APCOM SERIES NO. 210

SUPPORT PRICE POLICY
FOR
SEED COTTON, 2004-05 CROP

AGRICULTURAL PRICES COMMISSION
GOVERNMENT OF PAKISTAN
ISLAMABAD

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CONTENTS

TABLES

FIGURES

ANNEXES

ABBREVIATIONS

AARI	:	Ayub Agricultural Research Institute
ALMA	:	Agricultural and Livestock Marketing Adviser
APCOM	:	Agricultural Prices Commission
APTMA	:	All Pakistan Textile Mills Association
BCR	:	Benefit Cost Ratio
BPS	:	Basic Pay Scale
CEC	:	Cotton Export Corporation
CIF	:	Cost, Insurance and Freight
CLCV	:	Cotton Leaf Curl Virus
COP	:	Cost of Production
CPI	:	Consumer Price Index
CRIM	:	Cotton Research Institute, Multan
CRIS	:	Cotton Research Institute, Sakrand
DRC	:	Domestic Resource Cost Co-efficient
ECC	:	Economic Coordination Committee
E&M	:	Economics & Marketing
EPC	:	Effective Protection Co-efficient
FBS	:	Federal Bureau of Statistics
FCA	:	Federal Committee on Agriculture
FOB	:	Free on Board
FSC&RD	:	Federal Seed Certification and Registration Department
FYM	:	Farm Yard Manure
GCP	:	Ghee Corporation of Pakistan
GDP	:	Gross Domestic Product
GOT	:	Ginning Out Turn
ICAC	:	International Cotton Advisory Committee
ICPM	:	Integrated Crop Production Management
IPM	:	Integrated Pest Management
IPNS	:	Integrated Plant Nutrition System
IRRI	:	International Rice Research Institute (Group of rice varieties Grown in Pakistan which were developed at this Institute)
ITMF	:	International Textile Mills Forum
KCA	:	Karachi Cotton Association
MINFAL	:	Ministry of Food, Agriculture and Livestock
MOC	:	Ministry of Commerce
NARC	:	National Agriculture Research Centre
NIAB	:	Nuclear Institute of Agriculture and Biology
NPC	:	Nominal Cost Co-efficient
NWFP	:	North West Frontier Province
NSC	:	National Seed Council
OLS	:	Ordinary Least Squares
PAPA	:	Pakistan Agriculture Pesticides Association
PARC	:	Pakistan Agricultural Research Council
PCCC	:	Pakistan Central Cotton Committee
PCGA	:	Pakistan Cotton Ginners Association
PCSI	:	Pakistan Cotton Standards Institute
PSC	:	Punjab Seed Corporation
SSC	:	Sindh Seed Corporation
TCP	:	Trading Corporation of Pakistan
WTO	:	World Trade Organization

SUPPORT PRICE POLICY FOR SEED COTTON, 2004-05 CROP

EXECUTIVE SUMMARY

AND

RECOMMENDATIONS

Cotton production has been fluctuating between 8 and 11 million bales during the decade ending 2003-04. The average annual growth in its production has been 1.9 per cent, 1.4 per cent on account of yield and 0.5 per cent due to area. The cotton farming is vulnerable to a host of insects/pests. Its production in recent years has especially become a risky proposition. Pakistan a net exporter of cotton has now become a net importer as increasing consumption has out paced its production.

2. Punjab is the main cotton producer accounting for 80 per cent of its area and 76 per cent of the production. The share of Sindh in area is 19 per cent and in production 22 per cent. National production of cotton from the 2003-04 crop, as per second estimates of Provincial Governments is reported at 9.70 million bales. The Crop assessment Committee in the Ministry of Food and Agriculture has estimated cotton production at 10 million bales.

3. Vulnerability of cotton crop to various pests and diseases is deteriorating incomes of the cotton growers. Even in good crop years, the farmers have suffered in term of low prices impacting on their income and well being. The wide variation in cotton production and prices has adversely affected all the cotton related/dependent sub-sectors of the economy. **The Government had fixed the support price for seed**

cotton at Rs 850 per 40 kgs for the 2003-04 crop. The market prices during the season ranged from Rs 1,000 to 1,500 per 40 kgs.

4. The prices of fertilizers, diesel and other inputs have been on the rise. Both the quality and availability of pesticides in 2003-04 cotton season left much to be desired. The ensuing situation resulted in a lot of avoidable loss in cotton yield and production. If increasing trend in the prices of inputs is not arrested, and quality of pesticides not improved Pakistani's export competitiveness in international market will be compromised. The quality of the cotton also needs to be improved to improve its competitiveness.

5. Annual meeting of the Agricultural Prices Commission's Standing Committee on Cotton was held at Islamabad on February 14, 2004. The meeting discussed, at length, the situation with regard to cotton crop, problems encountered by the farmers in cotton production and marketing, and emphasized the need for development of a suitable technology package for sustainable production of cotton. It highlighted the need for strict quality control in pesticides' marketing and underscored the role of Integrated Pest Management to arrest the increasing menace of pests and to protect the environment. There was a consensus in the meeting for having a programme which ensured incentive prices to the farmers in general and in good crop years in particular.

6. Based on the analysis of relevant factors discussed in main text of this Report, likely pricing options for cotton, 2004-05 crop are summarized below.

	Base	Worked back price of seed cotton at ginnery level Rupees per 40 kgs
1	Domestic parity price of yarn at Karachi	1,110
2	Export parity prices based on:	
	i) Actual average export price of Pakistani cotton:	
	- During 2003-04 (Aug-Dec)	1,069
	- During 1998-99 to 2002-03	917
	ii) Average cif (North Europe) value of Index-B cottons:	
	- During 2003-04 (Aug-Jan)	1,198
	- During 1998-99 to 2002-03	884
	iii) Average cif (North Europe) quotations of Afzal 1-1/32″:	
	- During 2003-04 (Aug-Jan)	1,211
	- During 1998-99 to 2002-03	875
	iv) Futures contract prices of New York No.2 cotton (average of October 2004, December 2004 and March 2005 as quoted on 28-01-2004)	1,121
	v) Average fob prices of Pakistani cotton yarn (20's):	
	- During 2003-04 (Aug-Jan)	1,299
	- During 1998-99 to 2002-03	1,036
3	Import parity prices based on:	
	i) Actual average cif (North Europe) quotations of Orleans/ Texas SLM 1-1/32″	
	- During 2003-04 (Aug-Jan)	1,500
	- During 1998-99 to 2002-03	1,218
	ii) Cif Karachi prices of imported cotton:	
	- During 2003-04 (Aug- Dec)	1,429
	- During 1998-99 to 2002-03	1,245
4	Average domestic market price of seed cotton in 2003-04 (September-January)	1,231
5	Cost of production for 2004-05 crop	
	Punjab	857
	Sindh	806

Recommendations

- **Support Price for 2004-05 Crop**

7. As per analysis of relevant factors, summarized in paras-58 to 67 of this Report, APCom recommends to enhance the support price of seed cotton for 2004-05 crop, base grade 3 with staple length 1-1/32″ and micronaire range of 3.8 – 4.9 NLC, to Rs 925 per 40 kgs. The proposed support price provides a margin of around 9 per cent over the weighted cost of production under normal circumstances. However, this margin is wiped out if 11 per cent reduction in overall cotton yield, experienced in 2003-04 is accounted for in cost calculations.

- **Implementation of Support Price and Quality Premia/Discounts**

   i) TCP be assigned the task of implementing the price policy of seed cotton through buying lint at the price to be based on the support price of seed cotton. Adequate resources be provided to TCP for the implementation of the support price policy.

   ii) TCP should also enforce the premia and discounts in the purchase of lint as given below:

Premia/Discounts for Various Grades/Staple Lengths for Lint Offered to the Procurement Agency

(Rs per 40 kgs)

Grade	Staple length				
	1″	1-1/32″	1-1/16″	1-3/32″	1-1/8″
Super	119	178	237	294	353
One	67	124	181	237	294
Two	4	60	116	170	226
Three	-54	Base	54	107	161
Four	-122	-70	-18	34	86
Five	-184	-134	-83	-34	17

- **Improving Productivity**

Improved seed

   i) Public and private seed companies be asked to multiply and distribute the seed of recommended varieties for cultivation in sufficient quantity.

   ii) Provincial Agricultural Extension Departments should launch a campaign to advise the growers to cultivate only the recommended varieties.

Soil management/balanced use of nutrients

8. Provincial Agricultural Research Institutes should develop area/crop rotation specific fertilizer recommendations and publicize the same through extension department and mass media.

Integrated Pest Management (IPM)

(i) The Government should strengthen the IPM Programme of NARC for its effective implementation in the entire cotton growing areas.

(ii) The private companies should also be encouraged for commercial rearing and marketing of useful insects and other predators.

Quality control of pesticides

9. To check the menace of adulteration in pesticides and improve quality control thereon, the Agricultural Prices Commission recommends that:

(i) Each pesticide company be asked to appoint its own dealers for sale of a product imported and marketed by that company. Each branded product of a particular firm should only be available from the authorized dealers of that firm.

(ii) Magistrates be appointed/posted with Agricultural Department for speedy disposal of pesticide cases.

(iii) To avoid underdosing of pesticides, importers/distributors should indicate the nature of active ingredient and its concentration in a branded product to Provincial Directorate of Plant Protection which should fix/recommend the dose of each product for a particular pest or disease.

- **Improving Quality and Marketing**

Picking

10. The Provincial Extension Departments should launch educational campaign to apprise the growers about the improved practices of cotton picking. Picking should start when dew has dried and about 60% of the bolls have opened. Farmers be advised to store seed cotton for each variety separately. First and last pickings and produce from healthy and non-healthy bolls may not be mixed.

Ginning

i) A Ginning Research Institute should be established at Multan to deal with the issues of cotton ginning and related matters.

ii) In order to avoid problems in crop estimation and exports, ginning factories should be advised to adhere to the standard weight of the bale of 170 kgs.

Proper packing and labeling

11. The Government should ensure truthful labeling of cotton bales and proper packing indicating the grade, staple length and micronaire of the cotton contained in the bale.

Contamination free cotton

12. Textile industry should support the production of contamination free cotton, purchasing all the bales of clean cotton.

Underweighment and undue deductions

13. In order to check the malpractices of underweighment and undue deductions in cotton marketing, supervisory committees consisting of the representatives of Provincial Agriculture Departments, local market committees, growers and cotton dealers may be constituted.

- **Monitoring of Imports**

14. The policy of duty free imports and exports of cotton has provided a level playing field for producers and consumers of cotton. Nevertheless there is a need for keeping track of imports and monitoring their origins and quality parameters.

(Dr. Abdul Salam)
Chairman

February 28, 2004.

SUPPORT PRICE POLICY FOR SEED COTTON, 2004-05 CROP

1. INTRODUCTION

1. Cotton, the largest cash crop, is annually cultivated over 3 million hectares, accounting for 13 per cent of the cropped area in the country. On an average, it contributes 28 per cent of the value added by major crops. Cotton farming is the principal source of raw material for the textile industry, the largest industry employing 40 per cent of the industrial labour. The foreign exchange earned from exports of cotton and its made ups constitutes about 50 per cent of the earnings from merchandise exports. The cultivation of cotton also contributes in the production of edible oil as cotton seed is an important source of oil. Cotton seed is also used in feeding livestock.

2. The cotton production has experienced wide fluctuations, having peaked at 12.8 million bales in 1991-92 it fell to 8.7 million in 1993-94. It has averaged at 10.2 million bales during last three years. Since production of cotton is vulnerable to a host of insects/pests its cultivation is a risky proposition. Even in good crop years farmers have suffered because of low prices. The swings in cotton production and prices have adversely affected all the cotton related sub sectors of the economy. In view of the importance of cotton, there is an urgent need to minimize incidence of these fluctuations and reverse the set backs suffered in cotton production.

3. To reduce price risk in cotton farming and ensure reasonable supply to industry, the Government has instituted the price support programme for seed cotton. For the year 2003-04, support price was fixed at Rs 850 per 40 kgs for base grade with staple length 1-1/32". The prices received by the growers have however been much above this price.

4. The cotton trade has become increasingly quality conscious. Even the local manufacturers of textiles now demand standardized cotton for producing quality goods. These challenges are expected to become serious in future under the WTO regime. Thus, it is imperative for Pakistan to prepare and adjust its cotton production and marketing strategies to face the emerging challenges in the domestic and global markets. In order to improve yields, quality and marketing of cotton, the Commission has proposed a number of price and non price measures which need careful consideration of the Government.

2. SOWING AND PICKING TIMES

5. In major cotton growing districts of the Punjab and Sindh, sowing is generally recommended from the start of May to end June. Province-wise details of the recommended sowing times for cotton growing districts are given in Annex-I. Picking of cotton in Sindh and in some parts of the Punjab starts in August and may continue upto February in certain cases depending upon the crop and climatic conditions.

3. PROVINCIAL SHARES IN AREA AND PRODUCTION

6. During the last three years (2001-02 to 2003-04), cotton production in Pakistan has averaged at 10.17 million bales and its area at 2.97 million hectares (7.33 million acres). Punjab is the main cotton producer, accounting for 80 per cent of its area and 76 per cent of the production. The provincial shares in area and production of cotton are given in Table-1 and depicted in Figures 1 and 2.

Table-1: Provincial Shares in Area and Production of Cotton: Average of 2001-02 to 2003-04

Country/ Province	Area		Production	
	000 hectares	Per cent	000 bales	Per cent
Pakistan	**2967**	**100.0**	**10174**	**100.0**
Punjab	2373	79.9	7761	76.3
Sindh	551	18.6	2281	22.4
NWFP	3	0.1	8	0.1
Balochistan	40	1.4	124	1.2

Note: Worked out from the data given in Annex-II.

4. IMPORTANT COTTON GROWING DISTRICTS

7. The districts producing more than 2 lac bales of cotton per year are Bahawalpur, Rahim Yar Khan, Vehari, Lodhran, Rajanpur, Khanewal, Muzaffargarh, Bahawalnagar, Multan and Dera Ghazi Khan in the Punjab and Ghotki, Sanghar, Khairpur and Nawabshah in Sindh (Annex-III). These 14 districts collectively account for 84 per cent of the total cotton produced in the country.

PROVINCIAL SHARES IN AREA & PRODUCTION OF COTTON: 2001-02 TO 2003-04

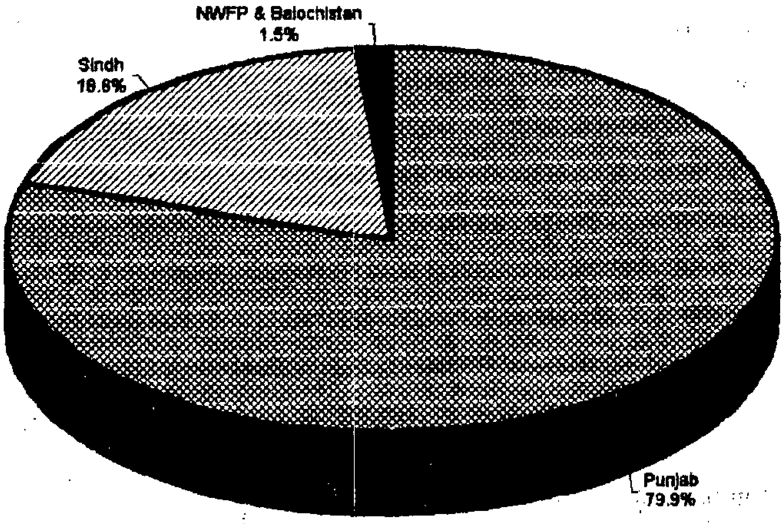

Fig-1: SHARES IN AREA

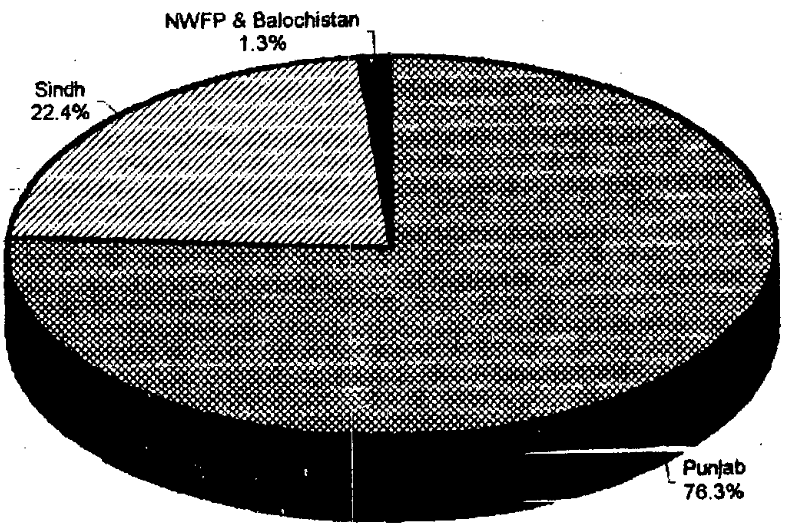

Fig-2: SHARES IN PRODUCTION

5. CHANGES IN AREA, YIELD AND PRODUCTION

8. During the period of 1993-94 to 2003-04, total area under cotton varied between 2.65 and 3.15 million hectares (6.55 and 7.78 million acres) and yield between 488 and 641 kgs per hectare. The cotton production during this period has ranged from 8.04 to 11.24 million bales (Annex-II). Long and short term changes in area, yield and production of cotton are discussed below:

5.1 Long-term Changes: 1993-94 to 2003-04

9. Cotton production during 1993-94 to 2003-04 is estimated to have increased @ 1.9 per cent per year on account of 1.4 per cent improvement in yield and 0.5 per cent expansion in area. Cotton production in the Punjab during the period under reference has increased @ 1.2 per cent per year, mostly due to improvement of 1.0 per cent in yield. In Sindh, area and yield of cotton have increased @ 1.0 and 3.2 per cent per year resulting in a growth rate of 4.3 per cent (Table-2).

Table-2: Average Annual Growth Rates of Area, Yield and Production of Cotton: 1993-94 to 2003-04

Country/ Province	Area	Yield	Production
	---------- Per cent ----------		
Pakistan	**(+) 0.5**	**(+) 1.4**	**(+) 1.9**
Punjab	(+) 0.2	(+) 1.0	(+) 1.2
Sindh	(+) 1.0	(+) 3.2	(+) 4.3

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.

5.2 Short-term Changes: 2003-04 Vs 2002-03

10. National production of cotton from the 2003-04 crop is estimated at 9.70 million bales,* about half a million (5 per cent) less than that of previous crop. The short fall in production is entirely due to decrease of 11.3 per cent in yield as the area under cotton expanded by 7.1 per cent.

11. In the **Punjab**, cotton production during 2003-04 crop year has been estimated at 7.57 million bales, which is 1.2 per cent less than that of previous year. The short production is totally due to 8.5 per cent decrease in yield as the area expanded by 8 per cent.

12. In Sindh, cotton production estimated at 1.99 million bales is 17.6 per cent less than the last year's crop size of 2.41 million bales. The decline is solely because of the 20.4 per cent fall in yield since the area has expanded by 3.5 per cent.

13. In the NWFP, production estimated at 16 thousand bales is 252 per cent more than that of last year. This rise is mostly due to 242 per cent expansion in area.

14. In Balochistan, both area and yield of cotton during 2003-04 have decreased, by 4.2 and 2.2 per cent, respectively, resulting in a 6.3 per cent less production than that of last year.

15. The participants in the annual meeting of APCom's Standing Committee on cotton, held on 14-2-2004 at Islamabad, were of the view that production estimates would need to be revised especially in Sindh as cotton crop was still standing in the field in some of the important cotton producing districts (Nawabshah, Sanghar and Dadu). The province wise details of area, yield and production are given in Table-3.

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* Second estimates for Punjab, NWFP and Balochistan and final estimates for Sindh

Table-3: Area, Yield and Production of Cotton: 2002-03 and 2003-04 Crops

Country/ Province	Area		Changes in 2003-04 over 2002-03	Yield		Changes in 2003-04 over 2002-03	Production		Changes in 2003-04 over 2002-03
	2002-03	2003-04		2002-03	2003-04		2002-03	2003-04	
	-- 000 hectares --		Per cent	--Kgs/hectare --		Per cent	-- 000 bales --		Per cent
Pakistan	**2793.6**	**2991.4**	**(+) 7.1**	**622**	**552**	**(-) 11.3**	**10210.6**	**9699.9**	**(-) 5.0**
Punjab	2208.3	2384.4	(+) 8 .0	590	540	(-) 8.5	7664.0	7573.5	(-) 1.2
Sindh	542.6	561.4	(+) 3.5	756	602	(-) 20.4	2411.8	1988.2	(-) 17.6
NWFP	1.9	6.5	(+) 242.1	412	424	(+) 2.9	4.6	16.2	(+) 252.2
Balochistan	40.8	39.1	(-) 4.2	543	531	(-) 2.2	130.2	122.0	(-) 6.3

Source: Annex-II.

6. TARGETS VS ACHIEVEMENTS

16. The Federal Committee on Agriculture (FCA) had set the cotton production target at 10.55 million bales for the 2003-04 crop. The production reported at 9.70 million bales has fallen short by 8.1 per cent, entirely due to under achievement in yield. Production target has not been met in any of the province (Table-4).

Table-4: Targets and Estimated Achievements of Area, Yield and Production of Cotton: 2003-04 Crop

Country/ Province	Area		Deviation from target	Yield		Deviation from target	Production		Deviation from target
	Target	Achievement		Target	Achievement		Target	Achievement	
	000 hectares		Per cent	Kgs/ hectare		Per cent	000 bales		Per cent
Pakistan	**2860.0**	**2991.4**	**(+) 4.8**	**627**	**551**	**(-) 12.0**	**10550.0**	**9699.9**	**(-) 8.1**
Punjab	2264.0	2384.4	(+) 5.3	601	540	(-) 10.1	8000.0	7573.5	(-) 5.3
Sindh	541.0	561.4	(+) 3.8	755	602	(-) 20.2	2400.0	1988.2	(-) 17.2
NWFP	10.0	6.5	(-) 35.0	340	424	(+) 24.6	20.0	16.2	(-) 19.0
Balochistan	45.0	39.1	(-) 13.1	491	531	(+) 8.1	130.0	122.0	(-) 6.2

Sources:

1. For targets: Minutes of the79th Meeting of FCA held on 29-10-2003 at Islamabad.
2. For achievements: Annex-II.

7. FACTORS CONSIDERED FOR PRICE POLICY OPTIONS

17. In formulating price policy proposals for seed cotton, 2004-05 crop, following factors have been considered and analysed.

- 7.1 Domestic supply, demand, stocks and price situation
- 7.2 Cost of production of seed cotton
- 7.3 Comparative economics of cotton and competing crops
- 7.4 Economics of fertilizer use on cotton
- 7.5 Nominal and real prices of seed cotton
- 7.6 World supply, demand, stocks, trade and price situation
- 7.7 Parity prices of seed cotton
  - 7.7.1 Domestic
  - 7.7.2 Export/Import
- 7.8 Economic efficiency in cotton production

7.1 Domestic Supply, Demand, Stocks and Price Situation

7.1.1 Domestic supply, demand and stocks

18. Domestic availability of cotton during 2002-03 totaled 13.95 million bales. About 11.95 million bales were used domestically and 0.30 million bales exported, leaving end year stocks at 1.70 million.

19. According to the latest estimates, crop size in 2003-04 is 9.70 million bales. Accounting for opening stocks and imports (upto December 2003) availability of cotton during the year works out to 11.90 million bales. The domestic consumption is estimated at 12.00 million bales (11.50 million bales mill and 0.50 million bales non-mill consumption) while 0.12 million bales (upto December 2003) have been exported, reflecting a deficit of 0.22 million bales as per present situation. As a result, substantial quantity of cotton is reportedly being imported. In the meeting of the Standing Committee on cotton held on 14-2-2004, representatives of KCA and APTMA reported that about one million bales are likely to be imported to meet the deficit. However, the position will become clear in due course of time.

20. Details on production, consumption, imports, exports and stocks of cotton (lint) for the years 2001-02 to 2003-04 as per the available information are presented in Table-5.

Table-5: Domestic Production, Demand, Stocks of Cotton (Lint): 2001-02 to 2003-04 (August-July)

S.No.	Item	2001-02	2002-03	2003-04
		------- Million bales[a] -------		
1.	Opening stocks as on 1st August	2.34	2.69	1.70
2.	Production	10.61	10.21	9.70
3.	Imports	1.12	1.05	0.50(b)
4.	Total supplies (item 1+2+3)	14.07	13.95	11.90
5.	Consumption by:			
	5.1) Reporting mills	10.15	11.45	11.50
	5.2) Un-organized sector	0.50	0.00	0.00
	5.3) Non-mill sector	0.50	0.50	0.50
6.	Total consumption	11.15	11.95	12.00
7.	Exports	0.23	0.30	0.12(b)
8.	Total demand (item 6 + 7)	11.38	12.25	12.12
9.	Closing stocks as on 31st July (item 4-8)	2.69	1.70	(-) 0.22

Notes:

(a) One bale = 170 kgs = 375 lbs.

(b) Upto December, 2003.

Sources:

1. MINFAL, Islamabad.
2. All Pakistan Textile Mills Association (APTMA), Punjab Zone, Lahore.
3. Karachi Cotton Association (KCA), Karachi.
4. Pakistan Central Cotton Committee (PCCC), Karachi.

7.1.2 Price situation

7.1.2.1 Seed cotton (phutti) prices

21. Market prices of seed cotton (phutti) during harvest/post harvest period (August to January) of the 2003-04 crop in Punjab have ranged between Rs 975 and Rs 1,475 per 40 kgs. Prices of seed cotton in the beginning of season were relatively low. However, during the peak of the picking season i.e. October to January these ruled much higher as compared to the prices prevailed during the month of September.

22. In Sindh, average monthly prices ranged between Rs 1,006 and Rs 1,426 per 40 kgs. Market price behaviour during the whole season was the same as in Punjab. Price trended upward with the advancement of the season and peaked during the month of November. There are two reasons of these high prices. First, prices in the international market went up and second,

the production of cotton in the country was short of the expected consumption. However, in December, market prices declined in conformity with the international market. Details of domestic market prices of seed cotton during cotton picking season are given in Table-6.

Table-6: Monthly Average Wholesale Prices of Seed Cotton (Phutti) in the Main Producer Area Markets During 2003-04 Crop (August-January)

Markets	August	September	October	November	December	January*
	---------- Rupees per 40 kgs ----------					
Punjab						
R.Y.Khan	-	1051	1333	1460	1395	1365
Multan	-	1020	1247	1470	1410	1354
Bahawalnagar	-	1029	1321	1475	1390	1355
Khanewal	-	1009	1358	1430	1360	1340
Vehari	-	1039	1323	1440	1360	1320
Okara	-	975	1282	1400	1320	1300
D.G.Khan	-	1050	1282	1430	1370	1325
Average	-	1025	1307	1444	1372	1337
Sindh						
Hyderabad	1013	1034	1051	1223	1183	1178
Tando Allah Yar	1011	1006	1256	1153	1098	1100
Sakrand	-	-	1401	1426	1399	1401
Average	1012	1020	1236	1267	1227	1226

Notes:

* Except R.Y.Khan, Multan and Sindh; prices are upto 14th January 2004.

(-) Not available.

Sources:

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

7.1.2.2 Cotton (lint) prices

23. Lint prices this year have also ruled comparatively much higher. The monthly average of spot prices of lint at Karachi during 2003-04 season is estimated to have ranged between Rs 3,070 and 4,045 per 40 kgs. Last year corresponding prices had ranged between Rs 2,516 and 2,912 per 40 kgs (Table-7).

Table-7: Monthly Average Spot Prices of Raw Cotton at Karachi, 2002-03 and 2003-04 Crops (August – January)

Month	Base Grade-3, staple length 1-1/32", Micronaire Value between 3.8 to 4.9 NCL* (No Control Limit)	
	2002-03	2003-04
	Rupees per 40 kgs	
August	2516	3180
September	2466	3070
October	2525	3759
November	2595	4045
December	2601	3959
January	2588	4045

Note:

* Prices include 15 per cent sales tax and expenses from up-country @ Rs 50/40 kgs

Source: PCCC, Karachi.

7.2 Cost of Production of Seed Cotton

24. The cost of production estimates for the 2004-05 crop in the Punjab and Sindh were synthesized using the input-output parameters estimated from the data collected through the sample surveys conducted by APCom during March-April, 2003 (Annex-IV) in conjunction with the latest input prices and custom hire rates of various field operations, obtained through mini field surveys conducted by the APCom during December, 2003 in the major cotton growing areas of the Punjab and Sindh. These data were supplemented with the information provided by the farmers in the meeting of APCom's Standing Committee, held at Islamabad on 14th February 2004. The parameters estimated from the sample surveys and methodology for estimating the cost of production were also discussed in the meeting. These estimates are detailed in Annex-V and VI and the results are summarized in Table- 8.

Table-8: Average Farmers' Cost of Production of Seed Cotton

Items	Unit	2003-04* crop	2004-05 crop	Changes in 2004-05 over 2003-04
Punjab				
1. Cost of cultivation	Rs/acre	13,909	14,606	697
2. Yield	Kgs/acre	696	696	-
3. Cost of production at farm level	Rs/40 kgs	799	839	40
4. Marketing cost	”	15	18	3
5. Cost of production at market/ginnery	”	814	857	43
Sindh				
1. Cost of cultivation	Rs/acre	11,608	11,940	332
2. Yield	Kgs/acre	608	608	-
3. Cost of production at farm level	Rs/40 kgs	764	786	22
4. Marketing cost	”	15	20	5
5. Cost of production at market/ginnery	”	779	806	27

Note:

* These estimates are based on parameters derived from the 2002-03 cotton crop survey conducted by APCom and are different from ones reported in the last year's price policy report which were based on surveys of 1994-95 and 1995-96 crops.

Source: Annexes-V to VI.

Punjab

25. As per information summarized in the Table-8, the cost of cultivating one acre of cotton, in the Punjab, during 2004-05 crop year, is likely to cost Rs 14,606, inclusive of land rent. Based on average yield of 696 kgs of seed cotton per acre, cost of production at farm level would be Rs 839 per 40 kgs. Accounting for the marketing charges @ Rs 18 per 40 kgs, the cost of the produce at market/ginnery would work out to Rs 857 per 40 kgs.

Sindh

26. Cost of raising one acre of cotton during 2004-05 crop year in Sindh is expected at Rs 11,940, inclusive of land rent. With the average yield of 608 kgs of seed cotton per acre, cost of production at farm gate works out to Rs 786 per 40 kgs. Adding Rs 20 per 40 kgs as marketing charges, the cost of producing and delivering seed cotton at market/ginnery would work out at Rs 806 per 40 kgs.

27. The prices of seed, chemical fertilizers especially DAP, pesticides, labour wages, diesel and land rent have increased by varying proportions.

7.2.1 Impact of decrease in yield on cost of production

28. The average yield of seed cotton in the country in 2003-04 crop year has decreased by 11 per cent due to unfavorable weather conditions and high pests/infestation in important cotton growing districts. The decline in cotton yield adversely impacts on cost of production, reducing net returns to the growers. It is not possible to predict the yield of next crop at this stage. But the recurrence of 11 per cent yield decline will increase the cost of production by Rs 93 and Rs 86 per 40 kgs in the Punjab and Sindh respectively.

7.3 Comparative Economics of Cotton and Competing Crops

29. Resource allocation among the competing enterprises is primarily governed by various economic considerations reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc. Cotton, a kharif crop, competes with rice for land, water and other farm resources in the areas where the cultivation of both the crops is technically feasible. Cotton also faces indirect competition from sugarcane which, being an annual crop, occupies the land throughout the year. The economics of cotton and competing crops has been analysed in terms of input-output prices paid and received by the growers during the 2003-04 crop year. The details of the analysis are presented in Annex-VII and VIII. A summary of various economic indicators, for the Punjab and Sindh, is also provided in Tables -9.

30. The market prices of seed cotton during the 2003-04 season have ruled much higher. While the cotton yields are reported to fall by 11 per cent at the country level. The downfall in the yield levels during the 2003-04 crop season has been adjusted in the current analysis for both the Punjab and Sindh provinces. The analysis shows that the gains from the lucrative prices of cotton clearly outweigh the adverse effects of yield losses. Accordingly, cotton farming has appeared as a highly rewarding activity against rice farming in view of both the actual and adjusted yield levels.

Punjab

31. Cotton has achieved a definite advantage over basmati rice in respect of all the economic indicators adopted in this analysis, viz. output-input ratio and returns to purchased inputs, crop duration and irrigation water.

32. In case of indirect competition with sugarcane, both the cotton+wheat and cotton+sunflower patterns also have a distinct edge over sugarcane in view of all the economic indicators due to the poor prices of sugarcane received by the growers during the current crushing season.

Table-9: Comparative Economics of Cotton and Competing Crops at Prices Realized by the Growers: 2003-04 Crops

Province/crops/ Crop combination	Output-input ratio	Gross revenue per		
		rupee of purchased inputs cost	Day of crop duration	acre-inch of irrigation water used
		--------- **Rupees** --------		
Punjab				
1. Cotton	1.57	3.54	90.49	987.18
2. Cotton*	1.40	3.16	80.62	879.50
3. Rice - basmati	1.08	1.98	64.62	200.55
4. Cotton + wheat	1.31	2.92	74.25	799.62
5. Cotton + sunflower	1.45	3.67	82.18	717.23
6. Cotton*+wheat	1.21	2.70	68.61	738.87
7. Cotton*+sunflower	1.35	3.39	76.01	663.39
8. Sugarcane	0.87	2.63	42.02	344.92
Sindh				
1. Cotton	1.56	3.89	71.47	952.89
2. Cotton*	1.39	3.47	63.72	849.61
3. Rice – IRRI	1.23	2.75	53.00	170.36
4. Cotton+wheat	1.34	3.28	61.52	783.00
5. Cotton+sunflower	1.43	3.92	70.29	674.80
6. Cotton*+ wheat	1.24	3.05	57.10	726.67
7. Cotton*+ sunflower	1.33	3.65	65.45	628.33
8. Sugarcane	0.93	2.46	41.81	287.35

Note:
* If the cotton yield is declined by 11 per cent.

Source: Annexes-VII and VIII.

Sindh

33. Cotton farming achieved a distinct edge over rice farming in terms of all the economic indicators like output-input ratio, and gross revenue per rupee of purchased inputs cost, per day of crop duration and per acre-inch of irrigation water used.

34. In case of indirect competition with sugarcane, both the cotton + wheat and cotton + sunflower rotations have gained a distinction over sugarcane in terms of returns to overall investment, purchased inputs, crop duration and irrigation water.

7.4 Economics of Fertilizer Use on Cotton

35. The economics of fertilizer use on cotton crop has been analysed through estimating (i) Benefit Cost Ratio (BCR) of fertilizer use and (ii) parity ratio between the prices of fertilizers and seed cotton. The results are discussed below:

7.4.1 Benefit Cost Ratio (BCR)

36. BCR refers to the ratio between value of additional produce resulting from using a certain dose of fertilizers and the costs thereof, both direct and indirect. A BCR of greater than one means that benefits are higher than the costs entailed in the process and vice a versa. To account for the variation in response of cotton to fertilizer use under different conditions the BCRs have been computed at 4 different response levels. The results of the exercise are set out in Table-10. A perusal of these data suggest that BCRs were the most remunerative in 1995-96 at all response ratios. However, this position could not be maintained in the following years and BCRs touched the lowest levels in 1999-00 resulting from low cotton prices. These ratios improved in 2000-01 but as a result of sharp fall in cotton prices in 2001-02, again the profitability of fertilizer use on this crop deteriorated. Afterwards the BCRs estimated at various response ratios reflect improvement in the profitability of fertilizer use on seed cotton which is attributable to better prices of seed cotton particularly in the current season. 2003-04.

Table-10: Benefit Cost Ratios (BCRs) of Fertilizer Use on Seed Cotton: 1994-95 to 2003-04

Year	Response Ratios (Seed Cotton: Nutrient) of			
	3.00:1	**3.75:1**	**4.50:1**	**5.25:1**
1995-96	3.39	4.03	4.61	5.13
1996-97	3.05	3.62	4.13	4.60
1997-98	2.47	2.94	3.36	3.74
1998-99	2.66	3.15	3.60	4.00
1999-00	1.66	1.97	2.25	2.51
2000-01	2.51	2.96	3.35	3.71
2001-02	1.87	2.22	2.53	2.81
2002-03	1.97	2.45	2.79	3.11
2003-04	2.79	3.32	3.79	4.23

Sources:

1) For 2003-04: Annex-IX.
2) For 1994-95 to 2002-03: APCom's Support Price Policy Reports on Cotton.

7.4.2 Parity ratio between prices of fertilizer and seed cotton

37. The ratio between prices of fertilizers and seed cotton indicates the quantity of seed cotton required to purchase a certain quantity of chemical fertilizers. Quantity of seed cotton needed to buy one nutrient tonne of nitrogen since 1995-96 has fluctuated between 0.56 to 0.98 tonnes. The lowest ratio of 0.56 was observed in 1995-96 crop season. However, subsequently purchasing power of seed cotton declined as parity increased to 0.98 in 1999-00 due to disproportionate changes in the market price of urea and seed cotton. In the year 2000-01, parity ratio decreased to 0.62 showing improvement in the purchasing power of seed cotton. However, in the after math of rise in the prices of urea and decline in those of seed cotton, much higher quality of cotton (44%) was needed to buy the same amount of nitrogen in 2001-02. Accordingly, 2001-02 turned out to be the 2nd worst year in terms of seed cotton's purchasing power of fertilizers. Nevertheless, in the wake of sharply rising prices of cotton the situation has since improved. In terms of purchasing power of seed cotton, 2003-04 seems to be the 2nd best year during the period under analysis.

38. The parity ratios between prices of phosphatic fertilizer and those of seed cotton have exhibited a similar pattern as discussed above in terms of nitrogen (Table-11).

Table-11: Parity Ratio Between the Prices of Fertilizer and Seed Cotton: 1995-96 to 2003-04

Crop Year	Sale Prices of		Market Prices of Seed Cotton	Quantity of Seed Cotton (phutti) needed to buy one nutrient tonne of	
	Nitrogen N	Phosphorous P_2O_5		Nitrogen N	Phosphorous P_2O_5
	---------------Rupees per tonne------------			-----------Tonnes---------	
1995-96	10348	13212	18325	0.56	0.72
1996-97	13478	19509	21225	0.64	0.92
1997-98	15870	19573	20825	0.76	0.89
1998-99	15217	19828	22675	0.67	0.87
1999-00	15217	24914	15500	0.98	1.61
2000-01	14130	22300	22700	0.62	0.98
2001-02	16960	24230	19150	0.89	1.27
2002-03	16760	24590	21875	0.77	1.12
2003-04	18040	25550	30950	0.58	0.83

Notes:

1. The nutrient prices of nitrogen (N) and phosphorous (P_2O_5) have been worked out from the average sale prices of Urea and DAP as used in the COP estimates of the Punjab and Sindh in the support price policy for respective crop years.

2. Market prices are the average of monthly seed cotton prices, which prevailed during the harvest season in important markets of the Punjab and Sindh as given in the respective Support Price Policy Reports.

7.5 Nominal and Real Prices of Seed Cotton (Phutti) at Support and Market Prices: 1990-91 to 2003-04 Crops

39. To ascertain overtime changes in the purchasing power of seed cotton (phutti), its nominal support and market prices for the period of 1990-91 to 2003-04 were deflated by the Consumer Price Index (CPI), the most widely used measure of inflation in the economy. The results are given in Table-12 and also shown in Figures-3 and 4.

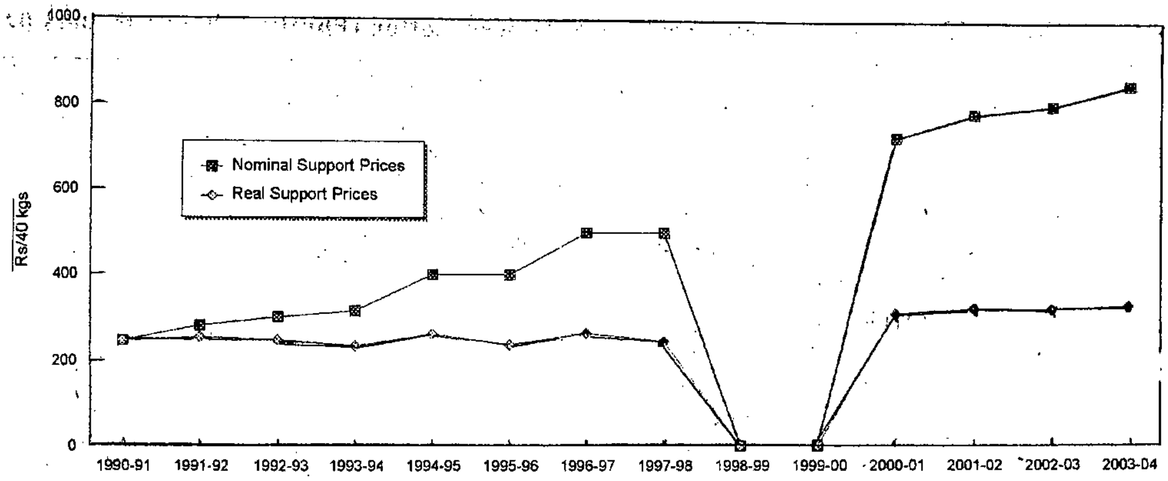

Fig-3: Nominal and Real Support Prices of Seed Cotton: 1990-91 To 2003-04

Note: The Support Prices of Seed Cotton (Phutti) for 1998-99 and 1999-00 were not fixed by the Government.

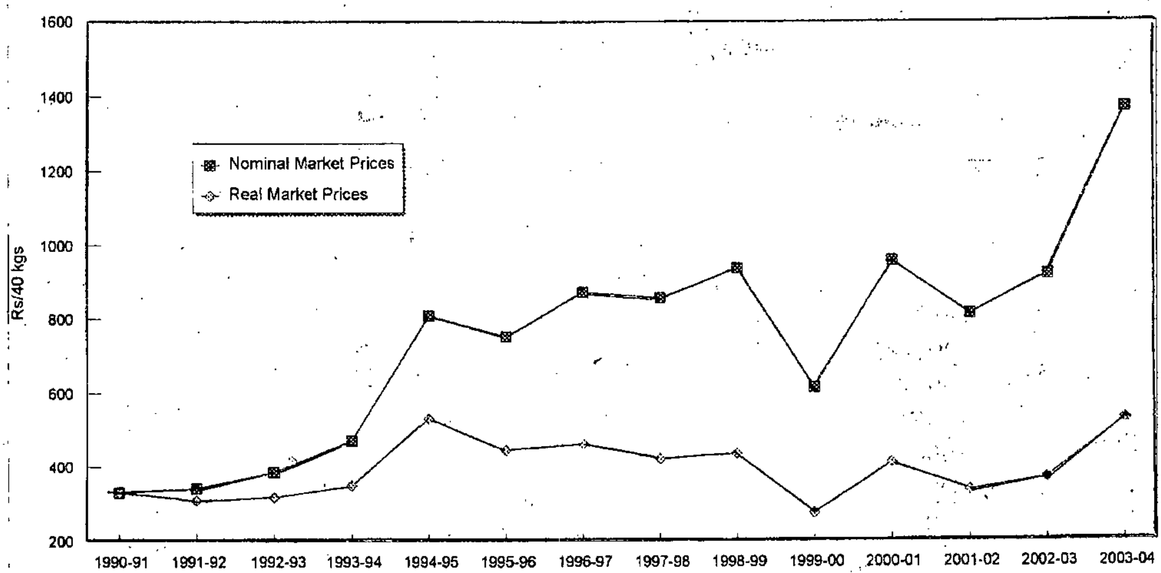

Fig-4: Nominal and Real Market Prices of Seed Cotton: 1990-91 To 2003-04

Table-12: Nominal and Real Prices of Seed Cotton (Phutti): 1990-91 to 2003-04

Crop year	Nominal prices		Consumer Price Index (CPI)	Real prices	
	Support	Market		Support	Market
	Rupees per 40 kgs		1990-91=100	Rupees per 40 kgs	
1990-91	245	330	100.00	245.00	330.00
1991-92	280	342	110.58	253.21	309.28
1992-93	300	386	121.45	247.02	317.83
1993-94	315	471	135.14	233.09	348.53
1994-95	400	810	152.73	261.90	530.35
1995-96	400	753	169.21	236.39	445.01
1996-97	500	872	189.18	264.30	460.94
1997-98	500	857	203.96	245.15	420.18
1998-99	-	936	215.66	-	434.94
1999-00	-	614	223.39	-	274.86
2000-01	725	957	233.24	310.84	410.31
2001-02	780	813	241.50	322.98	336.65
2002-03	800	921	248.98	321.31	396.91
2003-04	850	1370	258.14	329.28	530.72

Notes:

1) CPI for 2003-04 has been projected in view of the average rise in CPI during the last 3 years.
2) The support price of seed cotton (Phutti) used here relates to the group of most commonly grown varieties like, Niab-78, Niab-Krishma, CIM-240, Niab-86, FH-87,CRIS-9, CIM-109, Gohar-87, FH-682 and MNH-147 etc.
3) No support price was fixed for 1998-99 and 1999-00 crops.
4) The support price fixed for 2003-04 crop was for the base grade 3 with staple length 1-1/32" and micronaire range of 3.89 – 4.9 (No control limit).
5) Market prices are the average monthly wholesale prices of Seed Cotton (Phutti) during October-January in Multan market.

Sources:

1) Economic Survey of Pakistan (Statistical Supplement): 2002-03
2) Directorate of Economics and Marketing (E&M) Punjab, Lahore.
3) APCom.

40. The nominal support price of seed cotton (phutti) during the period of 1990-91 to 2003-04 reflects an overall increase of 247 per cent i.e. from Rs 245 per 40 kgs in 1990 to Rs 850 per 40 kgs in 2003-04. During the same period, the CPI has shown a rise of 158 per cent. Consequently, the real support price of seed cotton (phutti) in 2003-04 crop year, estimated at Rs 329 per 40 kgs in 1990-91 rupees, showed an improvement of 34 per cent over corresponding

price in 1990-91. However, in the intervening period the real support price has experienced many ups and downs.

41. The nominal market price of seed cotton (phutti) averaging at Rs 330 per 40 kgs during the picking season of 1990-91 crop has risen to Rs 1370 per 40 kgs in the 2003-04, indicating overall increase of 315 per cent. During the same period, the increase in CPI is estimated at 158 per cent. Consequently, the real market price has soared from Rs 330 to Rs 531 per 40 kgs in 2003-04 in 1990-91 rupees, a rise of 61 per cent in real terms.

42. The year 2003-04 was the best year for the growers in terms of nominal and real market prices of seed cotton (phutti), as the highest market price of Rs 1,370 per 40 kgs was recorded, while CPI has risen by 4 per cent. As a sequel, the real price of seed cotton (phutti) (Rs 530.72 per 40 kgs) the highest level during the period under review has surged by 34 per cent against the previous year, in terms of 1990-91 rupees.

7.6 World Supply, Demand, Stocks, Trade and Price Situation

7.6.1 World supply, demand, stocks and trade

43. World production of cotton during 2002-03 was estimated at 19.31 million tonnes, 2.17 million tonnes (10 per cent) less than in 2001-02. Adding the opening stocks of 10.52 million tonnes, total availbility in 2002-03 worked out to 29.82 million tonnes, 1.37 million tonnes (4.47 per cent) less than that of previous year. For 2003-04, cotton production is projected at 20.11 million tonnes. Accounting for the opening stocks of 8.58 million tonnes, total supply of cotton would be 28.69 million tonnes, which shows a further decline of 1.13 million tonnes (3.39 per cent) as compared to that in 2002-03. The International Cotton Advisory Committee (ICAC) has forecast production of cotton to rise to 21.96 million tones in 2004-05.

44. The global consumption of cotton was estimated at 21.01 million tonnes in 2002-03, up by 3.7 per cent over the level of 21.01 million in 2001-02. For 2003-04, consumption is estimated to fall to 20.87 million tonnes, 0.67 per cent less than previous year. The consumption forecast for 2004-05 is 20.91 million tonnes.

45. End year stocks which decreased to 8.58 million tones in 2002-03 are estimated to further decline to 7.82 million tones but forecast to rise to 8.87 million in 2004-05.

46. World trade (exports) in cotton, reported at 6.65 million tonnes in 2002-03, is forecast to increase to 6.85 million tonnes in 2003-04 but to decrease to 6.51 million in 2004-05. Global supply, demand, stocks and trade situation for cotton is summarized in Table-13.

Table-13: World Production, Consumption, Stocks and Trade in Cotton: 2001-02 to 2004-05

S.No.	Item	2001-02 (Actual)	2002-03 (Estimated)	2003-04 (Projection)	2004-05 (Projection)
		-----------Million tonnes-----------------			
1.	Opening stocks	9.71	10.52	8.58	7.82
2.	Production	21.48	19.31	20.11	21.96
3.	Total supply (1+2)	31.19	29.82	28.69	29.78
4.	Likely consumption	20.26	21.01	20.87	20.91
5.	Trade imbalance and stock adjustment*	- 0.41	- 0.23	0.00	0.00
6.	Closing stocks (3-4+5)	10.52	8.58	7.82	8.87
7.	Trade (exports)	6.47	6.65	6.85	6.51

Sources:

1) International Cotton Advisory Committee – "Report on Supply and Use/Distribution of Cotton", dated February 2, 2004.

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

7.6.2 International prices

47. The world prices of cotton have fluctuated widely during the last ten years. The price of Sindh/Punjab (Afzal 1-1/32") averaging at US cents 73.82 per pound in 1994-95 rose to 82.17 in 1995-96, the highest level during the period under review. Since then these prices have shown a declining trend averaging at US cent 47.23 per pound during 1999-00. During 2000-01, prices recovered and averaged at cents 56.78, but declined to US cents 38.41 per pound in 2001-02 (the lowest level during the period under review). During 2002-03, price had averaged at US cents

51.36 per pound. During the current year the prices have improved further and averaged at US cents 73.57 per pound (August-January 2003-04). The prices of other cottons have also showed a similar pattern. Information on the cif prices of Sindh/Punjab (Afzal 1-1/32") and Orleans Texas (SLM 1-1-/32") and value of Index-B Cottons for the period 1994-95 to 2003-04 is presented in Annex-X and depicted in Figure-5.

7.7 Prices of Seed Cotton as Worked Back from:

7.7.1 Domestic parity price

48. A substantial proportion of cotton production is domestically processed into yarn by the spinning mills for domestic use and exports. Therefore, domestic prices of yarn can provide a useful reference for working back the price of its raw material (i.e. cotton and seed cotton). During August 2003 through January 2004, prices of yarn (21's) at Karachi have averaged at Rs 547 per bundle of 4.54 kgs. Accounting for various costs involved in processing of seed cotton into yarn viz, conversion charges from lint into yarn, sales tax @ 15 per cent, storage and transportation charges, ginning charges and recoveries from sale of cotton waste and cotton seed, seed cotton prices work back to Rs 1,110 per 40 kgs. Details may be seen in Annex-XI.

7.7.2 Export and import prices

49. 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.

50. The export and import parity prices of seed cotton have been calculated on the basis of their actual as well corresponding quoted prices. Inter-bank exchange rate, buying for export parity and selling for import parity has been used in these calculations. Detailed calculations in this connection are given at Annex-XII to XVII and summarized in Table-14.

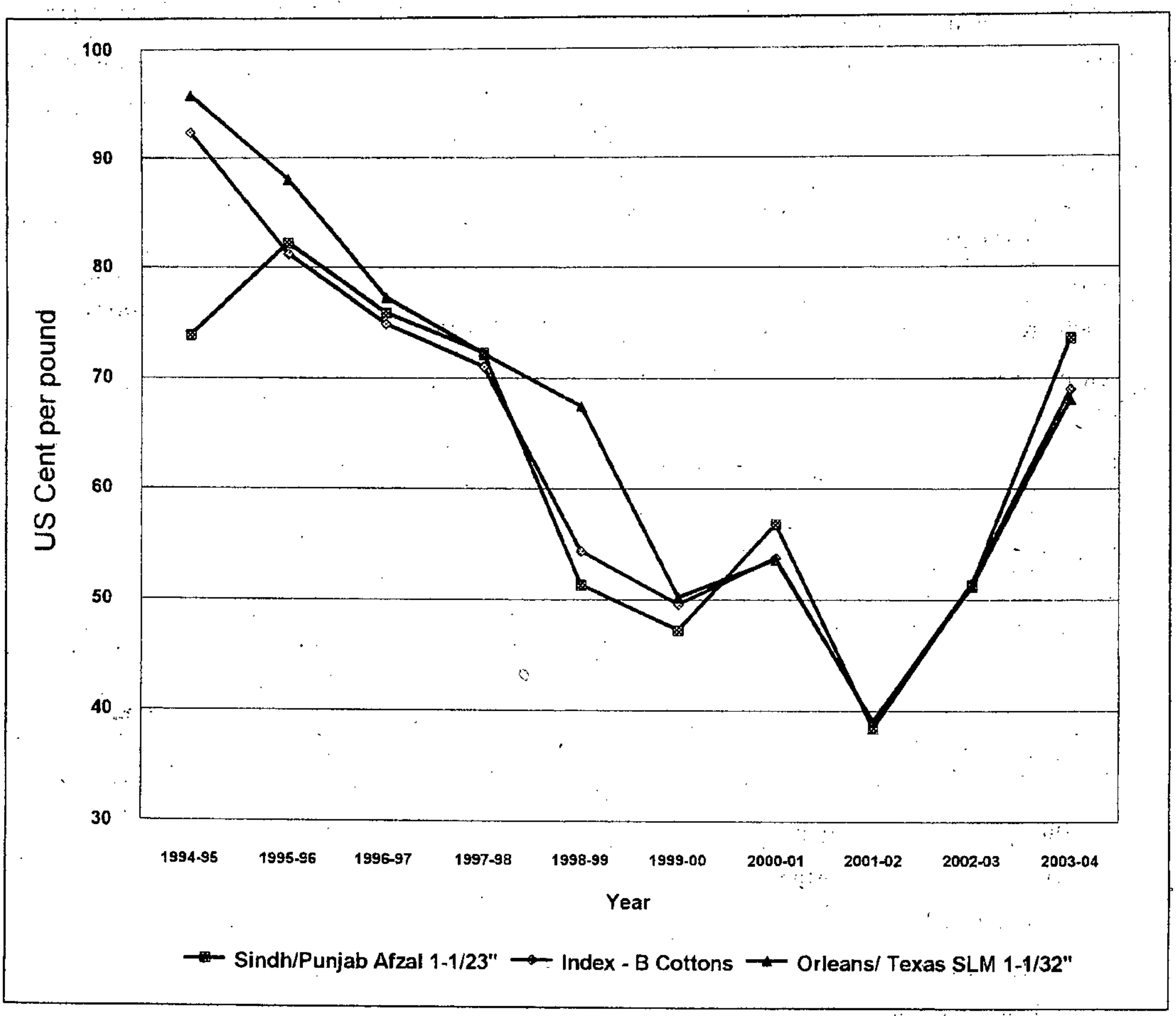

Figure-5: CIF NORTH EUROPE PRICES OF VARIOUS COTTONS: 1994-95 TO 2003-04

Table-14: Export/Import Parity Prices of Seed Cotton as Worked Back from Various Reference Prices

S.No.	Base/period	Reference price	Worked back price of seed cotton at gin
		US cents/lb	Rs/40 kgs
1.	**Export parity prices based on average:**		
	i) Actual export price of Pakistani cotton		
	- During 2003-04 (Aug-Dec)	54.23	1,069
	- During 1998-99 to 2002-03	45.24	917
	ii) Cif (North Europe) value of Index-B cottons:		
	- During 2003-04 (Aug-Jan)	68.98	1,198
	- During 1998-99 to 2002-03	49.58	884
	iii) Cif (North Europe) quotations of Afzal 1-1/32":		
	- During 2003-04 (Aug-Jan)	73.57	1,211
	- During 1998-99 to 2002-03	49.01	875
	iv) Futures contract prices of New York No.2 cotton (average of October 2004, December 2004 and March 2005)	67.92	1,121
	v) Fob prices of Pakistani cotton yarn (20's):	US cents/kg	
	- During 2003-04 (Aug-Jan)	224.00	1,299
	- During 1998-99 to 2002-03	184.00	1,036
2.	**Import parity prices based on average:**		
	i) Cif (North Europe) quotations of Orleans/Texas SLM 1-1/32"	US cents/lb	
	- During 2003-04 (Aug-Jan)	68.10	1,500
	- During 1998-99 to 2002-03	52.28	1,218
	ii) Actual cif (Karachi) prices of imported cotton:	Rs/40 kgs	
	- During 2003-04 (Aug-Dec)	3,580	1,429
	- During 1998-99 to 2002-03	3,042	1,245

Sources: Annex-XII to XVII.

7.8 Economic Efficiency in Seed Cotton Production

51. The efficiency of resource use in cotton production has been evaluated by estimating its nominal protection coefficient (NPC), effective protection coefficient (EPC), and domestic resource cost coefficient (DRC), the most commonly used parameters in this context. As Pakistan exports as well as imports cotton, efficiency parameters have been estimated under both these situations. These parameters are based on the cost of production of seed cotton data as used

in APCom's Support Price Policy Papers for seed cotton. To ascertain the impact of overtime changes in input-output prices, the analysis has been carried out for the 1999-00 to 2003-04 crops. Moreover, to capture regional variations in the resource use efficiency, NPCs, EPCs and DRCs have been calculated for major cotton growing provinces of Punjab and Sindh. The coefficients are summarized in Table-15.

Table-15: Economic Efficiency Coefficients for Seed Cotton

Year/ Province	Under Import Situation				Under Export Situation			
	NPC	EPC	DRC	Cost* Rs/US$	NPC	EPC	DRC	Cost* Rs/US$
Punjab								
1999-00	0.53	0.38	0.34	19.72	0.99	0.93	0.82	47.27
2000-01	0.79	0.70	0.40	23.20	1.08	1.07	0.61	35.33
2001-02	0.68	0.53	0.42	24.36	1.21	1.19	0.94	54.74
2002-03	0.75	0.61	0.43	25.02	0.98	0.88	0.62	36.11
2003-04	0.91	0.83	0.36	20.94	1.22	1.21	0.53	30.50
Average	0.73	0.61	0.39	22.65	1.10	1.06	0.70	40.79
Sindh								
1999-00	0.54	0.41	0.33	19.14	1.02	0.98	0.77	44.47
2000-01	0.77	0.68	0.36	20.88	1.05	1.03	0.55	31.63
2001-02	0.68	0.55	0.38	22.04	1.21	1.19	0.82	47.47
2002-03	0.70	0.58	0.40	22.99	0.93	0.83	0.56	32.47
2003-04	0.80	0.71	0.34	19.71	1.06	1.01	0.48	28.00
Average	0.70	0.59	0.36	20.95	1.05	1.01	0.64	36.81

7.8.1 Nominal Protection Coefficient (NPC)

52. NPC is estimated by dividing domestic prices with border prices (import/export parity prices) and measures the impact of output pricing policies without taking into consideration the distortions in input markets. The NPCs under export scenario were either close to one or greater than one whereas under importing situation these are substantially less than one. These coefficients supports expansion in cotton production to meet the increasing raw material requirements of the textile industry as the imports have been more expensive than the domestic production.

7.8.2 Effective Protection Coefficient (EPC)

53. Effective protection coefficient is the ratio between the value added in producing a commodity at private prices and at social prices. Unlike the NPC, which ignores the distortions in the input markets, EPC also takes into account the impact of policy interventions in the input markets. Thus, it is a more meaningful measure for analyzing the protection/taxation of a given sector/commodity. The results of EPCs calculations also corroborate the inferences drawn from the estimates of NPCs.

7.8.3 Domestic Resource Cost (DRC)

54. Domestic resource cost (DRC) indicates the opportunity cost of domestic resources used per unit of the value added in the production of a commodity. The numerator in these calculations is the opportunity cost of non-tradable factors used in domestic production while denominator is the value addition calculated at social prices. DRC coefficient of greater than one indicates a "comparative disadvantage" in domestic production as the cost associated with its domestic production is greater than the economic cost of corresponding imports.

55. The results of the analysis (Table-16) indicate that DRCs have been much less than one during the period covered (1999-2000 to 2003-04) both under exporting and importing scenarios. Thus, Pakistan enjoys comparative advantage in cotton production. Based on the last 5 years' average prices, DRCs work out to 0.67 for the Punjab and 0.60 for Sindh, implying that cost of domestic resources involved in earning one US dollar through cotton export is 33 - 40 percent, less than the current exchange rate. Accordingly, increasing cotton production is an economic proposition even for exports.

56. DRCs calculated under cotton importing scenario (Table-16) are much lower than the corresponding coefficients estimated under exporting situation. As per these estimates cost of domestic factors involved in saving one unit of foreign exchange through increased cotton production is only 34-40 percent of its market price. Thus expansion in production of cotton for import substitution is highly cost effective.

8. CONSULTATION

57. Annual meeting of the Agricultural Prices Commission's Standing Committee on Cotton was held at Islamabad on February 14, 2004. It was attended by the representatives of farmers' associations, ginners, KCA and APTMA, progressive growers, cotton experts and officials of the Federal and Provincial Governments concerned with the cotton production and marketing. The meeting discussed, at length, the situation with regard to cotton crop and problems encountered by the farmers in cotton production and marketing. Future prospects of cotton crop in the changing economic environment also engaged the attention of the Committee. The participants in the meeting emphasized the need for development of a suitable technology package for sustainable production of cotton. They highlighted the need for strict quality control in pesticides' marketing and underscored the role of Integrated Pest Management to arrest the increasing menace of pests and to protect the environment. The grower members expressed their concern about rising prices of inputs and pleaded for bringing stability in prices. Though happy about the prices of cotton in the current year, farmers were concerned about the sharp decline in yield and increasing risk in cotton production in the wake of serious pest infestation compounded by the failure of market to supply the requisite pesticides. There was a consensus in the meeting for having a programme which ensured incentive prices to the farmers in general and in good crop years in particular.

9. TO SUM UP

58. World production of cotton in 2003-04 is projected at 20.11 million tones, 4.14 per cent more than that of last year. But as consumption is forecast to exceed production, the stocks of 8.58 million tones are to decline to 7.82 million. International prices of cotton have risen sharply. The average cif price of Sindh/Punjab (Afzal 1-1/32"), recorded at US cents 51.36 per pound during 2002-03, has jumped to 73.57 cents in the current year (August-January 2003-04). The value of Index B cottons is projected to average 68 cents as compared to their corresponding value of 51cents in 2002-03.

59. Based on the analysis of relevant domestic and international factors, the likely options about seed cotton price are summarized below.

	Base	Worked back price of seed cotton at ginnery level Rupees per 40 kgs
1	Domestic price of yarn at Karachi	1,110
2	Export parity prices based on:	
	i) Actual average export price of Pakistani cotton:	
	- During 2003-04 (Aug-Dec)	1,069
	- During 1998-99 to 2002-03	917
	ii) Average cif (North Europe) value of Index-B cottons:	
	- During 2003-04 (Aug-Jan)	1,198
	- During 1998-99 to 2002-03	884
	iii) Average cif (North Europe) quotations of Afzal 1-1/32":	
	- During 2003-04 (Aug-Jan)	1,211
	- During 1998-99 to 2002-03	875
	iv) Futures contract prices of New York No.2 cotton (average of October 2004, December 2004 and March 2005)	1,121
	v) Average fob prices of Pakistani cotton yarn (20's):	
	- During 2003-04 (Aug-Jan)	1,299
	- During 1998-99 to 2002-03	1,036
3	Import parity prices based on:	
	i) Actual average cif (North Europe) quotations of Orleans/ Texas SLM 1-1/32"	
	- During 2003-04 (Aug-Jan)	1,500
	- During 1998-99 to 2002-03	1,218
	ii) Cif Karachi prices of imported cotton:	
	- During 2003-04 (Aug- Dec)	1,429
	- During 1998-99 to 2002-03	1,245
4	Average domestic market price of seed cotton in 2003-04 (September-January)	1,231
5	Cost of production for 2004-05 crop	
	Punjab	857
	Sindh	806

60. The price of seed cotton as worked back from the domestic price of cotton yarn at Karachi during the current season comes to Rs 1,110 per 40 kgs against the monthly average market prices ranging between Rs 975 to 1,475 per 40 kgs from August 2003 to January 2004.

61. The worked back price of seed cotton from the actual export prices of Pakistani cottons, cif North Europe value of Index-B and Sindh/Punjab Afzal 1-1/32" cotton, during 2003-04 range between Rs 1,069 and 1,211 per 40 kgs. The prices of seed cotton worked back from corresponding average for 1998-99 to 2002-03, ranged between Rs 875 and 917 per 40 kgs. The worked back price of seed cotton from the futures contract price of New York No.2 cottons (average of October 2004, December 2004 and March 2005) quoted on 28 January, 2004 comes to Rs 1,121 per 40 kgs.

62. The prices of seed cotton calculated from the average fob prices of cotton yarn (20's), during 2003-04 work back to Rs 1,299 per 40 kgs, and to Rs 1,036 when based on the average of corresponding price for 1998-99 to 2002-03.

63. The import parity price of seed cotton based on the cif North Europe quotations of Orleans/Texas SLM 1-1/32" during August 2003 to January 2004, comes to Rs 1,500 and to Rs 1,218 per 40 kgs when calculated from the corresponding average of quotations for 1999-2003. The import parity prices of seed cotton estimated from the actual average cif (Karachi) price of imported cotton in the current season comes to Rs 1,429, and to Rs 1,245 per 40 kgs based on the average for 1999-2003.

64. The monthly average of market prices in Punjab has ranged from Rs 975 to Rs 1,475 per 40 kgs during September 2003 to January 2004. The prices in Sindh markets during this period have ranged between Rs 1,006 and Rs 1,426 per 40 kgs. The overall average of market price during the period under reference works out to Rs 1,231 per 40 kgs. The market prices throughout the season have ruled much higher than the Government announced support price of Rs 850 per 40 kgs.

65. The cost of production (COP) of seed cotton at ginnery level for the 2004-05 crop is estimated at Rs 857 per 40 kgs for Punjab, and Rs 806 per 40 kgs for Sindh.

66. Keeping in view the developments in the domestic and international markets as summarized above, there is a case for increase in the support of seed cotton. The analysis of

export as well as import parity prices warrant a much higher level of support prices but given the rationale and philosophy of the support price programme as a measure of last resort and meant to provide a floor to the market in years of good crop, the Commission recommends to raise the support price to Rs 925 per 40 kgs. It is emphasized that this price is not meant to replace the market determined prices but provide a floor to the market. Pakistan has comparative advantage in cotton production and moderate increase in its support price is considered necessary.

67. The task of implementing the support price of seed cotton should remain with TCP. Since the support price for seed cotton is implemented through procuring the cotton lint, the price of lint be fixed accordingly. TCP should also enforce the premia and discounts for various grades and staple lengths as given in the following section on Quality Premium in this Report.

10. QUALITY PREMIUM

68. For 2003-04 crop, the ECC had fixed the support price for seed cotton (phutti) at Rs 850 per 40 kgs for "base grade 3" and the premium/discount rates for higher/lower quality grades and staple length were also approved. For the cotton crop of 2004-05, the revised grade and staple margins are given below in Table-16.

Table-16: Revised Grade and Staple Margins for Seed Cotton

Grade	Staple length				
	1″	1-1/32″	1-1/16″	1-3/32″	1-1/8″
	Rupees per 40 kgs				
Super	13	30	47	64	81
One	3	20	37	54	71
Two	-6	11	28	45	62
Three	**-17**	**Base**	**17**	**34**	**51**
Four	-30	-13	-4	21	38
Five	-43	-26	-9	8	25

Note: The above margins are applicable to the seed cotton of micronaire ranging between 3.8 and 4.9 NCL.

69. Since TCP purchases cotton lint instead of seed cotton, the premia/discounts on lint are calculated in Table-17. By providing premia/discounts on lint, the growers would be encouraged to produce quality seed cotton.

Table-17: Premia/Discounts for Various Grades/Staple Lengths for Lint

Grade	Staple length				
	1″	1-1/32″	1-1/16″	1-3/32″	1-1/8″
	---------- Rupees per 40 kgs ----------				
Super	119	178	237	294	353
One	67	124	181	237	294
Two	4	60	116	170	226
Three	**-54**	**Base**	**54**	**107**	**161**
Four	-122	-70	-18	34	86
Five	-184	-134	-83	-34	17

11. IMPROVING PRODUCTIVITY AND MARKETING

11.1 Improved seed

70. Improved seed is considered a key to enhance crop productivity. The breeders though have evolved high yielding cotton varieties and both the public and private sectors are active in seed business but sufficient quantity of desired seed is not reaching the growers. Adulterated seed and seed of unapproved varieties is distributed by some agencies/traders. The growers are not aware of new varieties and sources of pure seed of these varieties and associated cultural and agronomic practices. As cotton is an open pollinated crop, the experts recommend to cover the entire area with the certified seed every year. The data presented in Annex-XVIII to XX reveal that during the decade ending 2003-04 supply of certified seed has fluctuated sharply against its requirements in all the provinces. However, supply position in Sindh has been is especially disappointing. Thus, production of certified seed and its proper propagation need to be encouraged in public as well as private sector.

11.2 Balanced use of Fertilizers

71. Intensive cropping and inadequate use of organic manures have depleted the soils of major and minor nutrients. Moreover, increasing salinity, sodicity, agro-chemicals pollution and soil erosion are posing serious threat of soil de-gradation, resulting in its declining capacity to support crop cultivation. To arrest further deterioration of soil and soil fertility there is an urgent need of launching a comprehensive and well coordinated campaign for adding organic as well as inorganic nutrients to the soil. Use of farm yard and green manure incorporation of crop residues, use of bio fertilizers, composts and balanced doses of various fertilizers are all necessary to arrest deterioration in soil and enhance its fertility. For better achievement on the subject, provincial agricultural research institutes are required to develop various bio fertilizers and area/crop specific fertilizer recommendations of both principal and micro nutrients and their wide publicity through mass media for apprising farmers about their importance in farm production.

11.3 Integrated Pest Management (IPM)

72. Cotton crop is attacked by a host of insects/pests. To control them various pesticides are used in different compositions and their use has increased sharply in recent years leading to huge imports of various pesticides. The indiscriminate use of pesticides poses a serious threat to the flora and fauna as well as the environment. The adoption of an integrated approach involving certain cultural, biological and chemical measures simultaneously is required to check the menace. These measures may include: (i) use of varieties resistant to insects and diseases; (ii) adoption of cultural practices that prevent build up of pests; (iii) trapping of pests; (iv) selective and judicious use of pesticides including bio-pesticides; (v) biological control by predators, parasitoids or insect pathogens; (vi) microbial control; and (vii) physical control. Realizing the importance of the Integrated Pest Management (IPM), the government has established a National Integrated Pest Management Programme (NAT-IPM) at NARC, Islamabad.

73. Under the programme pest resistant varieties, specifically resistant to bollworms, leaf hoppers, bacterial blight and root rot of cotton have been identified. Cultural practices and other measures have also been identified to check the population of various pest and diseases under

natural conditions without the use of any pesticide/insecticide. About one hundred natural enemies (predators) have been identified. A lot of research in this respect needs to be done in future. The government, therefore should strengthen the National IPM programme for accelerating research and encourage the private companies for commercial rearing and marketing of useful insects and other predators. Moreover, recommendations of the Programme also need to be widely publicized.

11.4 Quality Control of Pesticides

74. In the APCom's Standing Committee meeting held on 14-02-2004 and filed survey of 2003-04 crop, the growers have complained about the adulteration and in turn ineffectiveness of the pesticides being marketed. As a result, the economy of both the farmers and country has suffered. Some experts on plant protection are of the view that quality of pesticides has also deteriorated due to their local manufacturing and formulation under generic scheme. To arrest the sale of adulterated pesticides and their indiscriminate use, strict quality control is needed. For this purpose, following suggestions are made:

(i) Each pesticide company be asked to appoint its own dealers for sale of a product imported and marketed by that company. Each branded product of a particular firm should only be available from the authorized dealers of that firm.

(ii) Magistrates be appointed/posted/transferred with Agricultural Department for speedy disposal of pesticide cases.

(iii) To avoid under dosing of pesticides, each importer and or distributor should indicate the nature of active ingredient and its concentration in a branded product to Provincial Directorate of Plant Protection who should fix/recommend the dose of each product for a particular pest or disease..

(iv) To reduce the cost of pesticides used on cotton, pest warning system should be strengthened through coordinating the services of provincial agriculture extension and pest scouting/warning departments.

(v) Provincial plant Protection and Pest Scouting Departments should launch campaign to educate the growers about the composition of various insecticides and also render advice helping in minimizing the spray expenditure.

11.2 Improving Quality of Cotton

11.2.1 Picking

75. Proper picking plays an important role in improving the cotton quality. In this regard growers need to be apprised of the following.

i) Cotton picking should start at about 10.00 A.M when dew has dried completely.
ii) The picking should be done in a line and should start from the lower portion of the plant.
iii) The picked cotton (phutti) should be placed separately for each variety under dry and clean conditions.
iii) The produce should be handled in cotton clothes only.
iv) The 1st and last pickings may not be mixed.
v) The healthy produce should be kept separate from the produce of dirty, pre-matured, un-opened and infected bolls.

11.2.2 Ginning

76. Cotton quality can be improved considerably by adopting the modern techniques of ginning. The staple length and strength is adversely affected, if defective machinery is used in ginning. The domestic ginning industry usually use the sawgins of poor and low quality. The saws are rarely replaced but their teeth are sharpened. This process adversely affects the cotton quality, as the teeth get deformed. Ginning has been identified as one of the weakest links in the processing of cotton. It is imperative that modern ginning machinery, pre-ginning cleaners and the lint cleaning apparatus be installed in gins to up-grade and modernize the cotton ginning sector. For this purpose incentives and loans on easy terms and conditions may be provided to the ginners. Further for getting lint of higher grades, research on different types of ginning and cleaning machines and ginning techniques should also be undertaken. In this respect earlier recommendation of APCom for the establishment of a Ginning Research Institute at Multan is reiterated to be implemented during 2004-05 season.

11.2.3 Contamination free cotton

77. There has been continuing problem of contamination in the raw cotton, which is affecting the cotton spinning industry. The contamination in cotton is the result of using jute, poly propylene and plastic bags, presence of human and animal hair, feathers of birds and other like

items. Recognizing the importance of issue, and to fetch higher prices in the international market, government had introduced the cotton standardization system for the production of high quality contamination free cotton. So the programme for the production of contamination free cotton was launched. PCSI with its available technical expertise moved forward to reduce the contamination in Pakistani cotton. In 2001-02 season, this programme was launched in Rahim Yar Khan district of Punjab, Ghotki in Sindh and Nasirabad in Balochistan.

78. As reported by APTMA, the contamination level in R.Y. Khan has been reduced to 4 to 5 grams per bale from 19 grams. The ginning factories where PCSI prescribed procedures for the production of high quality contamination free cotton had been fully adopted, the contamination level gone down and recorded within the range of only 0.74 to 1.97 grams per bale. At international level, Pakistan used to be the most cotton contaminated country and ranked at No.2 in 1999, it has been lowered down in 2001 at 25th position which is quite encouraging.

79. Keeping in view the success of programme for the production of contamination free cotton, it was extended to two more districts i.e. Sanghar (Sindh), Bahawalpur (Punjab) and whole of Balochistan in 2002-03 season. For its implementation PCSI had established sub offices at the selected districts. Administrative, operational and marketing arrangements are included in the PCSI line of action. The classers after classification of lint cotton, issue quality certificate for each lot. The buyers are required to pay premium according to the contamination level over and above the quality premium in addition to the prevailing market price of cotton. Over 1300 persons have been trained in classing and grading by PCSI. However, the Cotton Standardization Ordinance 2002 has not been properly enforced as yet. The cotton marketing is being carried out on old traditional system of buying cotton on the basis of variety. There is a need to switch over to a scientific marketing mechanism on the basis of quality subject to premium and discount. The APTMA which is the main cotton buyer should start purchases of cotton on the basis of payments of premium based upon quality. For the improvement of cotton quality PCSI has decided to establish cotton fibre testing laboratories equipped with HVI's in the districts of Sanghar, Ghotki, R.Y. Khan, Vehari and Multan. In order to further refine the programme of contamination free cotton, it is suggested that:

- PCGA should gin and press seed cotton lots according to the grades of PCSI.
- The Ministry of Industries should persuade the APTMA to adopt the cotton pricing system of premium and discounts based upon its quality, as required under the Cotton Standardization Ordinance 2002. .

11.3 Improving Marketing

11.3.1 Underweighment and undue deductions

80. The practice of underweighment and undue deductions on the part of middlemen and beoparies is very old. It is among the chain of malpractices which is looting the growers since decades. During the course of field survey and meeting of APCom's Standing Committee on Cotton held on 14-2-2004, the growers have complained about the undue deductions and underweighment of their produce. For improving the situation, supervisory committees consisting of growers, dealers, cotton ginners and representatives of the provincial Agriculture Departments should be constituted and re-activated.

11.3.2 Proper packing and labeling

81. The truthful presentation of a product is imperative to maintain credibility in trading circles and to fetching good prices in the market. If cotton is properly packed and labeled, it will economize the time of transaction by satisfying both the buyers and sellers. In the past sometime false labeling had defamed the country at international level. Therefore, it is of utmost importance that truthful labeling and proper packing may be ensured. It should be ensured by the concerned quarters that each lot of cotton lint be labeled according to the grade, staple length and micronaire actually contained in it.

11.3.3 Weight of a cotton bale

82. The standard net weight of a Pak-cotton bale is fixed as 170 kgs. In the market it is noticed that different ginneries produce bales of short weight ranging from 165 to 168 kgs. This practice of producing short weight bales has created problems in crop estimation and cotton exports. To avoid such problems and confusion, all ginneries should stick to the standard net weight of a cotton bale as 170 kgs.

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ANNEX - I

RECOMMENDED SOWING TIMES OF AMERICAN COTTON

Province/District	Time of Sowing
PUNJAB	
Faisalabad, Sargodha	1st May to 15th June
Jhang, Toba Tek Singh	1st May to 15th June
Mianwali	10th May to 15th June
Sahiwal, Pak Pattan, Okara	1st May to 15th June
Multan, Lodhran, Vehari	1st May to end of June
Khanewal	15th May to 15th June
Bahawalpur, R.Y. Khan	1st May to 15th June
Bahawalnagar	1st May to 20th June
Muzaffargarh, Layyah, D.G. Khan, Rajanpur	1st May to end of June
SINDH	
Mirpur Khas, Tharparkar	Ist March to 15th April
Hyderabad, Badin	10th April to 10th May
Sanghar	Mid April to mid May
Dadu, Khairpur, Sukkur, Ghotki	Mid May to 10th June
Nawabshah	1st May to 31st May
NWFP	
D.I. Khan	1st May to 31st May
BALOCHISTAN	
Lasbela, Dera Murad Jamali, Nasirabad	1st May to 31st May

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

ANNEX-II

PROVINCE-WISE AREA(HECTARES), PRODUCTION AND YIELD OF COTTON IN PAKISTAN: 1993-94 TO 2003-04

Year	Punjab	Sindh	N.W.F.P	Balochistan	Pakistan
AREA			000 hectares		
1993-94	2249.2	554.9	0.2	0.3	2804.6
1994-95	2244.4	405.6	0.3	2.5	2652.8
1995-96	2463.3	529.3	0.2	4.5	2997.3
1996-97	2540.2	601.2	0.3	6.9	3148.6
1997-98	2348.4	600.3	0.5	10.5	2959.7
1998-99	2282.8	630.2	0.4	9.4	2922.8
1999-00	2329.3	633.5	0.3	20.0	2983.1
2000-01	2386.4	523.6	0.2	17.3	2927.5
2001-02	2526.4	547.4	1.6	40.4	3115.9
2002-03	2208.3	542.6	1.9	40.8	2793.6
2003-04	2384.4	561.4	6.5	39.1	2991.4
YIELD			Kgs per hectare		
1993-94	493	465	340	397	488
1994-95	562	538	227	313	558
1995-96	602	598	255	495	601
1996-97	476	637	340	493	506
1997-98	494	662	272	494	528
1998-99	494	576	298	496	512
1999-00	643	638	340	493	641
2000-01	573	696	340	496	624
2001-02	516	749	436	502	579
2002-03	590	756	412	543	622
2003-04	540	602	424	531	552
PRODUCTION			000 bales		
1993-94	6523.0	1517.9	0.4	0.7	8042.0
1994-95	7410.0	1282.1	0.4	4.6	8697.1
1995-96	8720.0	1861.5	0.3	13.1	10594.9
1996-97	7103.4	2250.2	0.6	20.0	9374.2
1997-98	6817.0	2335.5	0.8	30.5	9183.8
1998-99	6628.0	2134.1	0.7	27.4	8790.2
1999-00	8804.0	2377.4	0.6	58.0	11240.0
2000-01	8540.0	2141.1	0.4	50.4	10731.9
2001-02	8046.0	2443.2	4.1	119.3	10612.6
2002-03	7664.0	2411.8	4.6	130.2	10210.6
2003-04	7573.5	1988.2	16.2	122.0	9699.9

Note: One bale = 170.09 kgs = 375 lbs

Sources:

1. For 1993-94 to 2001-02: Agricultural Statistics of Pakistan, 2001-02, MINFAL, Islamabad.
2. For 2002-03: Final estimates provided by respective Provicial Agriculture Deptts.
3. For 2003-04: Second estimates of Punjab, NWFP and Balochistan and Final estimate of Sindh provided by Provincial Agriculture Departments.

ANNEX-III

DISTRICT-WISE AREA AND PRODUCTION OF SEED COTTON: AVERAGE OF 2001-02 TO 2003-04

S.No.	Province/District	Area	Percentage share	Production	Percentage share	Yield
		000 ha		000 bales		Kgs/ha
	PUNJAB					
1	Bahawalpur	270.05	9.10	988.99	9.72	622.91
2	R.Y.Khan	314.30	10.59	978.60	9.62	529.59
3	Vehari	227.56	7.67	826.31	8.12	617.62
4	Lodhran	195.19	6.58	770.60	7.57	671.50
5	Rajanpur	148.11	4.99	660.71	6.49	758.76
6	Khanewal	185.61	6.26	648.39	6.37	594.16
7	M.Garh	195.19	6.58	595.98	5.86	519.34
8	Bahawalnagar	198.97	6.71	590.76	5.81	505.02
9	Multan	173.34	5.84	588.88	5.79	577.85
10	D.G.Khan	98.34	3.31	404.05	3.97	698.88
11	Sahiwal	88.36	2.98	179.22	1.76	344.99
12	Jhang	54.50	1.84	112.87	1.11	352.27
13	T.T.Singh	46.00	1.55	104.31	1.03	385.71
14	Pakpatan	54.36	1.83	92.05	0.90	288.01
15	Faisalabad	41.14	1.39	78.83	0.77	325.90
16	Layyah	37.09	1.25	72.82	0.72	333.90
17	Okara	15.92	0.54	26.86	0.26	287.07
18	Kasur	9.58	0.32	11.66	0.11	207.09
19	Sargodha	8.36	0.28	8.97	0.09	182.43
20	Mianwali	3.64	0.12	8.23	0.08	384.73
21	Bhakkar	3.24	0.11	7.96	0.08	418.48
22	M.B.Din	2.43	0.08	2.55	0.03	178.72
23	Sheikhupura	0.67	0.02	0.58	0.01	148.83
24	Jhelum	0.41	0.01	0.37	0.00	154.75
25	Khushab	0.40	0.01	0.34	0.00	144.79
26	Chakwal	0.27	0.01	0.26	0.00	161.79
	PUNJAB Sub-total	**2373.0**	**80.0**	**7761.2**	**76.3**	**556.29**
	SINDH					
1	Ghotki	113.46	3.82	481.75	4.73	722.20
2	Sanghar	104.65	3.53	452.23	4.44	735.02
3	Khairpur	73.63	2.48	314.65	3.09	726.91
4	Nawab shah	67.80	2.29	294.66	2.90	739.26
5	Hyderabad	47.82	1.61	197.66	1.94	703.08
6	Mirpurkhas	50.48	1.70	173.88	1.71	585.89
7	N.Feroze	34.48	1.16	138.12	1.36	681.38
8	Sukkur	29.99	1.01	126.09	1.24	715.10
9	Dadu	8.92	0.30	36.88	0.36	703.08
10	Jacobabad	6.69	0.23	24.13	0.24	613.37
11	Larkana	4.10	0.14	14.80	0.15	613.53
12	Shikarpur	3.69	0.12	12.93	0.13	595.72
13	Badin	3.96	0.13	10.91	0.11	468.52
14	Thatta	0.64	0.02	1.92	0.02	513.93
15	Tharparkar	0.16	0.01	0.45	0.00	468.18
	SINDH Sub-total	**550.5**	**18.6**	**2281.1**	**22.4**	**704.83**
	NWFP Sub-total	**3.33**	**0.11**	**8.30**	**0.08**	**423.52**
	BALOCH. Sub-total	**40.10**	**1.35**	**123.83**	**1.22**	**525.26**
	PAKISTAN Total	**2966.93**	**100.00**	**10174.36**	**100.00**	**583.28**

Note:

1. **Data have been arranged in descending order of production.**
2. **Percentage share calculated on the basis of country total.**
3. **Districts in which Seed Cotton is not grown or for which the data are not available, are excluded.**

Source:

Provincial Agriculture Departments

ANNEX-IV

DESIGN OF SAMPLE SUREY
(March-April, 2003)

Agricultural Prices commission (APCom) conducted large field survey of cotton in the Punjab and Sindh provinces during March 2003 for 2002-03 crop with collaboration of Provincial Agriculture Departments.

The survey was executed through a three stage sample design. At the first stage, stratified random sample of tehsils/tulkas was drawn. At the second stage, sampling frame was the sample of villages/dehs of the Provincial Agriculture Departments being used for their Crop Cutting Experiments. APCom have sub-sampled the villages/dehs from this sample frame. At village level, the cotton growers were stratified by farm size and were randomly selected from the village lists of cotton growers of the sample villages/dehs.

Fourteen sampling tehsils in the Punjab namely, Summundri, Shorkot, Muzaffargar, Vehari, Bahawalnagar, Multan, Khanewal, MianChannu, Rahim Yar Khan, Liaqatpur, Bahawalpur, Duniapur, Lodhran, Rajanpur were randomly selected from various agro-climatic zones. Similarly 7 taulkas namely Shahdadpur, Nawabshah, Khairpur/Gambat, Daherki, Naushero-Feroze//Kandiaro, Kot Ghulam Muhammad, Hala/Matiari were randomly selected from Sindh. From the selecrted tehsils/tulkas 65 sample villages from the Punjab and 35 sample Dehs from Sindh were randomly selected. In the Punjab 675 and in Sindh 338 cotton growers were interviewed.

CRITERIA FOR CATEGORIZATION OF SAMPLE FARMERS

A Farmer is to be classified as Progressive (1), Traditional (2) and Average (3), based on a number of factors considered together. While no hard and fast rule can be laid down, the criteria to be taken into consideration for each category are defined as follows:-

A. Progressive Farmers:-

1. Practise deep tillage operations.
2. Use the recommended seed rate and are conscious about plant population
3. Cultivate disease resistant varieties of cotton.
4. Practise judicious use of plant protection measures.
5. Are particular about balanced use of fertilizer nutrients preferably based on soil testing.
6. Are careful about quality picking of cotton.
7. Are particular about intercultural operations.
8. Adopt improved farm management practices.

B. <u>Traditional Farmers:</u>

1. Do not practise deep ploughing.
2. Are not particular about optimum seed rate and plant population.
3. Are indifferent about selection of diseases resistant varieties.
4. Practise inadequate plant protection measures.
5. Are not particular about soil testing, and balanced use of fertilizer nutrients.
6. Are not careful about quality picking of cotton.
7. Are indifferent about improved farm management practices.

C. <u>Average Farmers:</u>

These are the farmers who stand in between categories A and B. They might be considered as being in a transitional stage from traditional to Progressive categories thus depicting some features of both.

The COP of the "average" growers, which generally exceeds that of the "progressive" but is less than that of the "traditional' growers has been taken as a reference point in price policy analysis on the following grounds:

3.1 The COP of the 'progressive growers, which is relatively low, if adopted in price setting, would result in the use of too restrictive a criterion. This would lead to excessive resource transfers out of the agriculture sector and discourage farm investments.

3.2 The use of COP of the 'traditional' growers, which is relatively high, if adopted in price setting, would encourage inefficient crop production and adversely affect the competitiveness of exports.

ANNEX-V

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON
IN THE PUNJAB: 2004-05 CROP

S.No	Operations / Inputs	Average No. of operations/ units/acre	2004-05 crop	
			Cost per unit	Cost per acre
1	2	3	4	5 = 3 * 4
			---------- Rupees ----------	
1.	Land preparation:			
	1.1 Deep ploughing	0.228	410.00	93.48
	1.2 Rotavator	0.233	450.00	104.85
	1.3 Ploughing	3.200	150.00	480.00
	1.4 Planking	0.421	75.00	31.58
	1.5 Ploughing+planking	1.341	150.00	201.15
	1.6 Levelling (tractor hrs)	0.537	200.00	107.40
2.	Seed and sowing operations:			
	2.1 Seed (kgs)	7.643	50.00	382.15
	2.2 Sowing:			
	2.2.1 Ploughing+planking	0.394	150.00	59.10
	2.2.2 Ridging	0.228	150.00	34.20
	2.2.3 Drilling	0.772	150.00	115.80
	2.2.4 Manual labour for sowing, bund making and gap filling (m.days)	0.369	100.00	36.90
3.	Irrigation: * (Nos)			
	3.1 Canal	2.156	-	93.02
	3.2 Private tubewell	1.706	276.00	470.86
	3.3 Mixed	2.739	212.00	580.67
	3.4 Labour for irrigation and water course cleaning (m.days)	3.462	100.00	346.20
4.	Interculture:			
	4.1 With tractor	2.640	150.00	396.00
	4.2 Manual weeding/thining (m.days)	4.600	100.00	460.00
5.	Plant Protection including application (weedicides + pesticides)	5.769	480.00	2769.12
6.	Farm Yard Manure including transport and application 50% (trolly load)	-	-	142.00
7.	Fertilizers: (bags)			
	7.1 DAP	0.731	953.00	696.84
	7.2 SSP	0.071	305.00	21.66
	7.3 SOP	0.029	773.00	22.42
	7.4 NPK	0.046	765.00	35.19
	7.5 Urea	2.297	424.00	973.93
	7.6 CAN	0.224	289.00	64.74
	7.7 NP	0.069	630.00	43.47
	7.8 Fertilizer transport and application	3.467	18.00	62.41
8.	Mark up on investment @ 11 % per annum for 8 months on items 1 to 7 minus 3(1)	-	-	640.34
9.	Management charges for 8 months	-	-	330.00
10.	Land rent for 8 months	-	5000.00	3333.33
11.	Average weighted land tax @ Rs 120/acre/annum for 8 months	-	120.00	80.00
12.	Land revenue including local rate, chaukidara, etc.	-	-	5.00
13.	Payment to pickers (Rs/ 40 kgs)	17.400	80.00	1392.00
14.	Cutting of cotton sticks	-	-	185.00
15.	Gross cost (item 1 to 14)	-	-	14790.59
16.	Value of cotton sticks	-	-	185.00
17.	Net cultivation cost (Item 15-16)	-	-	14605.59
18.	Yield per acre (kgs)	-	-	696.00
19.	Cost of production at farm level: (Rs/40 kgs)			
	19.1 Including land rent	-	-	839.40
	19.2 Excluding land rent	-	-	647.83
20	Marketing expenses (Rs/40 kgs)	-	-	18.00
21	Cost of production at market/ginnery: (Rs/40 kgs)			
	21.1 Including land rent	-	-	857.40
	21.2 Excluding land rent	-	-	665.83

ANNEX-VI

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF SEED COTTON IN SINDH: 2004-05 CROP

S.No	Operations / Inputs	Average No. of operations/ units/acre	2004-05 crop	
			Cost per unit	Cost per acre
1	2	3	4	5 = 3 * 4
			---------- Rupees	----------
1.	Land preparation:			
	1.1 Deep ploughing	0.553	440.00	243.32
	1.2 Ploughing	2.071	220.00	455.62
	1.3 Planking	0.030	110.00	3.30
	1.4 Ploughing+planking	1.333	220.00	293.26
	1.5 Levelling (tractor hrs)	0.859	220.00	188.98
2.	Seed and sowing operations:			
	2.1 Seed (kgs)	10.279	47.00	483.11
	2.2 Sowing:			
	2.2.1 Ploughing + planking	0.160	220.00	35.20
	2.2.2 Ridging	0.236	220.00	51.92
	2.2.3 Drilling	0.763	220.00	167.86
	2.2.4 Manual labour for sowing, bund making and gap filling (m. days)	0.988	100.00	98.80
3.	Irrigation: * (Nos)			
	3.1 Canal	3.148	-	93.09
	3.2 Private tubewell	2.454	189.00	463.81
	3.3 Mixed	0.413	167.00	68.97
	3.4 Lift irrigation	0.251	42.00	10.54
	3.5 Labour for irrigation and water course cleaning (m.days)	3.732	100.00	373.20
4.	Interculture:			
	4.1 With tractor	0.524	220.00	115.28
	4.2 With bullocks	1.259	220.00	276.98
	4.3 Manual weeding/thining (m.days)	4.700	100.00	470.00
5.	Plant Protection including application (weedicides + pesticides)	4.200	440.00	1848.00
6.	Farm Yard Manure including transport and application 50 % (trolly load)	-	-	104.00
7.	Fertilizers: (bags)			
	7.1 DAP	0.893	943.00	842.10
	7.2 TSP	0.009	715.00	6.44
	7.3 Urea	1.834	423.00	775.78
	7.4 CAN	0.016	307.00	4.91
	7.5 AS	0.010	400.00	4.00
	7.6 NPK	0.042	790.00	33.18
	7.7 NP	0.076	652.00	49.55
	7.8 Fertilizer transport and application	2.880	18.00	51.84
8.	Mark up on investment @ 11 % per annum for 8 months on items 1 to 7 minus 3(1)	-	-	551.46
9.	Management charges for 8 months	-	-	330.00
10.	Land rent for 8 months	-	3000.00	2000.00
11.	Land revenue including local rate, chaukidara, etc.	-	-	5.00
12.	Land tax @ Rs 200/acre/annum for 8 months	-	200.00	133.33
13.	Drainage cess @ Rs 24/acre/annum for 8 months	-	24.00	16.00
14.	Payment to pickers (Rs/ 40 kgs)	15.190	85.00	1291.15
15.	Cutting of cotton sticks	-	-	285.00
16.	Gross cost (item 1 to 15)	-	-	12224.99
17.	Value of cotton sticks	-	-	285.00
18.	Net cultivation cost (item 16-17)	-	-	11939.99
19.	Yield per acre (kgs)	-	-	607.60
20.	Cost of production at farm level: (Rs/40 kgs)	-		
	20.1 Including land rent	-	-	786.04
	20.2 Excluding land rent	-	-	654.38
21.	Marketing expenses (Rs/40 kgs)	-	-	20.00
22.	Cost of production at market/ginnery: (Rs/40 kgs)			
	22.1 Including land rent	-	-	806.04
	22.2 Excluding land rent	-	-	674.38

Notes for Annex-V and VI

1. The APCom carried out large field surveys with the collaboration of the Provincial Agriculture Departments to collect micro data on various aspects of cotton farming, production and marketing in the important cotton growing areas of the Punjab and Sindh for 2002-03 crop. Overall 1013 growers were interviewed i.e. 675 from the Punjab and 338 from Sindh. These farmers were randomly selected from 65 villages of 14 tehsils of the Punjab and 35 dehs of 7 talukas of Sindh, included in the sample of the respective Provincial Agriculture Departments.

2. The physical input-output parameters for estimating cost of production of Seed Cotton, 2004-05 crop, have been adopted from the above mentioned survey.

3. Seed prices have been updated in light of increases in markets prices of seed cotton in the Punjab and Sindh.

4. The canal water rates have been revised in the light of the data received from the respective provincial departments.

5. The cost of supplementary irrigation has been revised in view of the rise @ 12 per cent in the prices of diesel during April 2003 to February 2004. Based on the ratios of electric and diesel tube-wells of 11: 89 in the Punjab and 41:59 in Sindh as reported in the Agriculture Statistics of Pakistan, 2001-02, MINFAL (Economic Wing), Islamabad, the average increases work out to 10 per cent in the Punjab and 7 per cent in Sindh.

6. The transportation costs of fertilizers and cotton produce have been revised in view of increases in the prices of diesel.

7. The prices of chemical fertilizers have been revised in light of the fertilizers prices published by the Federal Bureau of Statistics, Islamabad for the week ending on February 6, 2004 and supplemented with the data obtained through the field survey as mentioned above.

8. Land tax and drainage cess in Sindh have been adopted in view of the data provided by the government of Sindh while in the Punjab, land tax is the weighted average, computed from the varying rates of land tax as reported by the farmers.

9. The management charges for a manager looking after a 25-acre farm and devoting one-forth of his time to the managerial activities have been worked @ Rs 4109 per month salary for a Field Assistant at the 10th stages in BPS-6, including special additional allowance @ 25 per cent and 15 per cent ad-hoc relief announce in the 2003-04 budget.

ANNEX-VII

ECONOMICS OF COTTON AND COMPETING CROPS AT PRICES REALIZED BY GROWERS: 2003-04 CROPS

Province/crops/ crop combinations	Crop duration	Water used	Gross cost	Cost of purchased inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Rupee of Purchased inputs cost	Revenue per Crop day	Revenue per Acre inch of water used
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10 = 6/5	11=6/2	12 = 6/3
	Days	Acre inches	---- Rupees per acre ----						------ Rupees ------		
Punjab											
1. Cotton	240	22	13843	6127	21718	15591	7875	1.57	3.54	90.49	987.18
2. Basmati paddy	180	58	10728	5883	11632	5749	904	1.08	1.98	64.62	200.55
3. IRRI paddy	180	62	9193	4984	8278	3294	-915	0.90	1.66	45.99	133.52
4. Wheat	180	17	9932	4540	9467	4927	-465	0.95	2.09	52.59	556.88
5. Sunflower (spring)	144	22	7848	2479	9840	7361	1992	1.25	3.97	68.33	447.27
6. Cotton+Wheat	420	39	23775	10667	31185	20518	7410	1.31	2.92	74.25	799.62
7. Cotton+Sunflower	384	44	21691	8606	31558	22952	9867	1.46	3.67	82.18	717.23
8. Basmati paddy + wheat	360	75	20660	10423	21099	10676	439	1.02	2.02	58.61	281.32
9. Basmati paddy+Sunflower	324	80	18576	8362	21472	13110	2896	1.16	2.57	66.27	268.40
10. IRRI paddy + wheat	360	79	19125	9524	17745	8221	-1380	0.93	1.86	49.29	224.62
11. IRRI paddy+Sunflower	324	84	17041	7463	18118	10655	1077	1.06	2.43	55.92	215.69
12. Sugarcane	394	48	18932	6289	16556	10267	-2376	0.87	2.63	42.02	344.92
Sindh											
1. Cotton	240	18	11009	4411	17152	12741	6143	1.56	3.89	71.47	952.89
2. IRRI paddy	180	56	7751	3465	9540	6075	1789	1.23	2.75	53.00	170.36
3. Wheat	180	15	8253	3455	8687	5232	434	1.05	2.51	48.26	579.13
4. Sunflower (Spring)	144	22	7848	2479	9840	7361	1992	1.25	3.97	68.33	447.27
5. Cotton+Wheat	420	33	19262	7866	25839	17973	6577	1.34	3.28	61.52	783.00
6. Cotton+Sunflower	384	40	18857	6880	26992	17264	8135	1.43	3.92	70.29	674.80
7. IRRI paddy+Wheat	360	71	16004	6920	18227	11307	2223	1.14	2.63	50.63	256.72
8. IRRI paddy+Sunflower	324	78	15599	5944	19380	13495	3781	1.24	3.26	59.81	248.46
9. Suagarcane	488	71	21889	8290	20402	12112	-1487	0.93	2.46	41.81	287.35

ANNEX-VIII

ECONOMICS OF COTTON* AND COMPETING CROPS AT PRICES REALIZED BY GROWERS: 2003-04 CROPS

Province/crops/ crop combinations	Crop duration	Water used	Gross cost	Cost of purcha-sed inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Revenue per: Rupee of Purchased inputs cost	Revenue per: Crop day	Revenue per: Acre inch of water used
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10 = 6/5	11=6/2	12 = 6/3
	Days	Acre inches	---- Rupees per acre ----						---- Rupees ----		
Punjab											
1. Cotton	240	22	13843	6127	19349	13222	5506	1.40	3.16	80.62	879.50
2. Basmati paddy	180	58	10728	5883	11632	5749	904	1.08	1.98	64.62	200.55
3. IRRI paddy	180	62	9193	4984	8278	3294	-915	0.90	1.66	45.99	133.52
4. Wheat	180	17	9932	4540	9467	4927	-465	0.95	2.09	52.59	556.88
5. Sunflower (spring)	144	22	7848	2479	9840	7361	1992	1.25	3.97	68.33	447.27
6. Cotton+Wheat	420	39	23775	10667	28816	18149	5041	1.21	2.70	68.61	738.87
7. Cotton+Sunflower	384	44	21691	8606	29189	20583	7498	1.35	3.39	76.01	663.39
8. Basmati paddy + wheat	360	75	20660	10423	21099	10676	439	1.02	2.02	58.61	281.32
9. Basmati paddy+Sunflower	324	80	18576	8362	21472	13110	2896	1.16	2.57	66.27	268.40
10. IRRI paddy + wheat	360	79	19125	9524	17745	8221	-1380	0.93	1.86	49.29	224.62
11. IRRI paddy+Sunflower	324	84	17041	7463	18118	10655	1077	1.06	2.43	55.92	215.69
12. Sugarcane	394	48	18932	6289	16556	10267	-2376	0.87	2.63	42.02	344.92
Sindh											
1. Cotton	240	18	11009	4411	15293	10882	4284	1.39	3.47	63.72	849.61
2. IRRI paddy	180	56	7751	3465	9540	6075	1789	1.23	2.75	53.00	170.36
3. Wheat	180	15	8253	3456	8687	5232	434	1.05	2.51	48.26	579.13
4. Sunflower (Spring)	144	22	7848	2479	9840	7361	1992	1.25	3.97	68.33	447.27
5. Cotton+Wheat	420	33	19262	7866	23980	16114	4718	1.24	3.05	57.10	726.67
6. Cotton+Sunflower	384	40	18857	6890	25133	17264	6276	1.33	3.65	65.45	628.33
7. IRRI paddy+Wheat	360	71	16004	6920	18227	11307	2223	1.14	2.63	50.63	256.72
8. IRRI paddy+Sunflower	324	78	15599	5944	19380	13495	3781	1.24	3.26	59.81	248.46
9. Suagarcane	488	71	21889	8290	20402	12112	-1487	0.93	2.46	41.81	287.35

* If the cotton yield is declined by 11 per cent.

Notes for Annexes-VII and VIII

1. The economic analysis presented in the above exercise is based on the input-output prices for 2003-04 crops.

2. The data regarding input-output parameters have been adopted from the APCom's support price policy papers for sugarcane, seed cotton, rice paddy and wheat, 2003-04 crops. However, the relevant data for sunflower and canola were adopted from the support price policy for non-traditional oilseeds, 2000-01 crops with necessary adjustments in input prices for updating costs and incomes for the 2003-04 crop. To incorporate the escalations in input prices which occurred during the growing period of 2003-04 crops, some marginal revisions have been made as under:

   2.1 The cost of supplementary irrigation has been adjusted in view of rise in power tariff and diesel prices, and ratio of diesel and electric tubewells in the Punjab at 85 and 15 percent and in Sindh at 46 and 54 percent. Accordingly, the weighted average increase in energy charges works to 2.15 percent in Punjab and 2.54 percent in Sindh for sugarcane, cotton and rice crops. The corresponding increase calculates to 11.05 per cent in Punjab and 5.98 per cent in Sindh for wheat.

   2.2 The cost of fertilizers has been revised in view of their prices prevailed at the time of application for the respective crops in 2003-04 season.

3. Water use has been estimated from the number of irrigations as reported in the cost of production estimates of the respective crops assuming each irrigation of 3 inches and 'rauni' of 4 inches.

4. The following prices as realized by the growers for different crops are adopted for the analysis:

   4.1 The 2003-04 wheat crop is yet to be harvested. Therefore the support price of wheat at Rs 350 per 40 kgs for 2003-04 crop has been adopted for the current analysis.

   4.2 It has been reported by the Director, Crop Reporting Service, Department of Agriculture, Lahore that the super basmati occupies 70 per cent while basmati-385 accounts for 13 per cent of total rice area during the current crop season in the Punjab. Accordingly, the weighted average wholesale prices for basmati paddy during Oct-Jan 2003-04 in the major producer area markets calculate to Rs 496 per 40 kgs. The wholesale prices for IRRI paddy averaged at Rs 245 per 40 kgs during Sep-Nov 2003 in the Punjab. In Sindh, the average wholesale market prices of IRRI paddy in the main producer area markets during the post-harvest months are reported at Rs 257 per 40 kgs in the APCom's field survey.

   4.3 The wholesale market prices of seed cotton during the post-harvest months of Sep-Jan 2003-04 in the main producer area markets have averaged at Rs 1299 per 40 kgs in the Punjab as reported by the Directorate of Agriculture (E&M), Lahore. In Sindh, the corresponding prices are reported at Rs 1135 per 40 kgs by the PCCC, Karachi.

4.4 The 2003-04 sunflower crop is yet to be harvested. The market price of this crop is not regularly reported by any agency. However, it was reported by the PODB Islamabad that the Solvent Extraction Plants would purchase sunflower at Rs 670 per 40 kgs from the growers during 2003-04 season.

4.5 The market prices of sugarcane are not available from any agency. However, the mill-gate prices in the major cane producing areas are, by and large, reported around Rs 34 per 40 kgs in the Punjab and Rs 35 in Sindh by the farmers to the APCom's survey teams. The press reports also reflect a similar situation on prices of sugarcane.

5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 4.75 per 40 kgs in Punjab and Rs 4.82 in Sindh for sugarcane, Rs 15 for seed cotton, Rs 13 for rice paddy and Rs 14 for wheat and oilseed crops.

6.	Gross income	=	(Yield per acre <u>multiplied by</u> price of principal produce at farm gate) <u>plus</u> (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 <u>minus</u> cost of purchased inputs.
9.	Net income	=	Gross income <u>minus</u> gross cost.
10.	Output-input ratio	=	Gross income <u>divided by</u> gross cost
11.	Revenue per rupee of purchased inputs cost	=	Gross income <u>divided by</u> cost of purchased inputs
12.	Revenue per crop day	=	Gross income <u>divided by</u> crop duration in days.
13.	Revenue per acre-inch of water used	=	Gross income <u>divided by</u> irrigation water used in acre inches.

ANNEX-IX

PROFITABILITY OF FERTILIZER USE ON SEED COTTON AT THE MARKET PRICE: 2003-04

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 23.41 per nutrient kg (i.e. Rs 18.04, 25.55 and 32.00 per nutrient kg of N, P and K at the recommended NPK ratio of 2:1:1 (a)	234.10	234.10	234.10	234.10
3	Indirect cost due to the application of additional fertilizer as detailed below (b)	98.34	115.69	133.04	150.38
	3.1 Transportation and application charges of 19.15 kgs of fertilizer @ Rs 17.00 per bag of fertilizer	6.51	6. 51	6.51	6.51
	3.2 Picking charges for additional produce @ Rs 77.50 per 40 kgs	58.12	72.66	87.19	101.72
	3.3 Marketing charges for additional produce @ Rs 15.00 per 40 kgs	11.25	14.06	16.88	19.69
	3.4 Mark up on direct cost of fertilizer (item 2+3.1) for 8 months @ 14% per annum	22.46	22.46	22.46	22.46
4	Total additional cost (item 2+3)	332.44	349.79	367.14	384.48
5	Value of additional produce @ Rs 1238 per 40 kgs (c)	928.50	1160.62	1392.75	1624.88
6	Benefit cost ratio (item 5 divided by item 4)	2.79	3.32	3.79	4.23

Notes:

(a) The prices of N, P and K have been worked out from average of the prices of Urea, DAP and SOP used in COP estimates of the Punjab and Sindh for 2003-04 crop taken respectively as Rs 415, 750 and 800 per bag of 50 kgs each.

(b) The rates of indirect cost items are the average of the rates used in the COP estimates of the Punjab and Sindh for 2003-04 Crop.

(c) Average of the market price of 2003-04 crop for different varieties exclusive of "Desi" varieties for the period August, 2003 to January, 2004 have been used.

ANNEX- X

CIF NORTH EUROPE PRICES OF VARIOUS COTTONS:1991-92 to 2003-04

Years Aug-Jul	Sindh/ Punjab Afzal 1-1/32"	Index- B Cottons	Orleans/ Texas SLM 1-1/32"	Difference between Sindh/ Punjab Afzal 1-1/32" and	
				Index- B Cottons	Orleans/Texas SLM 1-1/32"
	------------------------ US Cents per pound --------------------				
1994-95	73.82	92.34	95.82	-18.52	-22.00
1995-96	82.17	81.19	88.02	0.98	-5.85
1996-97	75.83	74.85	77.22	0.98	-1.39
1997-98	72.28	71.00	72.16	1.28	0.12
1998-99	51.28 *	54.30	67.46	-3.02	-16.18
1999-00	47.23	49.55	50.19	-2.32	-2.96
2000-01	56.78	53.70	53.57	3.08	3.21
2001-02	38.41	38.95	39.05	-0.54	-0.64
2002-03	51.36	51.42	51.16	-0.06	0.20
2003-04	73.57	68.98	68.10	4.59	5.47
August	N.Q	60.00	57.40	-	-
September	N.Q	62.90	63.69	-	-
October	70.70	70.65	72.80	0.05	-2.10
November	76.44	74.45	73.00	1.99	3.44
December	N.Q	71.40	69.08	-	-
January	N.Q	74.45	72.63	-	-

Note * Not quoted during the year, however, interpolated from the historical differential data.

Sources:

1. Upto 1995-96: Support Price Policy for Seed Cotton, 1997-98 Crop.
2. For 1996-97: Reuters.
3. For 1997-98: (i) Cotton Outlook (various issues) for Sindh/Punjab Afzal 1-1/32"
   (ii) Index - B Cottons
4. For 1999-00 to 2003-04 Cotton Outlook (various issues).
5. For Orleans Texas SLM 1-1/32" from 1992- 93 to 2003-04 Cotton Outlook (various issues).

ANNEX-XI

PRICE OF SEED COTTON AS WORKED BACK FROM COTTON YARN (21's) PRICE AT KARACHI (AUGUST, 2003 TO JANUARY, 2004)

		Rupees
1	Average price of cotton yarn (21's) per bundle of 4.54 kgs	547.00
2	Average price of cotton yarn (21's) per kg	120.48
3	Recovery from sale of 0.16 kgs of cotton waste	1.34
4	Conversion charges from lint to yarn per kg	30.00
5	Value of 1.16 kgs of lint (item 2 + 3 minus item 4) (a)	91.82
6	Value of one kg of lint (item 5 divided by 1.16)	79.16
7	Value of 40 kgs lint	3166.36
8	Sales tax @ 15 % of item 9	413.00
9	Net value of 40 kgs lint after deducting sales tax (item 7 minus 8)	2753.36
10	Storage and transport cost from gin to mill per 40 kgs	40.00
11	Ex-gin price of 40 kgs lint (item 9 minus 10)	2713.36
12	Value of 80 kgs of cotton seed (b)	868.00
13	Ginning charges for 120 kgs seed cotton	250.00
14	Seed cotton price for 120 kgs (item 11+12 minus item 13) (c)	3331.36
15	Seed cotton price per 40 kgs (item 14 divided by 3)	1110.45

Notes:

(a) 1.16 kgs of lint = 1 kg of yarn + 0.16 kgs of waste

(b) Average price of cotton seed for the period August, 2003 to January, 2004 at Multan market was Rs 434 per 40 kgs.

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

Sources:

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

ANNEX- XII

EXPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM ACTUAL AVERAGE EXPORT PRICE OF PAKISTANI COTTON

S.No	Item	2003-04 Aug - Dec	1998- 99 to 2002-03
		US Cents per pound	
1.	Actual average export price	54.23	45.24
		OR Rupees (a)	
	Actual average export price per 40 Kgs	2738	2284
2.	Marketing expenses (export & purchase incidentals, insurance & financial expenses) per 40 Kgs	150	150
3.	Ex-gin price of lint per 40 Kgs (item 1- item 2)	2588	2134
4.	Value of 80 kgs of cotton seed (b)	868	868
5.	Ginning charges for 120 kgs of seed cotton	250	250
6.	Value of 120 kgs of seed cotton (c) (items 3 +4 - item 5)	3206	2752
7.	Seed cotton price per 40 kgs (item 6 / 3)	1069	917

Notes

a) Buying exchange rate for export of one US $ = 57.26 Pak rupees, announced by State Bank of Pakistan as on 16th February 2004.

b) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

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

Sources:

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

ANNEX - XIII

EXPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM THE CIF NORTH EUROPE QUOTATIONS OF INDEX B COTTONS AND PAKISTANI AFZAL 1-1/32"

S.No	Item	Index B Cottons 2003-04 Aug - Jan	Index B Cottons 1998-99 to 2002-03	Afzal 1-1/32" 2003-04 Aug - Jan	Afzal 1-1/32" 1998-99 to 2002-03
		US Cents per pound			
1	Average cif North Europe quotations	68.98	49.58	73.57	49.01
2.	Freight charges	4.50	4.50	4.50	4.50
3.	Export price (item 1 - item 2)	64.48	45.08	69.07	44.51
4.	Insurance, agents commission, and port handling charges @ 4% of export price	2.58	1.80	2.76	1.78
5.	Net export price (item 3 - item 4)	61.90	43.28	66.31	42.73
		OR Rupees (a)			
		3126	2185	3348	2158
6.	Marketing expenses (export & purchase incidentals, insurance & financial expenses) per 40 kgs	150	150	150	150
7.	Ex- gin price of lint per 40 kgs (item 5 - item 6	2976	2035	3198	2008
8.	Value of 80 kgs of cotton seed (b)	868	868	686	868
9.	Ginning charges for 120 kgs of seed cotton	250	250	250	250
10.	Value of 120 kgs of seed cotton (c) (items 7 + 8 - item 9)	3594	2653	3634	2626
11.	Seed cotton price per 40 kgs (item 10 / 3)	1198	884	1211	875

Notes:

a) Buying exchange rate for export of one US $ = 57.26 Pak rupees, announced by State Bank of Pakistan as on 16 th February 2004.

b) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

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

Sources:

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

ANNEX- XIV

EXPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM THE FUTURE'S CONTRACT PRICE OF NEW YORK NO. 2 COTTON (AVERAGE OF OCTOBER, 2004, DECEMBER, 2004 AND MARCH, 2005)

S.No	Item	Price calculations		
			US Cents per pound	
1.	Future's contract price as on January 28, 04		67.92	
2.	Grade and staple discount		4.60	
3.	Discount on account of inland transportation and certification of stocks		6.00	
4.	Parity price of Afzal 1-1/32" at Karachi		57.32	
		OR	Rupees	(a)
	Parity prices per 40 kgs		2894	
5.	Marketing expenses (export & purchase incidentials, insurance & financial expenses per 40 kgs		150	
6.	Ex-gin price of lint per 40 kgs (item 4 - item 5)		2744	
7.	Value of 80 kgs of cotton seed (b)		868	
8.	Ginning charges for 120 kgs of seed cotton		250	
9.	Value of 120 kgs of seed cotton (c) (items 6 + 7 - item 8)		3362	
10.	Seed cotton price per 40 kgs (item 9 / 3)		1121	

Notes

a) Buying exchange rate for export of one US $ = 57.26 Pak rupees, announced by State Bank of Pakistan as on 16 th February 2004.

b) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

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

Sources:

1. Cotton Outlook of Jan, 30, 2004 for future contract price.
2. KCA, Karachi for marketing expenses.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Pakistan Central Cotton Committee, Karachi for cotton seed price.

ANNEX - XV

EXPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM THE AVERAGE FOB PRICE OF PAKISTANI COTTON YARN (20'S)

S.No	Item	2003-04 Aug - Jan	1998- 99 to 2002-03
		US Cents per kg	
1.	Average fob price	224.00	184.00
		OR Rupees	(a)
		128	105
2.	Fob expenses per kg (transport cost, wharfage, port handling & forwarding, adhesive & EDS)	2	2
3.	Export packing cost per kg	1	1
4.	Value of 1 kg yarn (item 1 - (items 2 + 3)	125	102
5.	Recovery from 0.16 kgs cotton waste	1	1
6.	Conversion charges of lint into yarn per kg	30	30
7.	Value of 1.16 kgs cotton lint (b) (items 4 +5 -item 6)	96	73
8.	Price of one kg cotton lint (item7/1.16)	83	63
	OR		
	Price of 40 kgs cotton lint	3319	2530
9.	Transport cost from ginnery to mill, local tax(per 40kgs)	40	40
10.	Ex-gin price of 40 kgs lint (item 8 - item 9)	3279	2490
11.	Value of 80 kgs cotton seed (c)	868	868
12.	Ginning charges for 120 kgs of seed cotton	250	250
13.	Seed cotton price of 120 kgs (item10+11- item12) (d)	3897	3108
	OR		
14.	Seed cotton price per 40 kgs (item 13/3)	1299	1036

Notes

a) Buying exchange rate for import of one US $ = 57.26 Pak rupees, announced by State Bank of Pakistan as on 16 th February 2004.

b) 1.16 kgs of lint = 1 kg of yarn +0.16 kgs of waste.

c) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

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

Sources:

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

ANNEX-XVI

IMPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM THE AVERAGE QUOTED CIF NORTH EUROPE PRICE OF ORLEANS/ TEXAS SLM 1-1/32"

S. No	Item	2003-04 Aug - Jan	1998-99 to 2002-03
		US cent per pound	
1.	Average cif North Europe quotations	68.10	52.28
2.	Freight charges	4.50	4.50
3.	Forwarding charges @ 1.5% cif (North Europe Quotations)	1.02	0.78
4.	Cif (Karachi) price	73.62	57.56
5.	Insurance, agents commission, and port handling charges @ 1.5% of cif (Karachi) price	1.10	0.86
6.	Landed cost at Karachi	74.73	58.43
		OR Rupees per 40 kgs (a)	
7.	Net cif (Karachi) price	3786	2961
8.	Handling charges at port and transport cost from port to textile mills at Karachi @ 2.5 % of cif price	95	74
9.	Ex- gin price of lint (item 7 + item 8)	3881	3035
10.	Value of 80 kgs of cotton seeds (b)	868	868
11.	Ginning charges for 120 kgs of seed cotton including ginning losses	250	250
12.	Value of 120 kgs of seed cotton (item 9 +item 10 - item 11)	4499	3653
13.	Seed cotton price per 40 kgs (item 12/ 3)	1500	1218

Notes:

a) Selling exchange rate for imports of one US $ = 57.46 Pak rupees, announce by State Bank of Pakistan as on 16th February 2004.

b) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

Sources:

1. Cif (Noth Europe) price Annex - X.
2. KCA, for incidentals charges.
3. Pakistan Cotton Ginners Association, Karachi for ginning charges.
4. Pakistan Central Cotton Committee, Karachi for cotton seed price

ANNEX- XVII

IMPORT PARITY PRICE OF SEED COTTON AS WORKED BACK FROM THE ACTUAL AVERAGE CIF (KARACHI) PRICE OF IMPORTED COTTON

S. No	Item	2003-04 Aug - Dec	1998-99 to 2002-03
		Rupees per 40 kgs	
1.	Actual average cif (Karachi) price	3580	3042
2.	Handling charges at port and transport cost from port to textile mill at Karachi @ 2.5 % of cif price	90	76
3.	Ex- gin price of lint (Item 1+ item 2)	3670	3118
4.	Value of 80 kgs of cotton seed (a)	868	868
5.	Ginning charges for 120 kgs of seed cotton including ginning losses	250	250
6.	Value of 120 kgs of seed cotton (item 3 +item 4 - item 5)	4288	3736
7.	Seed cotton price (item 6/ 3)	1429	1245

Note: a) Average price of cotton seed for the period August 2003 to January 2004 at Multan was Rs 434 per 40 kgs.

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

9

ANNEX-XVIII

REQUIREMENT AND SUPPLY OF CERTIFIED COTTON SEED BY THE PUBLIC AND PRIVATE SECTORS IN PUNJAB: 1994-95 TO 2003-04

Crop Year	Seed Certified at				Total	Total Requirement	Area covered with certified seed
	NSC standard (a)		Relaxed standard (b)				
	Public	Private	Public	Private			
	Thousand tonnes						Per cent
1994-95	6.44	6.30	1.46	3.95	18.15	44.89	40.4
1995-96	8.43	6.74	3.68	5.79	24.64	49.27	50.0
1996-97	4.50	4.12	-	-	8.62	50.80	17.0
1997-98	7.20	7.50	0.24	5.68	20.62	46.97	43.9
1998-99	0.24	2.65	4.03	8.20	15.12	45.66	33.1
1999-00	0.24	2.88	3.97	6.35	13.44	46.59	28.8
2000-01	3.14	27.85	1.73	-	32.72	47.73	68.6
2001-02	3.30	16.83	-	-	20.13	50.53	39.8
2002-03	5.74	27.98	-	-	33.72	44.17	76.3
2003-04	3.82	23.24	-	-	27.06	47.69	56.7

Notes: (a) National Seed Council (NSC) standards has minimum 70 percent germination and 98 per cent purity, and maximum 0.2 per cent off-types.

(b) The relaxed standard varied form year to year depending on the climatic and other specific conditions pertaining to each year.

(c) The total seed requirement for each year has been calculated @ 20 kgs/ha.

Source: Federal Seed Certification and Registration Department (FSC&RD), MINFAL, Islamabad.

ANNEX-XIX

REQUIREMENT AND SUPPLY OF CERTIFIED COTTON SEED BY THE PUBLIC AND PRIVATE SECTORS IN SINDH: 1994-95 TO 2003-04

Crop Year	Seed Certified at				Total	Total requirement	Area covered with certified seed
	NSC standard (a)		Relaxed standard (b)				
	Public	Private	Public	Private			
	Thousand tonnes						Per cent
1994-95	0.07	-	-	-	0.07	12.17	0.6
1995-96	0.08	-	0.40	0.46	1.94	15.88	12.2
1996-97	-	0.30	-	-	0.30	18.04	1.7
1997-98	0.22	0.38	-	8.37	8.97	18.01	49.8
1998-99	0.05	-	0.05	23.17	23.27	18.91	123.1
1999-00	0.01	-	0.05	0.80	0.86	19.01	4.5
2000-01	-	0.63	-	0.46	1.09	15.71	6.9
2001-02	0.02	1.46	-	-	1.48	16.42	9.0
2002-03	-	2.08	-	-	2.08	16.28	12.8
2003-04	-	1.92	-	-	1.92	16.84	11.40

Notes:

(a) National Seed Council (NSC) standards has minimum 70 percent germination and 98 per cent purity, and maximum 0.2 per cent off-types.

(b) The relaxed standard varied form year to year depending on the climatic and other specific conditions pertaining to each year.

(c) The total seed requirement for each year has been calculated @ 30 kgs/ha.

Source: Federal Seed Certification and Registration Department (FSC&RD), MINFAL, Islamabad.

ANNEX-XX

DISTRIBUTION OF COTTON SEED BY VARIETY IN THE PUNJAB AND SINDH: 2003-04

Province		Public Sector	Private Sector	Total	Area covered
		---Tonnes---			Per cent
Punjab					
	NIAB-78	1748.0	12512.5	14260.5	29.9
	CIM-446	885.1	3218.0	4103.1	8.6
	FH-901	394.2	1747.2	2141.4	4.5
	FH-900	173.5	703.9	877.4	1.8
	CIM-482	55.1	423.6	478.7	1.0
	BH-118	36.0	-	36.0	0.1
	CIM-443	5.5	214.0	219.5	0.5
	CIM-473	2222.2	9657.7	11879.9	24.9
	Total	5519.6	28476.9	33996.5	71.3
Sindh					
	NIAB-78	18.0	1893.0	1911.0	11.3
	CRIS-9	0.6	15.0	15.6	-
	CRIS-134	0.6	16.0	16.6	0.1
	CRIS-5A	0.3	-	0.3	-
	Shahbaz	0.4	-	0.4	-
	Total	19.9	1924.0	1943.9	11.5

Source: FSC&RD, Islamabad.