cotton calculates to Rs 3328 per 40 kgs and Rs 3962 on the basis of average during 2016-17 to 2018-19.
- The export parity price comes to Rs 3353 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 2019-20, the import parity price of seed cotton works to Rs 4380 per 40 kgs and Rs 3835 for average of 2016 to 2019.
- Based on CFR Far Eastern quoted price of Index – A cottons, the import parity price comes to Rs 4581 per 40 kgs during 2019-20 and Rs 5120 on average of 2016-17 to 2019-20.

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 and EPCs under import scenario value of both are below one throughout the analysis period. This indicates no economic protection to seed growers in Punjab and Sindh.
- However, under export scenario that NPC estimates both for Punjab and Sindh are either closer to one or slightly higher than one for Punjab and Sindh. During the period 2015-16 and 2019-20, they remained implicitly taxed as NPC was less than one.
- Similarly, the EPCs are less than one under export/import scenario in the Punjab and Sindh during 2019-20, it reveals that input/output prices seed cotton are not stable that may suddenly affect cotton growers profit and development of the crop.
- 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 2015-16 to 2019-20 both in Punjab and Sindh. Generally the situation implies a Comparative Advantage in seed cotton production, both under export and import scenario.
- The findings of economic efficiency analysis warrant more investment in cotton production and marketing for export purposes may benefit Pakistan by saving foreign exchange.

World Comparison

- Pakistan stands at 4th position in the cotton producer countries in terms of area and 5th in terms of production but ranks at 24th position in terms of yield.
- In terms of cotton production, China is on the top with 17.7 million tonnes in world production followed by India with 14.66 and USA with 11.43 million tonnes.
- China continues to lead in yield with 5280 kgs per hectare followed by Australia with 5154 kgs per hectare. In the region, India, however is far behind at 43rd position.

Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for seed cotton 2019-20 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 2019-20 (Augt-Jan)		3328
	- During 2016-17 to 2018-19		3962
	ii) Futures contract prices of New York No.2 cotton (average of October, December 2019 and March 2020)		3353
2	Import parity prices based on average:		
	i) Actual cif Karachi prices of imported cotton:		
	- During 2019-20 (Augt-Jan)		4380
	- During 2016-17 to 2018-19		3835
	ii) CFR Far Eastern quoted price of Index-A Cottons		
	- During 2019-20 (Augt-Jan)		4581
	- During 2016-17 to 2018-19		5120
3	Average wholesale prices of seed cotton in Major Producer Area Markets during the post-harvest period in 2019-20		
	- Punjab (Sep – Dec)		3932
	- Sindh (Aug – Dec)		3634
4	Cost of production for 2020-21 crop (at market)		
	- Punjab		3880
	- Sindh		3731
5	Cost of domestic resources involved in:	At exchange rate of Pak Rs 154.20	
		Punjab	Sindh
	i) Producing cotton for import substitution based on 2018-19 prices of cotton (actual average)	75.13	85.05
	ii) Producing cotton for export based on 2019-20 prices of cotton (actual average)	57.54	74.26

- Recommendations

In view of the field information, consultation with the stakeholders in the API 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 announcement of intervention price of seed cotton (Base grade 3 with staple length 1-1/16") for 2020-21 crop around Rs 4000 per 40 kgs in view of world cotton situation and high input costs, if deem necessary.
- It provides a reference point to intervene by the public sector agency, if needed. It is to be implemented only when the market prices of seed cotton fall below the Intervention Price.
- The government policy of encouraging the role of private sector in cotton marketing and trade may be continued.
- In view of trade liberalization and active role of private sector, the actual incentive to cotton growers should come through the market forces.
- 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

- The Government should ensure implementation of Federal Seed Act 2015 - the Cotton Research Institute should only release varieties
- A comprehensive National Seed Policy should be announced by the Government and implemented in true spirit.
- The coordination among the Provincial and Federal Research Institutes should be strengthened in order to improve research activities for productive outcome.
- Comprehensive plan should be designed for balanced use of inputs and new technology by the Research and Provincial Agriculture Extension Departments.
- The role of private sector may be promoted to supply certified seed through public – private partnership. The APTMA may be involved in research, marketing and quality improvement programmes.

- Availability of certified seed is a serious problem. The Punjab Seed Corporation should supply the certified cotton seed to the growers at a reasonable price.
- The price, date of manufacture and weight should be labelled on the bags of fertilizer and brands of pesticides/weedicides.
- 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.
- There is a need of zoning at this time to conserve areas for precious crops like cotton as sugarmills are being installed in the heart of cotton growing regions.
- Early sowing of Bt cotton has raised some problems like boll rotting and pest attack which need to be addressed.
- The Pest Scouting and Warning System should be further strengthened enabling the farmers to take timely action and apply appropriate pesticides.
- On the pattern of Punjab Seed Corporation of the Government of Sindh, Khyber Paktunkhwa and Balochistan should also pay a special attention to seed production to meet their provincial requirements.
- There is a need to encourage the Soil Testing facilities to assess the need of appropriate fertilizers for balanced input use.
- 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.
- 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 fertilizer 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.

Improving Quality and Marketing

- To improve and maintain quality of seed cotton, educational campaign informing the pickers about the proper methods, timing and handling should be launched through media and brochure,
- Like other commodities, regularity authority may be established to control prices and quality of agricultural inputs
- The deductions and underweightment in cotton marketing for various quality consideration need to be standardized..
- Government should take serious action to improve the quality of cotton lint for export promotion and launch a vigorous programme to ensure proper packing and truthful labelling.
- 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**

September, 2020

COTTON POLICY ANALYSIS FOR 2020-21 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. It contributes around 4.1 per cent of the value added in agriculture sector and about 0.8 per cent share in GDP¹. 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. Cotton farming is the principal source of raw material for the textile sector. 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. In view of dynamic nature and multifaceted role of cotton in the country through exports and providing livelihood to millions of farmers, traders and workmen, it has always received priority and preference of the government particularly in textile industry.

3. The crop was cultivated on 2.533 million hectares in 2019-20, showing increase in the cultivated area as compared to last year by 6.5 per cent. Pakistan produced 9.18 million bales in the year 2019-20 against 9.86 million bales last year showing decrease of 6.9 per cent. The production decreased due to unfavorable weather conditions, stunting of crops, attack of white fly, pink ball worm and other pests/insects also hampered crop out. 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. In preparing this Report for Seed Cotton 2020-21 crop, following procedure was adopted:

- The data on different aspects of cotton production, input prices, trade situation, ginning and marketing were collected from the primary and secondary sources and analysed by the Agriculture Policy Institute.
- A field survey was also conducted by the API during February 2020, 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.

¹ Economic Survey of Pakistan 2019-20

- A meeting of the API's Committee on Cotton was held on 24th February, 2020 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.

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 for Cotton² in the past 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 retained the intervention price for seed cotton at Rs 3000 per 40 kgs for 2020-21 crop.

5. 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, even the local textile industries demand for the standard cotton for manufacturing 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.

6. 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 germ palms and there is a dire need of importing global cotton germ palms 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.

² Base grade 3 with staple length 1-1/16"

7. 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 etc. Measures are also being taken to develop the disease/heat/drought resistant and Genetically Modified cotton varieties. Pest Scouting and Early Warning system is being strengthened by the provincial governments to control any disease attack. The private sector is being facilitated for production of Bt-cotton hybrid seeds through technical and financial assistance. The Government have also approved some Bt-cotton varieties for getting benefit of new technology to boost cotton production in the country

2. SOWING AND PICKING TIMES OF COTTON

8. 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 Khyber Pakhtunkhwa 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	1 st May to 15 th June
Mianwali	10 th May to 15 th June
Multan, Lodhran, Vehari Muzaffargarh, Layyah, D.G.Khan, Rajanpur	1 st May to end of June
Khanewal	15 th May to 15 th June
Bahawalnagar	1 st May to 20 th June
Sindh	
Thatta	15 th March - 31 st March
Tharparkar, Mirpurkhas and Badin	1 st April - 30 th April
Hyderabad	15 th April - 15 th May
Sanghar	15 th April - 20 th May
Dadu, Nawabshah and Naushahro Feroz	1 st May - 31 st May
Khairpur, Sukkur, Ghotki, Larkana, Shikarpur & Jacobabad	15 th May - 15 th June
Khyber Pakhthunkhwa	
D.I.Khan	1 st May to 31 st May
Balochistan	
Lasbela, Dera Murad Jamali, Nasirabad	1 st May to 31 st May

Sources:

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

9. 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.

Table 2: Zoning for Cultivation of Bt Cotton in the Punjab and Sindh Crop Season A.

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

B.

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

Source: CCRI, Multan

10. An important development is the increasing usage of Bt cotton by farmers. Almost 80 % of cotton growing area has become under Bt Cotton with different names in Sindh and Punjab.

11. There may be 30 % increase in cotton yield due to resistance against chewing pest and hence additional income to poor farmers in Pakistan. However, the Bt. Cotton varieties grown are susceptible to cotton Leaf Curl Virus (CLCV) and sucking pests like Mealy Bug, Jassid and White fly which are a major threat to cotton crop in Pakistan. The time of sowing and suitable areas for cultivation of BT cotton in the Punjab presented in Table-2.

3. PROVINCIAL SHARES IN AREA AND PRODUCTION

12. Provincial shares in area and production of cotton based on average of 2017-18 to 2019-20 are provided in Table-3. During this period cotton production averaged at 10.420 million bales from 2.533 million hectares (6.259 million acres).

Table-3: Provincial Shares in Area and Production of Cotton: Average of 2017-18 to 2019-20

Country/ Province	Area		Production	
	000 hectares	Per cent	000 bales	Per cent
Pakistan	2532.9	100.0	10419.7	100.0
Punjab	1943.4	76.7	7191.3	69.0
Sindh	552.6	21.8	3132.2	30.1
KPK& Balochistan	36.9	1.5	96.2	0.9

Source: Annex-I.

13. Punjab and Sindh account for 76.7 and 21.8 per cent in cotton area and 69.0 and 30.1 per cent in production (Figures 1 and 2). Cotton yield in Sindh is higher than Punjab resultantly production share of Sindh exceed its area share. The share of Khyber Paktunkhwa & Balochistan together in production is 0.9 per cent from 1.5 per cent area.

4. IMPORTANT COTTON GROWING DISTRICTS

14. The district-wise data on area and production of cotton are given in Annex-III. The district producing more than one million bales of cotton per annum is only Bahawalpur. The districts producing more than 100 thousand bales of cotton per year each are Bahawalpur, Bahawalnagar, Lodhran, Khanewal, Rahim Yar Khan, Rajanpur, Vehari, Multan, Muzzafargarh, D.G.Khan, Sahiwal, Layyah, and Mianwali from the Punjab province and Sanghar, Ghotki, Khairpur, Nawabshah, Naushero Feroze, Matiari, Sukkur, and Tando Allahyar Sindh Province. These 21 districts account for more than 92 per cent of the cotton production in the country.

15. The districts of Bahawalpur, Bahawalnagar, Lodhran, Khanewal, Rahim Yar Khan, Rajanpur, Vehari, Multan, Sanghar and Ghotki each producing more than half million bales per year altogether account for 65 per cent of the cotton in the country.

Figure-1: SHARES IN AREA

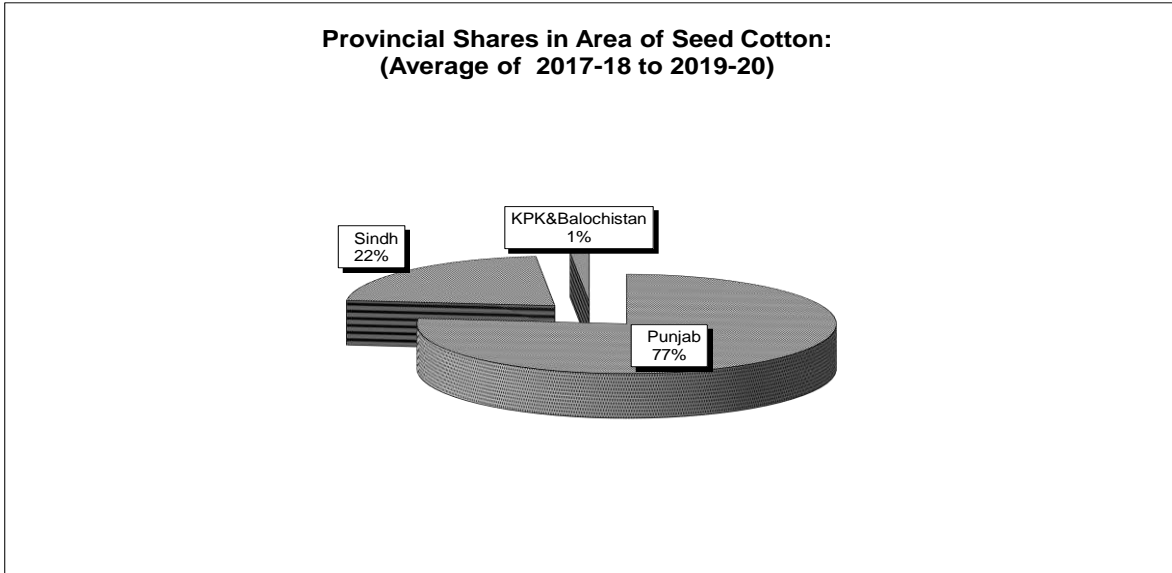
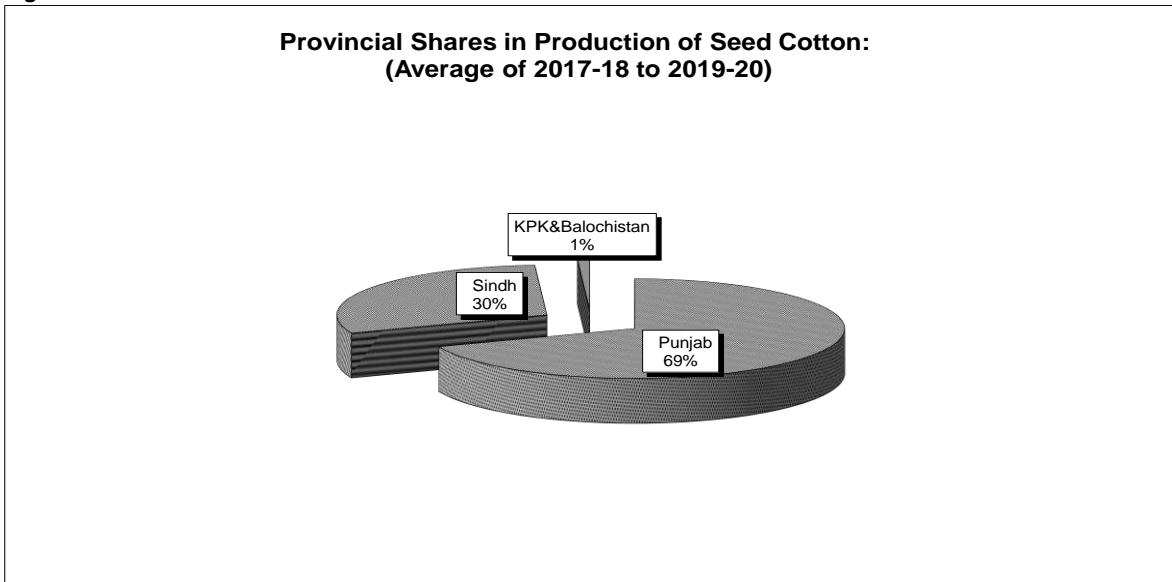


Figure-2: SHARES IN PRODUCTION



Source: Annex-I

5. CHANGES IN AREA, YIELD AND PRODUCTION

16. During the period of 2009-10 to 2019-20, cotton area ranged between 2.373 and 3.106 million hectares (5.864 and 7.674 million acres) and yield between 581 and 816 kgs per hectare (235 to 330 kgs per acre). Therefore, cotton production fluctuated between 9.453 and 13.960 million bales. Long term and short term changes in area, yield and production are discussed below:

5.1 Long-term Changes: 2009-10 to 2019-20

17. During the period under reference, cotton production at country level decreased @ 2.9 per cent per annum mainly due to 1.7 per cent decline in area although 1.1 per cent reduction in yield (Table-4).

Table-4: Average Annual Growth Rates of Area, Yield and Production of Cotton: 2009-10 to 2019-20

Country/ Province	Area	Yield	Production
	----- Per cent -----		
Pakistan	-1.7	-1.1	-2.9
Punjab	-2.7	-0.7	-3.4
Sindh	2.4	-3.8	-1.4

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-II.

18. In the Punjab, cotton production decreased @ 3.4 per cent annually due to decline of 2.7 and 0.7 per cent in area and yield respectively. In Sindh, cotton production also decreased @ 1.4 per cent per annum solely due to 3.8 percent depressed in yield and however, area increased @ 2.4 percent.

5.2 Short-term Changes 2018-19 Vs 2019-20

19. According to the second estimates provided by the provincial Agricultural Department, cotton production during 2019-20 at country level worked out as 9.453 million bales, as compared, 9.861 million bales produced in 2018-19 (Table-5). Decrease of 4.1 per cent production is due to decrease of 9.9 percent in yield though, area increased 6.4 percent.

Table-5: Area, Yield and Production of Cotton: 2018-19 and 2019-20 Crops

Country/ Province	Area		Changes in 2019-20 over 2018-19	Yield		Changes in 2019-20 over 2018-19	Production		Changes in 2019-20 over 2018-19
	2018-19	2019-20		2018-19	2019-20		2018-19	2019-20	
	-- 000 hectares --		Per cent	--Kgs/hectare --		Per cent	-- 000 bales --		Per cent
Pakistan	2373.0	2525.5	6.4	706.8	636.6	-9.9	9860.8	9452.7	-4.1
Punjab	1887.8	1889.4	0.1	615.0	600.5	-2.4	6826.0	6671.0	-2.3
Sindh	448.2	598.0	33.4	1115.1	763.0	-31.6	2938.4	2682.4	-8.7
KPK	0.2	0.1	-37.5	510.3	1088.6	113.3	0.5	0.6	33.3
Balochistan	36.8	38.0	3.3	443.3	441.8	-0.3	95.9	98.7	2.9

Source: Annex-III

20. Cotton production in the Punjab estimated at 6.671 million bales, 2.3 per cent less than 6.826 million bales produced in 2018-19. Lower production is due to decrease in yield by 2.4 percent besides 0.1 per cent rise in area.

21. In Sindh, cotton production remained 2.682 million bales, 8.7 per cent also less than 2.938 million bales in 2018-19. Decrease in production is also due to decrease in yield 31.6 per cent although 33.4 per cent improvement in area.

6. TARGETS VS ACHIEVEMENTS: 2019-20 CROP

22. Cotton Crop Assessment Committee has fixed Seed Cotton production target for 2019-20 crop at 12.720 million bales. As per second estimates of Provincial Agriculture Departments, cotton production is reported at 9.453 million bales 25.7 per cent less than the target due to mainly 12.8 and 14.8 per cent shortage in area and yield respectively (Table-6).

Table-6: Targets and Estimated Achievements of Area, Yield and Production of Seed Cotton: 2019-20 Crop

Country/ Province	Area		Deviation from the target	Yield		Deviation from the target	Production		Deviation from the target
	Target	Achieve- ment		Target	Achieve- ment		Target	Achieve- ment	
	--- 000 ha ----		Per cent	kgs/ha		Per cent	-- 000 bales --		Per cent
Pakistan	2895.0	2525.5	-12.8	747.3	636.6	-14.8	12720.0	9452.7	-25.7
Punjab	2145.0	1889.4	-11.9	626.4	600.5	-4.1	7900.0	6671.0	-15.6
Sindh	640.0	598.0	-6.6	1222.5	763.0	-37.6	4600.0	2682.4	-41.7
KPK	10.0	0.1	-99.0	340.2	1088.6	220.0	20.0	0.6	-96.8
Balochistan	100.0	38.0	-62.0	340.2	441.8	29.9	200.0	98.7	-50.7

Sources: 1. For targets: Cotton Review Vol. 50-No, 5 of PCC. 2. For achievements: Annex-III.

23. Area, and Production of cotton was not be achieved the targets except KPK and Balochistan yield surpassed by 220.0 and 29.9 per cent respectively.

7. Domestic Supply, Demand, Stocks and Price Situation

7.1 Domestic Supply, Demand and Stocks

24. The cotton production has declined significantly during 2018-19., country has produced only 9.86 million bales, which is 2.09 million bales lower than last year's production of 11.95 million bales. . Accounting for opening stocks of 0.68 million bales, the total supply estimated at 10.54 million. About 12.09 million bales have been consumed by the local textile industry while only 0.09 million bales were exported.

25. Due to climate change, the temperatures were higher at flowering time and abrupt rain fall has increased the pest attack during 2018-19 & damaged the crop badly. According to second estimates, the production of cotton lint has further declined to 9.45 million bales, 0.41 million

bales lower than the last year. After adding the opening stocks of 0.75 million bales, the total supply worked out to 10.20 million bales. The consumption of cotton lint by the local textile industry on the basis of three years average is projected at 13.30 million bales. To meet the deficit, the country would have to import 2.55 million bales during 2019-20 (Aug-July).

Table-7: Domestic Production, Demand and Stocks of Cotton (Lint): 2017-18 to 2019-20 (August-July)

Item	2017-18	2018-19 (Provisional)	2019-20 (Projected)
----- Million bales * -----			
1. Opening stocks	0.11	0.68	0.75
2. Production	11.95	9.86	9.45
3. Total supply	12.06	10.54	10.20
4. Likely Consumption	14.75	12.09	13.30
5. Imports**	3.58	2.39	0.60
6. Exports**	0.21	0.09	0.05
7. Closing stocks	0.68	0.75	-2.55

* One bale = 170 kgs = 375 lbs.

** Import and export are from Aug 2019 to Jan 2020.

Sources: 1. For item 1 & 4 Textile Commissioner Organization (TCO).
2. For item 2, 5 & 6, PBS, Karachi..

7.2 Domestic Price Situation

7.2.1 Seed cotton (Phutti)

26. Monthly average wholesale prices of seed cotton in the main producing area markets of Punjab and Sindh during the post-harvest period of 2019-20 crop are detailed in Table-8 and 9.

Table-8: Monthly Average Wholesale Prices of Seed Cotton (Phutti) in the Main Producer Area Markets of Punjab 2019-20 Crop.

Market	Sept	Oct	Nov	Dec	Avg
-----Rs per 40 kgs-----					
Bahawalnagar	3791	4140	4202	3649	3946
Haroonabad	3837	4146	4113	3833	3982
Bahawalpur	3940	3987	4231	3890	4012
R. Y Khan	3671	4123	4101	3895	3948
D.G Khan	4200	4383	4567	4653	4451
Vehari	3722	3854	3826	3442	3711
Mailsi	3796	3972	4108	3857	3933
Burewala	3630	3749	3740	3521	3660
Khanewal	3607	3927	4324	3857	3929
Lodhran	3705	3893	3892	3425	3729
Rajanpur	3748	4055	4049	-	3951
Average	3786	4021	4105	3802	3932

Source: Directorate of Agriculture (E&M), Punjab, Lahore.

27. Monthly average wholesale prices of seed cotton during the post-harvest period in Punjab ranged between Rs 3425 and Rs 4653 per 40 kgs in the month of December 2019 in Lodhran and D.G Khan markets. The seasonal average price of seed cotton ranged between Rs 3711 to Rs 4451 per 40 kgs.

Table-9: Monthly Average Wholesale Prices of Seed Cotton (Phutti) in the Main Producer Area Markets of Sindh 2019-20 Crop.

Market	Aug	Sept	Oct	Nov	Dec	Average
	-----Rs per 40 kgs-----					
Mirpurkhas	3383	3500	3325	3350	3275	3367
Sanghar	3950	3775	3225	2950	2700	3320
Matiari	3700	3675	3550	3350	3300	3515
Hyderabad	4150	3550	3450	3625	3600	3675
Badin	3950	3475	3000	2975	2900	3260
Shaheed Benazir Abad	--	3800	3825	3825	3800	3813
N. S. Feroze	--	3700	3888	3988	3900	3869
Khairpur	--	3725	3785	4035	4000	3886
Ghotki	--	3665	4100	4075	4150	3998
Average	3827	3652	3572	3575	3514	3634

Source: Director Agriculture Farms Major crops Development, Sindh.

28. In Sindh, average monthly wholesale prices of seed cotton during the post-harvest period ranged between Rs 2700 to 4150 per 40 kgs in Sanghar and Gotki markets during December 2019. The seasonal average price of seed cotton ranged between Rs 3260 to Rs 3998 per 40 kgs.

7.2.2 Cotton Lint (Raw Cotton)

29. Monthly average spot prices of raw cotton at Karachi during 2018-19 and 2019-20 are presented in Table-10. The spot price during 2019-20 (Aug-Jan) averaged at Rs 9306 per 40 kgs which is 1.43 percent higher than last year.

Table-10: Monthly Average Spot Prices of Raw Cotton at Karachi for 2018-19 and 2019-20 Crops (August-May)

Month	Base Grade -3, staple length 1-1/16", Micronaire Value 3.8 to 4.9 NCL (No Control Limit)	
	2018-19	2019-20
	Rupees per 40 kgs	
August	9171	8483
September	8735	8933
October	8986	9542
November	9410	9808
December	9403	9434
January	9338	9637
Average	9174	9306

Source: Karachi Cotton Association (KCA). Karachi.

8. ECONOMICS OF FERTILIZER USE IN COTTON CROP

30. 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.

8.1 Benefit Cost Ratio (BCR)

31. 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-11.

Table-11: Benefit Cost Ratio (BCR) of Fertilizer Use on Cotton: 2007-08 to 2019-20

Year	Response Ratios (Seed Cotton: Nutrient) of			
	3.00:1	3.75:1	4.50:1	5.25:1
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
2015-16	1.20	1.44	1.67	1.98
2016-17	1.70	2.05	3.26	2.62
2017-18	1.73	2.07	2.37	2.65
2018-19	2.12	2.52	2.86	3.19
2019-20	1.81	2.15	2.44	2.71

Sources: 1. For 2007-08 to 2019-20: Cotton Policy Analysis Report for 2019-20 crop, by API.
2. For 2019-20: Annex-IV.

32. 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.

8.2 Parity Ratio between Prices of Fertilizer and Seed Cotton

33. 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 2009-10 to 2019-20 and presented in Table-12. The

quantity of seed cotton needed to buy one nutrient tonne of N fertilizer has ranged between 0.39 to 1.24 tonnes. The parity ratios between prices of seed cotton and those of phosphatic fertilizer have fluctuated from 1.10 to 2.35 during the period of analysis. During 2019-20 the prices of phosphorus and nitrogen are lower than the last years which, however had been declining constantly during 2012-13 to 2019-20.

Table-12: Parity Ratio between the Prices of Fertilizer and Seed Cotton: 2009-10 to 2019-20

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-----	
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
2015-16	80950	129190	64825	1.24	1.99
2016-17	57610	87240	75725	0.76	1.16
2017-18	59782	85303	74012	0.80	1.15
2018-19	68152	112460	92662	0.73	1.21
2019-20	81520	126790	81520	0.86	1.34

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.

9. COST OF PRODUCTION (COP) OF SEED COTTON

34. Cost of production is one of the main factors in formulation of the indicative price suggestions for the farm produce. However, its calculation involves several conceptual difficulties due to wide variations in agro-climatic conditions, input use levels and farming systems under which the crop is grown.

35. Cost of production estimates for seed cotton: 2020-21 crop are derived by using the field data 2020 survey. Updated rates of different cultivation operations and inputs' prices for Punjab and Sindh provinces (major cotton producing provinces) were collected by API from the field through a survey carried out in Punjab and Sindh. The detailed cost estimates for Punjab and Sindh are given in Annex-V and Annex-V respectively while a summary of the results is presented below in Table-13.

Table-13: Average Farmer Net Cost of Production of Cotton: 2019-20 and 2020-21 Crops

S. No	Item	Unit	Cost estimate		Change in 2020-21 against 2019-20
			2019-20 crop	2020-21 crop	
	<u>Punjab</u>				
1.	Net cost of cultivation	Rs./acre	72997	76796	3799
2.	Yield	Kgs/ acre	880	800	-80
3.	Cost of production at farm level	Rs./40 Kg	3318	3840	522
4.	Marketing cost	-	40	40	0
5.	Cost of production at Market ginnery	-	3358	3880	522
	<u>Sindh</u>				
1.	Net cost of cultivation	Rs./acre	79239	81210	1971
2.	Yield	Kgs/ acre	1000	880	-120
3.	Cost of production at farm level	Rs./40 Kg	3170	3691	522
4.	Marketing cost	-	40	40	0
5.	Cost of production at Market/ ginnery	-	3210	3731	522

Source: Annex-V and VI.

- Punjab

36. During 2020-21, net cost of raising one acre of seed cotton (inclusive land rent) in Punjab is likely to be Rs 76796 (Table-13). Based on an average yield of 800 Kg per acre, cost of production at the farm level works out to Rs 3840 per 40 Kg.

37. For determining ginnery level cost of production per 40 kg, marketing expenses @ are added to the farm level cost of production which gives market/ginnery level cost of Rs 3880 per 40 kg, Rs 522 is more than to Corresponding COP of 2019-20.

- Sindh

38. During 2020-21 crop season, net cost of cultivation of cotton in Sindh including land rent works out to Rs 81210 per acre. Based on an average yield of 880 Kgs per acre, farm level cost of production of cotton is estimated at Rs 3691 per 40 Kg. By adding marketing expenses @ Rs 40 to the farm level COP, mill gate cost of production would be Rs 3731 per 40 Kg – more by Rs. 522/40 Kg than the last year cost of Rs 3210 per 40 Kg.

- Punjab

39. Like 2019-20 Land rent might be the major component of the cost of production of seed cotton in Punjab during 2020-21. It adds to the total cost by 28% followed by fertilizer 13%, plant protection @ 12%, picking charges @ 11%, land preparation 9%, seed and sowing operations and irrigation @ 7%. Other costs consist of mark-up on capital, land tax, management charges, land revenue, 'Drainage Cess' and cutting of cotton sticks. Other costs (all operations other than the above mentioned) lei between 5 and 8 per cent.

- **Sindh**

40. For Sindh, major components of cost of production for 2020-21 crop are expected to be land rent (25%), fertilizer including FYM (15%), Picking Charges (12%), Plant Protection (11%), land preparation (9%), and Other costs (all operations other than the above mentioned) lei between 5 and 8 per cent.

9.1 Cost of major operations and inputs

41. Shares of different production operations/ inputs for 2019-20 and 2020-21 for Punjab and Sindh provinces are shown in Table-14 are described below:

Table-14: Gross Cost of Cultivation of Seed Cotton: 2019-20 and 2020-21 (Cost/acre)

S.No	Inputs/ operations	2019-20	2020-21 (Estimated)
Punjab			
1	Land preparation	6851(9)	7001(9)
2	Seed and sowing operations	5496(8)	5609(7)
3	Irrigation	5626(8)	5712(7)
4	Interculture	3042(4)	3562(5)
5	Plant Protection	7080(10)	8880(12)
6	Fertilizers including FYM	10203(14)	10049(13)
7	Land rent	20000(27)	21333(28)
8	Picking charges	8800(12)	8320(11)
9	Others	5899(8)	6329(8)
10	Gross cost	72997(100)	76796(100)
Sindh			
1	Land preparation	7031(9)	7327(9)
2	Seed and sowing operations	5687(7)	5846(7)
3	Irrigation	5071(6)	5344(7)
4	Interculture	4300(5)	4350(5)
5	Plant Protection	8750(11)	9050(11)
6	Fertilizers including FYM	12145(15)	12216(15)
7	Land rent	20000(25)	20667(25)
8	Picking charges	10000(13)	9900(12)
9	Others	6255(8)	6511(8)
10	Gross cost	79239(100)	81210(100)

- Notes:**
1. Numbers are rounded off to zero decimals due to which calculations may result in slight differences
 2. Figures in parenthesis represent average shares in the gross cost of cultivation per acre.
 - 3 'Other costs' include mark-up on investment, management charges, land revenue, land tax, drainage Cess and cutting of cotton sticks.

10. ECONOMICS OF COTTON AND COMPETING CROPS

42. Farmers' 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.

43. 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.

44. The economics of cotton and competing crops has been analyzed in terms of input-output prices paid and received by the growers during the 2019-20 crop year. The details of the analysis are provided in Annex-VII . A summary of various economic indicators for the Punjab and Sindh is presented in Tables 15 & 16 and depicted at Figures 3 & 4 :

Table- 15: Economics of Cotton and Competing Crops at Prices Realized by the Growers in the Punjab: 2019-20 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	1.14	3.40	346	3777
2. Basmati paddy	1.13	2.30	397	1231
3. IRRI paddy	0.83	1.83	295	856
4. Cotton + Wheat	1.10	3.44	319	3941
5. Cotton + Sunflower	1.11	3.23	330	3151
6. Sugarcane	1.20	3.51	353	2898

Source: Annex-VII

- Punjab

45. Cotton in Punjab has rewarded the farmer with better returns as compared to Basmati and IRRI Paddy in terms of returns to overall investment and other indicators analyzed. In terms of gross revenue per rupee of purchased inputs and irrigation water, cotton's performance was significantly better than both Basmati and IRRI paddy.

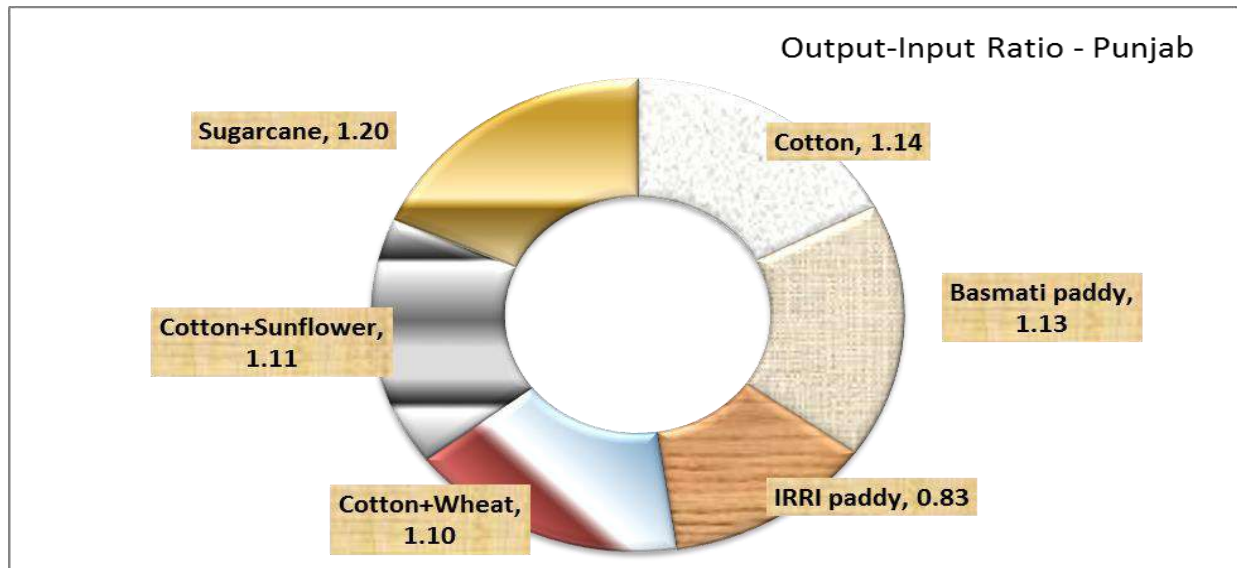


Fig-3 : Returns to Overall Investment in Punjab

46. Basmati paddy could outperform cotton only in terms of returns to crop duration. IRRI (paddy) not only lagged behind Cotton, in any of the criteria adopted for the economic analysis but even failed to return to its farmer the cost of cultivation, as the output input ratio remained below:

47. In case of indirect competition, sugarcane farmers were reported receiving the indicative prices as announced by the provincial government, hence Sugarcane paid relatively better returns over the cotton combination in respect of output-input ratio and purchased inputs cost. Cotton combinations, both with wheat and sunflower performed better returns as compared to the sugarcane crop particularly in terms of irrigation water.

- Sindh

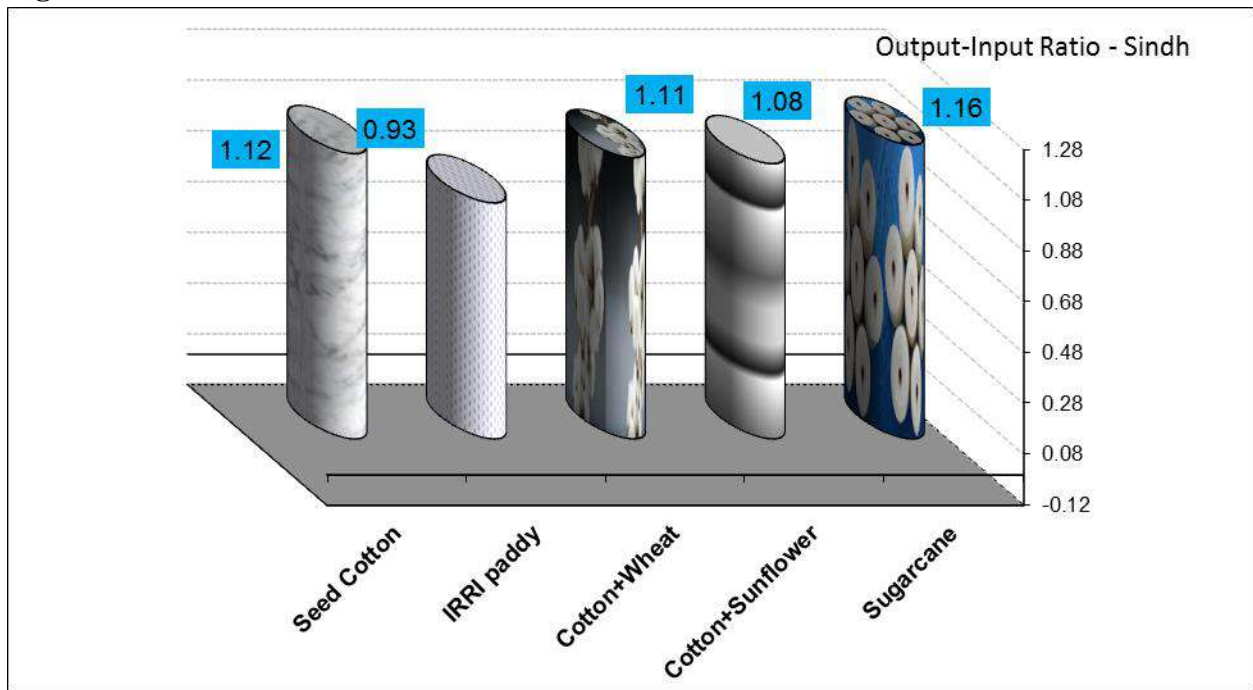
48. In Sindh, cotton farming performed much better than IRRI paddy in terms of all the economic criteria. However, the noticeable point is that Cotton could successfully make it giving back to farmer what the farmer had invested - cost of production, considerably i.e by one-third. This indicates that farmers of the crop received better prices for their produce. However, IRRI growers could not meet their costs mainly for higher input prices, due to discontinuation of fertilizer subsidy scheme.

Table-16: Economics of Cotton and Competing Crops at Prices Realized by the Growers in Sindh: 2019-20 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	1.12	3.31	378	5042
2. IRRI paddy	0.93	2.58	268	862
3. Cotton +Wheat	1.11	3.35	343	4798
4. Cotton +Sunflower	1.08	3.01	309	3240
5. Sugarcane	1.16	3.43	261	1792

Source: Annex-VII.

49. In case of indirect competition, Sugarcane farming has shown better return over the Cotton combination with Wheat or Sunflower in respect of certain economic criteria like overall investment and purchased inputs. However, in term of crop duration and irrigation water, both the cotton combinations have performed hugely over the sugarcane .

Fig- 4 : Returns to Overall Investment in 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 2015-16 to 2019-20 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 2015-16 to 2019-20 are shown in Table-17 below and depicted in Figure-5.

Table-17: Nominal and Real Market Prices of Seed Cotton (Phutti) in the Punjab: 2015-16 to 2019-20

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2015-16= 100	---- Rs per 40 kgs - 4 = (2/3)x100
1	2	3	4 = (2/3)x100
2015-16	2626	100.00	2626
2016-17	3090	104.81	2948
2017-18	3133	109.72	2855
2018-19	3776	116.35	3245
2019-20	3932	130.33	3017

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

Sources: For CPI, Economic Survey of Pakistan 2019-20.

52. The nominal market price of seed cotton has experience overall rise of 50 per cent during the study period. Deflating against the cumulative increase in CPI by 30.33 per cent over the same period.

53. During the period under review, the real market price has experienced fluctuations, touching the lowest level of Rs.2626 per 40 kgs in 2015-16 and in terms of real value the highest level of Rs 3245 per 40 kgs in 2018-19.

54. During 2019-20, the nominal market price averaged at Rs 3932 per 40 kgs, which is high by the previous year. Consequently, the real value of seed cotton improved by over the previous year, now this year the real prices of seed cotton is 15 per cent increases than base year level. The real price of seed cotton in 2019-20 decrease (-)7 per cent lower than the previous year.

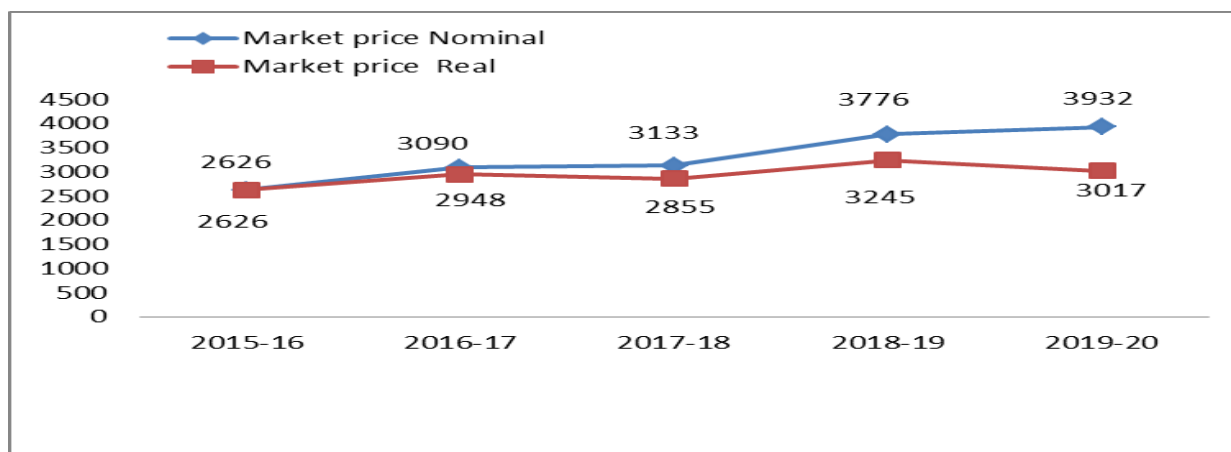


Fig- 5: Nominal and real market prices of seed cotton (Phutti) in Punjab 2015-16 to 2019-20

11.2 At Market Prices of Seed Cotton in Sindh

55. The nominal and real market prices of seed cotton in Sindh for 2015-16 to 2019-20 are presented in Table-18 and depicted in Figure-6.

56. It may be seen from Table-19, that there seems a steady growth trend during 2015-16 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 2461 per 40 kgs in 2015-16 shot up by 21 per cent to Rs 2968 per 40 kgs in 2016-17. The price Rs 2955 per 40 kgs is decline 2017-18 against the previous year. After that 2018-19 and 2019-20 the prices are showing rising trend respectively.

Table-18: Nominal and Real Market Prices of Seed Cotton (Phutti) in Sindh: 2015-16 to 2019-20

Crop year	Nominal Market Prices	Consumer Price Index (CPI)	Real Market Prices
	Rs per 40 kgs	2015-16= 100	----- Rs per 40 kgs - ----- 4= (2/3)x100
1	2	3	4
2015-16	2461	100.00	2461
2016-17	2968	104.81	2832
2017-18	2955	109.72	2693
2018-19	3637	116.35	3126
2019-20	3634	130.33	2788

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, Economic Survey of Pakistan, 2019-20.

57. The real market price has experienced same fluctuations, touching the highest value of Rs 3126 per 40 kgs in 2018-19 and the lowest level of Rs 2461 per 40 kgs in 2015-16 over the base line value. In 2019-20, the price, however, evidenced (-11 %) decrease than the previous year and 13 per cent increase against the base year.

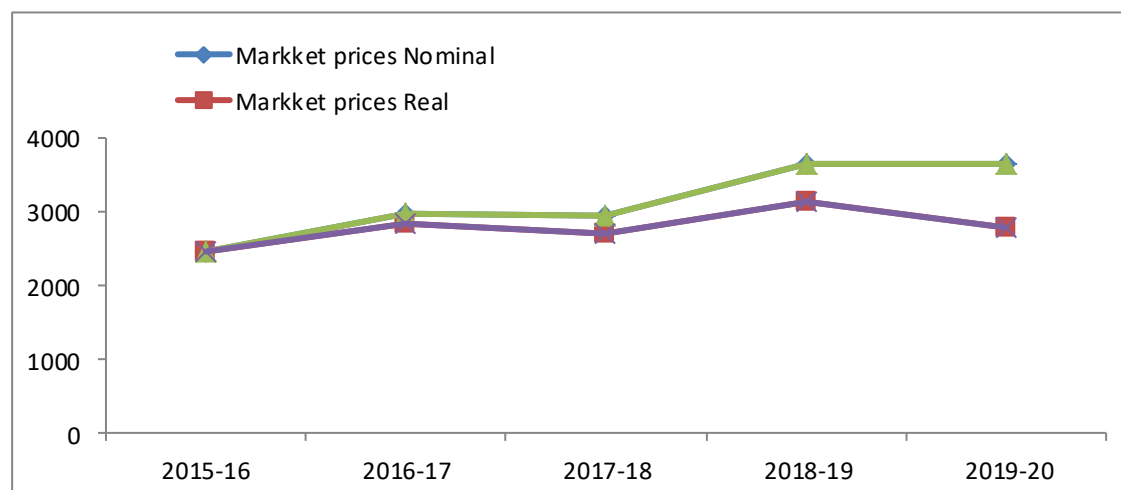


Fig-6: Nominal and real market prices of seed cotton (Phutti) in Sindh 2015-16 to 2019-20

58. Due to high inflationary trend throughout the period under review. In large part of the analysis the real prices look not much favourable to cotton grower. However, in the last year the nominal as well as real prices have paid the farmers better return. It is important that as the cotton is the largest cash crop, it farmers should be encouraged to receive regarding returns to keep him in the business.

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

59. The global production of cotton during 2018-19 is estimated at 25.69 million tonnes which is slightly lower, 0.99 per cent, than the production of 26.68 million tonnes in 2017-18. According to International Cotton Advisory Committee (ICAC), February 14, 2020 issue world production during 2019-20, is forecast to increase by 1.12 per cent to the level of 25.98 million tonnes. Accounting for the opening stocks of 18.71 million tonnes, total supply in 2018-19 worked to 44.40 million tonnes, -1.68 per cent lower than 2017-18.

60. The world consumption of cotton during 2018-19 estimated at 26.09 million tonnes, is 0.94 per cent lower than the last year level. For 2019-20, cotton consumption forecast 26.20 million tones, slightly higher 0.42 per cent than 2018-19.

61. The end year stocks during 2018-19 estimated at 18.27 million tonnes, -2.35 per cent lower than level of previous year which are forecast to further decrease by -1.20 million tonnes in 2019-20. The details are provided in Table-19.

Table-19: World Production, Consumption, Stocks and Trade in Cotton: 2018-19 to 2020-21

S.No.	Item	2018-19	2019-20	2020-21
		(Actual)	(Estimated)	(Projection)
----- Million tonnes -----				
1.	Opening stocks	18.48	18.71	18.27
2.	Production	26.68	25.69	25.98
3.	Total supply (1+2)	45.16	44.40	44.25
4.	Likely consumption	26.34	26.09	26.20
5.	Trade imbalance and stocks adjustment *	(-)0.12	(+)0.01	(-)0.01
6.	Closing stocks (3-4+5)	18.71	18.27	18.05

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 ICAC, February 14,2020

13. INTERNATIONAL PRICES OF INDEX-A COTTON

62. The international prices of Index- A during 2011-12 to 2019-20 are placed in Annex-VIII.

63. The prices of Index-A cottons showed a volatile and widely fluctuated pattern during the period under review. These prices have averaged at US Cent 99.75 per pound in 2011-12. In next year these prices decreased and averaged at US Cent 87.84 but again increased to US Cent 90.53 per pound during 2013-14.

64. During 2014-15 and 2015-16, the prices showed declining trend and reached at US Cent 70.30 per pound, the lowest level of price during period under review. From next two year prices started recovering and averaged at US Cent 87.98 per pound during 2017-18, but again declined to US Cent 84.36 per pound during 2018-19.

65. During current year 2019-20 (August-Jan), the prices of Index-A cottons are showing a declining trend and averaged at US Cent 74.26 per pound.

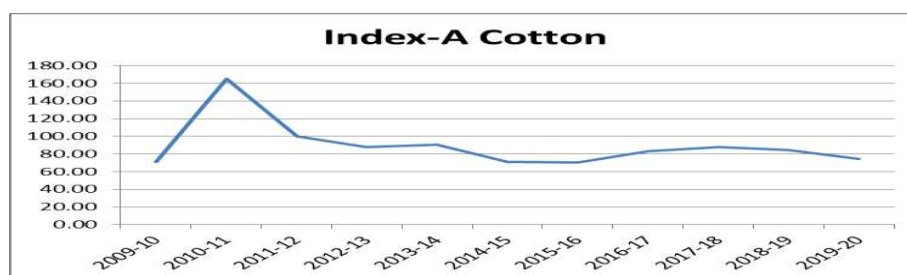


Figure – 7: Index-A Cotton

14. EXPORT AND IMPORT PARITY PRICES

66. 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.

67. The export and import parity prices of seed cotton have been analysed 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-20.

Table-20: 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 2019-20 (Aug-Jan)	57.54	3,328
	- During 2016-17 to 2018-19	71.53	3,962
	ii) Future's contract prices of New York No.2 cotton (average of Oct, Dec and March 2020)	68.08	3,353
2.	Import parity prices based on average:		Rs/40 kgs
	i) Actual cif (Karachi) prices of imported cotton:		
	- During 2019-20 (Aug-Jan)	10,126	
	- During 2016-17 to 2018-19	8,552	4,380
		US cents/lb	3,835
	ii) Index-A Cottons		
	- During 2019-20 (Aug-Jan)	74.26	
	- During 2016-17 to 2018-19	85.05	4,581
			5,120

Sources: Annex-VIII to XII.

15. ECONOMIC EFFICIENCY OF SEED COTTON PRODUCTION IN PAKISTAN

68. 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?

69. 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

70. 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.

71. In the following paragraphs results of analysis (NPC, EPC, DRC estimates) are described to explain effect of input/output pricing policies during 2019-20 for assessing efficiency of different resources used in production of the 2019-20 cotton crop. Estimation procedures are described in detail along with the respective Annex.

15.2 Nominal Protection Coefficient (NPC)

72. 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.

73. 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 (though with small margin) except in 2016-17 and 2018-19 for Punjab and 2018-19 for Sindh. From these estimates, it may be deduced that on the whole cotton growers in Pakistan have some degree of price protection. During the period 2015-16 to 2017-18 and 2019-20 they remained taxed as NPC was less than one. The 2018-19 domestic prices exceeded the corresponding export parity prices; thus NPC value for this year exceeded one. It reflects price incentive for increasing cotton production in Pakistan.

74. The 2019-20 crop, NPC values for both cotton producing provinces (Punjab, Sindh) decreased against 2018-19. It reflects that during 2019-20, price of cotton in the domestic market increased due to high prices of the international market.

15.3 Effective Protection Coefficient (EPC)

75. 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 export situation are presented in Table-20. EPC values during the period 2015-16 to 2017-18 show cyclical behavior. During earlier years of analysis, EPC remained considerably below one while in 2018-19 the estimate exceeded for Punjab and Sindh. For 2019-20, 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)

76. 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.

77. 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 during the period of 2015-16 to 2019-20. Data on private and social profitability in background of the above estimates are produced in Annex-XIII and XIV.

78. 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-21: Economic Efficiency Parameters Based on Export Parity Prices

Province/Year	NPC	EPC	DRC	Cost of DR to earn /save	Exchange rate Rs./US \$
Punjab					
2015-16	0.79	0.58	0.92	95.4	104.2
2016-17	1.02	0.94	0.88	91.7	104.7
2017-18	0.94	0.82	0.82	90.4	109.8
2018-19	1.06	1.01	0.65	87.6	134.4
2019-20	0.99	0.91	0.68	106.3	156.3
Sindh					
2015-16	0.81	0.65	0.75	78.3	104.2
2016-17	0.93	0.82	0.71	73.9	104.7
2017-18	0.88	0.73	0.80	87.6	109.8
2018-19	1.06	1.02	0.61	82.3	134.4
2019-20	0.91	0.81	0.64	100.6	156.3

15.5 Under Import Scenario

79. Under import scenario values of both NPC and EPCs are below one throughout the analysis period (Table-22). 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-22: 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					
2015-16	0.67	0.46	0.72	75.47	104.2
2016-17	0.67	0.45	0.76	79.95	104.7
2017-18	0.65	0.42	0.76	83.49	109.8
2018-19	0.88	0.78	0.65	87.30	134.4
2019-20	0.90	0.80	0.60	93.13	156.3
Sindh					
2015-16	0.69	0.52	0.60	62.75	104.2
2016-17	0.84	0.72	0.63	66.3	104.7
2017-18	0.83	0.67	0.74	80.9	109.8
2018-19	0.88	0.79	0.48	64.2	134.4
2019-20	0.83	0.71	0.56	88.3	156.3

16. COTTON YIELD AMONG COMPETING COUNTRIES

80. Globally, the cotton crop occupied an area of 32.42 million hectares during 2018 with a total production of 71 million tonnes. The world top 30 cotton producing countries contribute 96.9 per cent of total area and 98.3 per cent of total production.

81. India ranks on the top with 12.35 million hectares, followed by USA and China with 4.26 and 3.35 million hectares. Pakistan occupies 5th position with 2.37 million hectares in this regard as narrated in the following Table -23.

82. In terms of cotton production, India is on the top with 17.71 million tonnes due to highest 24.95 % share in world area and China with 14.66 million tones, followed by USA with 11.43 million tonnes. However, Pakistan retains 5th position in cotton production with 4.83 million tonnes in the world.

Table-23: Cotton Area in Major Seed Cotton Producing Countries of the World: 2018 crop

S.No.	Country	Area in (000) hectares	per cent share in world area
1	India	12350.0	38.10
2	United States of America	4261.6	13.15
3	China, mainland	3354.4	10.35
4	Pakistan	2373.0	7.32
5	Brazil	1148.5	3.54
6	Uzbekistan	1108.2	3.42
7	Benin	600.0	1.85
8	Mali	577.8	1.78
9	Turkmenistan	535.0	1.65
10	Turkey	518.6	1.60
11	Australia	485.1	1.50
12	Burkina Faso	473.4	1.46
13	Cote d'Ivoire	370.0	1.14
14	United Republic of Tanzania	350.9	1.08
15	Argentina	319.3	0.98
16	Nigeria	316.3	0.98
17	Greece	265.5	0.82
18	Mexico	240.6	0.74
19	Cameroon	229.2	0.71
20	Tajikistan	185.8	0.57
21	Togo	180.3	0.56
22	Myanmar	164.2	0.51
23	Syrian Arab Republic	144.9	0.45
24	Egypt	140.0	0.43
25	Kazakhstan	132.6	0.41
26	Azerbaijan	132.5	0.41
27	Bolivia (Plurinational State of)	126.0	0.39
28	Chad	120.0	0.37
29	Zambia	106.9	0.33
30	Ethiopia	106.0	0.33
Total of 30 top producing countries		31416.42	96.91
Total World Area		32979.140	100

Source: FAO Production Year Book 2018.

83. India has the largest area under cotton in the world representing almost 38 percent of the world cotton area. However, its production is very low as compared to other major cotton producing countries. The main reason is its low per acre productivity. Table - 24.

Table-24: Cotton Production in Major Seed Cotton Producing Countries of the World: 2018 Crop

S. No	Country	Production in (000) tonnes	Per cent share in world Production
1	China, mainland	17711.96	24.945
2	India	14657.00	20.643
3	United States of America	11429.94	16.098
4	Brazil	4930.52	6.944
5	Pakistan	4828.44	6.800
6	Turkey	2570.00	3.620
7	Australia	2500.00	3.521
8	Uzbekistan	2293.04	3.229
9	Mexico	1162.60	1.637
10	Greece	837.43	1.179
11	Argentina	813.69	1.146
12	Benin	758.00	1.068
13	Mali	750.00	1.056
14	Turkmenistan	618.20	0.871
15	Burkina Faso	482.17	0.679
16	Kazakhstan	343.62	0.484
17	Cote d'Ivoire	316.16	0.445
18	Myanmar	313.34	0.441
19	Egypt	310.98	0.438
20	Tajikistan	300.34	0.423
21	Nigeria	270.53	0.381
22	Cameroon	249.16	0.351
23	United Republic of Tanzania	238.00	0.335
24	Azerbaijan	233.59	0.329
25	Sudan	160.00	0.225
26	Spain	156.00	0.220
27	Iran (Islamic Republic of)	152.45	0.215
28	Ethiopia	140.00	0.197
29	Togo	127.46	0.180
30	Chad	120.00	0.169
Total of 30 top producing countries		69774.6	98.27
Total World Production		71003.8	100.00

Source: FAO Production Year Book 2018

84. Pakistan ranks 5th in terms of production of cotton but lies at 24th position in terms of yield during 2018. It implies that there is a lot of potential to enhance cotton productivity per

hectare in Pakistan. It is an alarming situation and deserve special attention by all concerned quarters. The cotton yield in Pakistan is at 2035 kgs per hectare, in India at 1187 kgs. However, the Yield of cotton in Pakistan is close to the world average at 2290 kgs per hectare as narrated in Table-25.

Table-25: Yield Per Hectare Of Major Seed Cotton Producing Countries In The World: 2018 Crop

S.No.	Country	Yield per Hactare in Kgs	S.No.	Country	Yield per Hactare in Kgs
1	China, mainland	5280	23	Uzbekistan	2069
2	Australia	5154	24	Pakistan	2035
3	Turkey	4955	25	Botswana	2000
4	Mexico	4833	26	Paraguay	2000
5	Brazil	4293	27	Sudan	1951
6	Colombia	3908	28	Democratic People's Republic of Korea	1944
7	Bangladesh	3655	29	Myanmar	1908
8	Israel	3609	30	Iraq	1901
9	Kyrgyzstan	3242	31	Angola	1833
10	Lao People's Democratic Republic	3181	32	Honduras	1818
11	Greece	3154	33	Azerbaijan	1763
12	Guatemala	3064	34	Tajikistan	1616
13	Peru	2942	35	Thailand	1497
14	South Africa	2750	36	Uganda	1370
15	United States of America	2682	37	Cambodia	1330
16	Kazakhstan	2592	38	Ethiopia	1321
17	Argentina	2548	39	Mali	1298
18	Nicaragua	2445	40	Ecuador	1294
19	Spain	2396	41	Benin	1263
20	Iran (Islamic Republic of)	2282	42	El Salvador	1222
21	Egypt	2221	43	India	1187
22	Morocco	2087			
	World Average				2190

Source: FAO Production Year Book 2018

17. COTTON VARIETIES AND YIELD POTENTIAL IN PAKISTAN

85. Cotton is essentially produced for its fiber, which is used as a textile raw material. Cotton is an important commodity in the world economy and a heavily traded agricultural commodity. It contributes significantly in foreign exchange earnings. It has a 0.8 percent share in GDP and contributes 4.1 percent in agriculture value addition. Around two-thirds of the country's export earnings are from the cotton made-ups and textiles.

86. Pakistan is world's 5th largest cotton producer and a leading exporter of yarn in the world. In terms of yield, Pakistan ranked 2nd in the South Asia. During 2019-20, cotton production is estimated at around 9.178 million bales which lower by 6.9 per cent over the last year production of 9.861 million bales. The Punjab and Sindh are the major cotton growing provinces, and a decrease of -13.6 percent over the last year's production of 10.420 million bales has recorded. This decrease is mainly due to unfavourable weather and low water availability.

87. Various cotton varieties sown in Pakistan in various ecological zones along with yield potential are presented in the table. Above hundred varieties are grown in the country. The table shows the data of 8 varieties from the year 2016 to 2019. The yield potential of these varieties ranges from 3954 kgs to 4942 kgs per hectare.

Table-26: Cotton Varieties and Yield Potential In Pakistan

S.NO	NAME OF VARIETY	(KGs/hect.)	Year of Release
1.	CYTO-124	4448	2016
2.	CIM-620	3954	2016
3.	BT.CYTO-178	4942	2016
4.	BT.CIM-600	4448	2017
5.	BT.CIM-177	3954	2017
6.	BT.CIM-179	4448	2017
7.	CIM-610	3954	2018
8.	BT.CIM-632	4942	2018

Source: Pakistan Central Cotton Research Institute, Multan

18 ACKNOWLEDGEMENT

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**PROVINCE-WISE AREA (HECTARES), PRODUCTION AND YIELD OF COTTON
IN PAKISTAN : 2009-10 TO 2019-20**

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALUCHISTAN	PAKISTAN
AREA ----- 000 hectares -----					
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	2322.9	596.2	0.97	41.2	2961.3
2015-16	2242.7	621.2	0.40	37.6	2901.9
2016-17	1815.3	636.6	0.40	36.8	2489.1
2017-18	2052.9	611.7	0.17	35.5	2700.3
2018-19	1887.8	448.2	0.16	36.8	2373.0
2019-20	1889.4	598.0	0.10	38.0	2525.5
YIELD ----- Kgs per hectare -----					
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	1055	497	442	774
2014-15	753	1019	517	442	802
2015-16	481	952	510	442	581
2016-17	654	961	510	440	729
2017-18	669	1050	530	442	752
2018-19	615	1115	510	443	707
2019-20	601	763	1089	442	637
PRODUCTION ----- 000 bales -----					
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	3523.4	0.76	99.7	12768.9
2014-15	10277.0	3572.5	2.95	107.1	13959.6
2015-16	6343.0	3475.6	1.20	97.6	9917.4
2016-17	6978.0	3596.9	1.20	95.1	10671.2
2017-18	8077.0	3775.8	0.53	92.3	11945.6
2018-19	6826.0	2938.4	0.48	95.9	9860.8
2019-20	6671.0	2682.4	0.64	98.7	9452.7

Sources: 1- For 2009-10 to 2017-18 : Policy Analysis Report for Seed Cotton: 2017-18 Crop
2- For 2018-19: Final estimates provided by respective Provincial Agriculture Departments
3- For 2019-20: Second estimates provided by respective Provincial Agriculture Departments

**PROVINCE-WISE AREA (ACRES), PRODUCTION AND YIELD OF COTTON
IN PAKISTAN : 2009-10 TO 2019-20**

YEAR	PUNJAB	SINDH	KHYBER PUKHTUNKHWA	BALUCHISTAN	PAKISTAN
AREA ----- 000 acres -----					
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	5740.1	1473.3	2.40	101.8	7317.6
2015-16	5541.9	1535.0	0.99	92.9	7170.9
2016-17	4485.8	1573.1	0.99	90.9	6150.8
2017-18	5072.9	1511.6	0.42	87.7	6672.6
2018-19	4664.9	1107.5	0.40	90.9	5863.8
2019-20	4668.9	1477.7	0.25	93.9	6240.8
YIELD ----- Kgs per acre -----					
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	427	201	179	313
2014-15	305	412	209	179	324
2015-16	195	385	206	179	235
2016-17	265	389	206	178	295
2017-18	271	425	215	179	305
2018-19	249	451	206	179	286
2019-20	243	309	441	179	258
PRODUCTION ----- 000 bales -----					
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	3523.4	0.76	99.7	12768.9
2014-15	10277.0	3572.5	2.95	107.1	13959.6
2015-16	6343.0	3475.6	1.20	97.6	9917.4
2016-17	6978.0	3596.9	1.20	95.1	10671.2
2017-18	8077.0	3775.8	0.53	92.3	11945.6
2018-19	6826.0	2938.4	0.48	95.9	9860.8
2019-20	6671.0	2682.4	0.64	98.7	9452.7

Sources:

- 1- For 2009-10 to 2017-18 : Policy Analysis Report for Seed Cotton: 2017-18 Crop
- 2- For 2018-19: Final estimates provided by respective Provincial Agriculture Departments
- 3- For 2019-20: Second estimates provided by respective Provincial Agriculture Departments

**DISTRICT- WISE AREA, YIELD AND PRODUCTION OF SEED COTTON
PUNJAB AND SINDH: AVERAGE OF 2017-18 TO 2019-20**

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

S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield
<u>PUNJAB</u>					
1	Bahawalpur	266.22	1028.66	9.87	657
2	Bahawalnagar	221.56	741.25	7.11	569
3	Lodhran	169.20	676.34	6.49	680
4	Khanewal	171.36	666.99	6.40	662
5	R.Y.Khan	163.13	648.56	6.22	676
6	Rajapur	140.33	644.00	6.18	780
7	Vehari	166.90	615.92	5.91	627
8	Multan	145.86	557.20	5.35	649
9	Muzaffargarh	141.41	449.67	4.32	541
10	D.G.Khan	94.59	366.75	3.52	659
11	Sahiwal	59.64	190.36	1.83	543
12	Layyah	41.29	134.63	1.29	554
13	Mianwali	35.08	111.06	1.07	538
14	Pakpattan	23.20	81.86	0.79	600
15	T.T.Singh	24.42	61.00	0.59	425
16	Bhakkar	18.89	60.64	0.58	546
17	Faisalabad	18.75	54.47	0.52	494
18	Jhang	18.62	43.01	0.41	393
19	Okara	10.25	33.96	0.33	563
20	Kasur	5.13	12.69	0.12	420
21	Sargodha	4.31	7.54	0.07	297
22	Chiniot	1.21	2.62	0.03	367
23	M.B.Din	0.81	0.73	0.01	153
24	Khushab	0.53	0.63	0.01	201
25	Jhelum	0.40	0.38	0.00	163
26	Sheikhupura	0.13	0.26	0.00	336
27	Nankana Sahib	0.13	0.16	0.00	204
	Sub Total Punjab	1943.38	7191.33	69.02	629

SINDH

1	Sanghar	99.32	601.37	5.77	1029
2	Ghotki	95.23	581.99	5.59	1039
3	Khairpur	72.31	401.15	3.85	943
4	Nawabshah	62.11	368.77	3.54	1009
5	N.Feroze	40.41	235.19	2.26	989
6	Matiari	38.92	219.34	2.11	958
7	Sukkur	36.72	214.98	2.06	995
	Tando				
8	Allaahyar	20.59	105.25	1.01	869
9	Mirpurkhas	20.49	93.11	0.89	773
10	Jamshoro	14.28	72.31	0.69	861
11	Umerkot	15.12	63.31	0.61	712
12	Dadu	10.57	60.73	0.58	977
13	Hyderabad	6.07	31.05	0.30	870
14	Badin	8.06	30.79	0.30	649
15	Thatta	5.93	23.27	0.22	668
	Tando				
	Muhammad				
16	Khan	3.54	17.77	0.17	853
17	Larkana	1.82	7.26	0.07	676
18	Tharparkar	0.49	1.87	0.02	646
19	Karachi	0.44	1.81	0.02	690
20	Shikarpur	0.21	0.85	0.01	706
Sub Total Sindh		552.62	3132.19	30.06	964
Sub Total of Khyber Pukhtunkhwa		0.14	0.55	0.01	653
Sub Total of Balochistan		36.76	95.63	0.92	442
Total of Pakistan		2532.91	10419.70	100.00	700

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

Sources: Respected Agriculture Provincial Department

**PROFITABILITY OF FERTILIZER USE ON SEED COTTON
AT THE MARKET PRICE: 2019-20**

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 1062.50 per nutrient kg (i.e. Rs 163.04,126.79 and Rs.128.00 per nutrient kg of N,P and K at the recommended NPK ratio of 2:1:1(a)	1062.50	1062.50	1062.50	1062.50
3	Indirect cost due to the application of additional fertilizer as detailed below(b)	502.95	586.25	680.35	764.55
	3.1 Transportation and application charges of 20 kgs of fertilizer @ Rs 105 per bag of fertilizer	42.0	42.0	42.0	42.0
	3.2 Picking charges for additional produce @ Rs 433.0 per 40 kgs	324.7	400.5	487.1	563.8
	3.3 Marketing charges for additional produce @ Rs 40.0 per 40 kgs	30.0	37.5	45.0	52.5
	3.4 Mark up on direct cost of fertilizer (item2+3.1) for 6 months @ 14.5 % per annum	106.25	106.25	106.25	106.25
4	Total additional cost (item 2+3)	1565.4	1648.7	1742.8	1827.0
5	Value of additional produce @ Rs 3783.0 per 40 kgs(c)	2837.2	3546.5	4255.8	4965.1
6	Benefit cost ratio (item 5 divided by item 4)	1.81	2.15	2.44	2.71

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 2019-20 crop taken respectively as Rs 1875, 3650 and 3200 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 2019-20 crop.
- c) Average market prices of seed cotton for 2020-21 crop in the Punjab and Sindh during September to January, 2020 have been used.
- d) Punjab and Sindh average prices are 3783.0 per 40 kgs.

AVERAGE FARMER COST OF PRODUCTION OF SEEDCOTTON IN PUNJAB: 2019-20 TO 2020-21 CROPS

S. No	Operations / Inputs	Average No. of oprs/units/ acre	2019-20 crop		2020-21 crop	
			Cost per unit	Cost per acre	Cost per unit	Cost per acre
1	2	3	4	5 =3*4	6	7 =3*6
1	Land preparation:	Rs.....			
	1.1 Rotavator/disc plough	1.000	1,500.00	1,500.00	1,550.00	1,550.00
	1.2 Ploughing	3.000	830.00	2,490.00	830.00	2,490.00
	1.3 Planking	0.480	400.00	192.00	400.00	192.00
	1.4 Ploughing + planking	1.000	830.00	830.00	830.00	830.00
	1.5 Tractor levelling (hrs)	0.770	830.00	639.10	830.00	639.10
	1.6 Laser levelling	1.000	1,200.00	1,200.00	1,300.00	1,300.00
2	Seed and sowing operations:					
	2.1 Seed used (kgs)	10.000	295.00	2,950.00	300.00	3,000.00
	2.2 Ploughing + planking	1.000	830.00	830.00	830.00	830.00
	2.2.1 Ridging including soil removal from ends of ridges	0.680	930.00	632.40	950.00	646.00
	2.2.2 Drilling	0.040	830.00	33.20	830.00	33.20
	2.2.3 Manual labour for sowing (on contract)			1,050.00		1,100.00
3	Irrigation: * (Nos)					
	3.1 Canal	7.000		95.72		95.72
	3.2 Private tubewell (Rs./irrigation)	4.000	950.00	3,800.00	950.00	3,800.00
	3.3 Labour for irrigation and water course cleaning (M. days)	3.460	500.00	1,730.00	525.00	1,816.50
4	Interculture:					
	4.1 With tractor (hr/ acre)	1.400	830.00	1,162.00	830.00	1,162.00
	4.2 Manual weeding/ thinning on contract	1.200	1,567.00	1,880.40	2,000.00	2,400.00
5	Plant protection including application cost (weedicide+pesticides)	6.000	900.00	5,400.00	1,200.00	7,200.00
6	Farm Yard Manure including transport and application cost	0.560	3,000.00	1,680.00	3,000.00	1,680.00
7	Fertilizers: (bags)					
	7.1 DAP	1.000	3,655.00	3,655.00	3,600.00	3,600.00
	7.2 SOP	0.160	4,000.00	640.00	3,200.00	512.00
	7.3 NPK	0.040	3,100.00	124.00	3,100.00	124.00
	7.4 Urea	2.000	1,820.00	3,640.00	1,900.00	3,800.00
	7.5 CAN	0.240	1,620.00	388.80	1,700.00	408.00
	7.6 NP	0.440	2,930.00	1,289.20	2,590.00	1,139.60
	7.7 Fertilizer transport and application	3.880	120.00	465.60	120.00	465.60
	GROSS EXPENDITURE		38,201.70		40,718.00	
8	Mark up on investment on item 1 to 7 excluding item 3(1) @14.5 % per annum for 6 months			4,431.40		4,723.29
9	Management charges for 8 months			1,375.00		1,512.50
10	Land rent for 8 months		30,000.00	20,000.00	32,000.00	21,333.33
11	Average weighted land tax @ Rs 132/acre/annum for 8 months		132.00	88.00	132.00	88.00
12	Land revenue including local rate, chaukidara etc			5.00		5.00
13	Payment to pickers (Rs./40 Kg)		400.00	8,800.00	416.00	8,320.00
14	Total cost (Item1-13)			72,996.82		76,795.84
15	Yield per acre (kgs)			880.00		800.00
16	Cost of production at farm level: (Rs/40 kgs)					
	16.1 Including land rent			3,318.04		3,839.79
	16.2 Excluding land rent			2,408.95		2,773.13
17	Marketing cost (Rs/40 kgs)			40.00		40.00
18	Cost of production at market/ginnery					
	18.1 Including land rent			3,358.04		3,879.79
	18.2 Excluding land rent			2,448.95		2,813.13

Source:

1. API field survey data, Feb 2020

2. For yield, average of 2020-21 Field survey data by API.

Notes:

Cost of production for 2020-21 rose primarily due to increase in prices of pesticides, diesel and decline in average yield.

AVERAGE FARMERS' COST OF PRODUCTION OF SEED COTTON IN SINDH: 2019-20 TO 2020-21 CROPS

S. No	Operations / Inputs	Average No. of oprs/units/ acre	2019-20 crop		2020-21 crop	
			Cost per unit	Cost per acre	Cost per unit	Cost per acre
1	2	3	4	5 =3*4	6	7 =3*6
.....Rs.....						
1	Land preparation:					
	1.1 Deep ploughing	0.410	2100.00	861.00	2150.00	881.50
	1.2 Ploughing (cultivator plus gobar)	3.000	1100.00	3300.00	1150.00	3450.00
	1.3 Ploughing + planking	1.000	1100.00	1100.00	1150.00	1150.00
	1.4 Planking	1.000	550.00	550.00	575.00	575.00
	1.5 Tractor levelling (hrs)	1.000	1100.00	1100.00	1150.00	1150.00
	1.6 Laser levelling	0.100	1200.00	120.00	1200.00	120.00
2	Seed and sowing operations:					
	2.1 Seed used (kgs)	10.000	300.00	3000.00	300.00	3000.00
	2.2 Ploughing plus planking	0.160	1100.00	176.00	1150.00	184.00
	2.3 ridging including soil removal from ends of ridges	1.000	1100.00	1100.00	1150.00	1150.00
	2.4 drilling	0.010	1100.00	11.00	1150.00	11.50
	2.5 manual sowing (on contract)			1400.00		1500.00
3	Irrigation: * (Nos)					
	3.1 Canal	6.000	0.00	93.09	0.00	93.09
	3.2 Private tubewell (Rs./irrigation)	2.500	825.00	2062.50	850.00	2125.00
	3.3 Mixed	0.413	825.00	340.73	850.00	351.05
	3.3 Lift	1.000	825.00	825.00	850.00	850.00
	3.3 Labour for irrigation and water course cleaning (M. days)	3.500	500.00	1750.00	550.00	1925.00
4	Interculture:					
	4.1 With tractor	1.000	1100.00	1100.00	1150.00	1150.00
	4.2 Manual weeding/ thinning on contract	2.000	1600.00	3200.00	1600.00	3200.00
5	Plant protection including application cost (weedicid+pesticides)	6.000	1200.00	7200.00	1250.00	7500.00
6	Farm Yard Manure including transport and application cost	0.500	3100.00	1550.00	3100.00	1550.00
7	Fertilizers: (bags)					
	7.1 DAP	1.000	3700.00	3700.00	3700.00	3700.00
	7.2 NPK	0.067	3100.00	207.70	3000.00	201.00
	7.3 Urea	4.000	1820.00	7280.00	1850.00	7400.00
	7.4 CAN	0.240	1620.00	388.80	1480.00	355.20
	7.5 NP	0.030	2930.00	87.90	2650.00	79.50
	7.6 Fertilizer transport and application	5.337	90.00	480.33	90.00	480.33
	GROSS EXPENDITURE		42890.96		44039.08	
8	Mark up on investment on item 1 to 7 excluding item 3(1) @ 14.5 % per annum for 8 months			4146.13		4257.11
9	Management charges for 8 months			2000.00		2000.00
10	Land rent for 8 months		30000.00	20000.00	31000.00	20666.67
11	Average weighted land tax @ Rs 200/acre/annum for 8 months		132.00	88.00	350.00	233.33
12	Land revenue including local rate, chaukidara etc			5.00		5.00
13	Drainage Cess @ Rs 24/annum for 8 months			16.00		16.00
13	Payment to pickers (Rs./40 Kg)		400.00	10000.00	450.00	9900.00
14	Total cost (Item1-13)			79239.17		81210.28
15	Yield per acre (kgs)			1000.00		880.00
16	Cost of production at farm level: (Rs/40 kgs)					
	16.1 Including land rent			3169.57		3691.38
	16.2 Excluding land rent			2369.57		2751.98
17	Marketing cost (Rs/40 kgs)			40.00		40.00
18	Cost of production at market/ginnery					
	18.1 Including land rent			3209.57		3731.38
	18.2 Excluding land rent			2409.57		2791.98

Source:

API field survey data Feb 2020

For yield, average of Crop Reporting Service, Sindh and API Field survey.

Notes:

Cost of production estimates for 2020-21 increased primarily due to increase in prices of pesticides, diesel and decline in yield.

Annex-												
ECONOMICS OF SEED COTTON AND COMPETING CROPS AT												
PRICES REALIZED BY THE GROWERS: 2019-20 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		
		Days	Acre inchesRupees per acre.....					RatioRupees.....		
		2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3
<u>Punjab</u>												
1	Seed Cotton	240	22	73136	24409	83089	58680	9953	1.14	3.40	346	3777
2	Basmati Paddy	180	58	62905	31003	71390	40387	8485	1.13	2.30	397	1231
3	IRRI Paddy	180	62	63820	29022	53075	24053	-10745	0.83	1.83	295	856
4	Wheat	180	12	48303	14558	50919	36361	2616	1.05	3.50	283	4243
5	Sunflower (spring)	180	22	51601	18548	55538	36989	3937	1.08	2.99	309	2524
6	Seed Cotton + Wheat	420	34	121439	38968	134008	95040	12569	1.10	3.44	319	3941
7	Seed Cotton+Sunflower	420	44	124737	42957	138627	95669	13889	1.11	3.23	330	3151
8	Basmati Paddy+Wheat	360	70	111208	45561	122309	76748	11101	1.10	2.68	340	1747
9	Basmati Paddy+Sunflower	360	80	114506	49551	126927	77376	12422	1.11	2.56	353	1587
10	IRRI Paddy + Wheat	360	74	112124	43581	103994	60413	-8130	0.93	2.39	289	1405
11	IRRI Paddy+Sunflower	360	84	115421	47571	108613	61042	-6809	0.94	2.28	302	1293
12	Sugarcane	394	48	116197	39651	139103	99452	22906	1.20	3.51	353	2898
<u>Sindh</u>												
1	Seed Cotton	240	18	80876	27403	90757	63354	9881	1.12	3.31	378	5042
2	IRRI Paddy	180	56	52012	18745	48295	29550	-3717	0.93	2.58	268	862
3	Wheat	180	12	49199	15595	53184	37589	3985	1.08	3.41	295	4432
4	Sunflower (spring)	180	22	38783	14018	38824	24806	41	1.00	2.77	216	1765
5	Seed Cotton + Wheat	420	30	130075	42998	143941	100943	13866	1.11	3.35	343	4798
6	Seed Cotton+Sunflower	420	40	119659	42998	129581	86583	9922	1.08	3.01	309	3240
7	IRRI Paddy+ Wheat	360	68	101211	34340	101479	67139	268	1.00	2.96	282	1492
8	IRRI Paddy+Sunflower	360	78	90795	32762	87119	54356	-3676	0.96	2.66	242	1117
9	Sugarcane	488	71	109973	37066	127210	90144	17236	1.16	3.43	261	1792

Notes for Annex -VII:

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2019-20 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, 2019-20 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 2019-20 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2019-20 crops, some marginal revisions/updates have been incorporated.
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 1400 per 40 kgs of Wheat crop, as maintained by the government for 2019-20 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 2268 per 40 kgs,. While, the average price of IRRI paddy in Sindh is reported at Rs940 per 40 kgs.
 - 4.3 The wholesale market prices of seed cotton during the post-harvest months of 2019-20 in the main producer area markets have averaged at Rs 3949 per 40 kgs in the Punjab and Rs 3634 Sindh.
 - 4.4 The price of Sunflower crops has been reported hovering around Rs 3000/40 kgs and Rs 3050/40 kgs for Canola during 2019-20.
 - 4.5 The average market prices of sugarcane as realized by the farmers are taken for the analysis i.e Rs 220 per 40 kgs in the Punjab and in Sindh. However, the prices notified by the provincial governments were lower i.e Rs 190 and 192, respectively for Punjab and 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 18 per 40 kgs in Punjab and Sindh for sugarcane, Rs 40 for seed cotton in Punjab and Sindh, Rs 50 for rice paddy in Punjab and Sindh, and for wheat and oilseeds, Rs 38 in Punjab and Rs 42 in Sindh.

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- VIII
INTERNATIONAL PRICES OF COTTONS: 2011-12 TO 2019-20	
Years Aug-Jul	Index- A Cottons
	---US Cent per pound-----
2011-12	99.75
2012-13	87.84
2013-14	90.53
2014-15	70.75
2015-16	70.30
2016-17	82.82
2017-18	87.98
2018-19	84.36
2019-20	74.26
August	70.89
September	71.26
October	73.62
November	74.89
December	75.83
January	79.05
Source: ICAC.	

			ANNEX- IX	
EXPORT PARITY PRICE OF SEED COTTON ON THE BASIS OF ACTUAL AVERAGE EXPORT PRICE OF PAKISTANI COTTON				
S.No	Item	2019-20 (Aug-Jan	2016-17 to 2018-19	
			US Cents per pound	
1.	Actual average export price	57.54	71.53	
		OR	Rupees	(a)
	Actual average export price per 40 Kgs	7824	9727	
2.	Marketing expenses (Transportation, port handling forwarding, wharfage, packing, taxes and duties, insurance etc) per 40 Kgs	450	450	
3.	Ex- gin price of lint per 40 Kgs (item 1- item 2)	7374	9277	
4.	Value of 80 kgs of cotton seed (b)	3210	3210	
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)	9984	11887	
7.	Seed cotton price per 40 kgs (item 6 / 3)	3328	3962	
Notes:				
a)	One US \$ = 154.20 Pak rupees.			
b)	Average price of cotton seed for August 2019 to Jan 2020 Multan and Hyderabad markets was Rs 1605 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, AND MARCH, 2020)				
S.No	Item	Price calculations		
		US Cents per pound		
1.	Future's contract price as reported by KCA Feb 24, 2020	68.08		
2.	Grade and staple discount	4.5		
3.	Discount on account of inland transportation and certification of stocks	5.5		
4.	Parity price of Pakistani cotton at Karachi	58.08		
		OR	Rupees	(a)
	Parity price per 40 kgs	7898		
5.	Marketing expenses (Transportation, port handling forwarding, wharfage, packing, taxes and duties, insurance etc) per 40 Kgs	450		
6.	Ex- gin price of cotton lint per 40 kgs (item 4 - item 5)	7448		
7.	Value of 80 kgs of cotton seed (b)	3210		
8.	Ginning charges for 120 kgs of seed cotton	600		
9.	Value of 120 kgs of seed cotton (c) (items 6 + 7 - item 8)	10058		
10.	Seed cotton price per 40 kgs (item 9 / 3)	3353		
Notes:				
a)	One US \$ = 154.20 Pak rupees.			
b)	Average price of cotton seed for August 2019 to Jan 2020 Multan and Hyderabad markets was Rs 1605 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	2019-20 (Aug-Jan)	2016-17 to 2018-19
		Rupees per 40 kgs	
1.	Actual average cif (Karachi) price	10126	8552
2.	Handling charges at port and transport cost from port to textile mill at Karachi @ 4 % of cif price	405	342
3.	Ex- gin price of cotton lint (Item 1+ item 2)	10531	8894
4.	Value of 80 kgs of cotton seed (a)	3210	3210
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)	13141	11504
7.	Seed cotton price (item 6/ 3)	4380	3835
Note:			
a) Average price of cotton seed for August 2019 to Jan 2020 Multan and Hyderabad markets was Rs 1605 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.		

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

S. No	Item	2019-20 (Aug-Jan)	2016-17 to 2018-19
		US cent per pound	
1.	Index-A cottons assumed as cif (Karachi) price	74.26	85.05
2.	Insurance, agents commission, and port handling charges @ 5% cif price	3.71	4.25
3.	Landed cost at Karachi	77.97	89.30
		OR Rupees (a)	
	Landed cost at Karachi per 40 kgs	10603	12143
4.	Handling charges at port and transport cost from port to textile mills at Karachi @ 5 % of cif price	530	607
5.	Ex- gin price of cotton lint (item 3 + item 4)	11133	12750
6.	Value of 80 kgs of cotton seed (b)	3210	3210
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)	13743	15360
9.	Seed cotton price per 40 kgs (item 8/ 3)	4581	5120

Notes:

- a) One US \$ = 154.20 Pak rupees.
- b) Average price of cotton seed for August 2019 to Jan 2020 Multan and Hyderabad markets was Rs 1605 per 40kgs

Sources:

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

Based on Export Parity Price
ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON
(POLICY ANALYSIS MATRIX)

Province/Year	Gross Revenue	Traded Cost	Domestic Factors Cost	Profit
<u>PUNJAB</u>				
Rupees per acre				
2015-16				
Private Prices	43845	22870	33162	-12187
Social Prices	55283	19398	32847	3039
Transfers	-11438	3473	315	-15226
2016-17				
Private Prices	59900	22890	34858	2153
Social Prices	58791	19362	34529	4900
Transfers	1109	3528	329	-2747
2017-18				
Private Prices	59235	24558	35064	-387
Social Prices	62940	20788	34697	7454
Transfers	-3705	3770	366	-7841
2018-19				
Private Prices	83512	26159	37266	20087
Social Prices	78892	22171	36980	19741
Transfers	4620	3988	286	346
2019-20				
Private Prices	86504	29049	43947	13508
Social Prices	87626	24597	42865	20164
Transfers	-1122	4452	1082	-6656
<u>SINDH</u>				
2015-16				
Private Prices	47186	21172	30498	-4484
Social Prices	57926	17785	30148	9993
Transfers	-10740	3388	350	-14478
2016-17				
Private Prices	56853	20731	31340	4781
Social Prices	61327	17414	30996	12917
Transfers	-4475	3317	344	-8136
2017-18				
Private Prices	56049	24314	35115	-3380
Social Prices	63978	20424	34728	8825
Transfers	-7929	3890	387	-12206
2018-19				
Private Prices	95200	27871	40850	26478
Social Prices	89650	23412	40595	25643
Transfers	5550	4459	255	835
2019-20				
Private Prices	90850	32055	47193	11602
Social Prices	99575	26926	46754	25895
Transfers	-8725	5129	439	-14293

Based on Import Parity Price
ECONOMIC EFFICIENCY OF RESOURCE USE IN SEEDCOTTON
(POLICY ANALYSIS MATRIX)

Province/Year	Gross Revenue	Traded Cost	Domestic Factors Cost	Profit
<u>PUNJAB</u>				
Rupees per acre				
2015-16				
Private Prices	43845	22870	33162	-12187
Social Prices	64764	19398	32847	12520
Transfers	-20919	3473	315	-24707
2016-17				
Private Prices	43394	22890	34858	-14353
Social Prices	64582	19362	34529	10691
Transfers	-21188	3528	329	-25044
2017-18				
Private Prices	43845	24558	35064	-15777
Social Prices	66436	20788	34697	10950
Transfers	-22591	3770	366	-26727
2018-19				
Private Prices	83512	26159	37266	20087
Social Prices	95392	22171	36980	36241
Transfers	-11880	3988	286	-16154
2019-20				
Private Prices	86504	29049	43947	13508
Social Prices	96536	24597	42865	29074
Transfers	-10032	4452	1082	-15566
<u>SINDH</u>				
2015-16				
Private Prices	47186	21172	30498	-4484
Social Prices	67868	17785	30148	19936
Transfers	-20682	3388	350	-24420
2016-17				
Private Prices	55853	20731	31340	3781
Social Prices	66372	17414	30996	17962
Transfers	-10519	3317	344	-14180
2017-18				
Private Prices	56049	24314	35115	-3380
Social Prices	67589	20424	34728	12436
Transfers	-11540	3890	387	-15817
2018-19				
Private Prices	95200	27871	40850	26478
Social Prices	108400	23412	40595	44393
Transfers	-13200	4459	255	-17915
2019-20				
Private Prices	90850	32055	47193	11602
Social Prices	109700	26926	46754	36020
Transfers	-18850	5129	439	-24418