APCOM SERIES NO. 221

SUPPORT PRICE POLICY

FOR

WHEAT, 2006-07 CROP

AGRICULTURAL PRICES COMMISSION
MINISTRY OF FOOD, AGRICULTURE AND LIVESTOCK
GOVERNMENT OF PAKISTAN
ISLAMABAD

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ABBREVIATIONS

AJ&K	Azad Jammu and Kashmir
ALMA	Agricultural and Livestock Marketing Adviser
APCOM	Agricultural Prices Commission
ASW	Australian Standard White
BCR	Benefit Cost Ratio
BPS	Basic Pay Scale
BOI	Board of Investment
C&F	Cost and Freight
COP	Cost of Production
CPI	Consumer Price Index
CRS	Crop Reporting Service
CWRS	Canada Western Red Spring
DAP	Di Ammonium Phosphate
DRC	Domestic Resource Cost
ECC	Economic Coordination Committee
E&M	Economics and Marketing
EPC	Effective Protection Coefficient
EU	European Union
FAO	Food and Agriculture Organization
FAQ	Fair Average Quality
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
GDP	Gross Domestic Product
GMR	Grain Market Report
HIES	Household Integrated Economic Survey
HYVs	High Yielding Varieties
IRRI	International Rice Research Institute
MHW	Medium Hard Wheat
MINFAL	Ministry of Food, Agriculture and Livestock
NARC	National Agricultural Research Centre
NAs	Northern Areas
NFDC	National Fertilizer Development Centre
NPC	Nominal Protection Coefficient
NSC	National Seed Council
PAM	Policy Analysis Matrix
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Agricultural Storage and Services Corporation
PME	Plant Machinery and Equipment
PODB	Pakistan Oilseed Development Board
PSC	Punjab Seed Corporation
PSI	Pakistan Standards Institute
PSLM	Pakistan Social and Living Standards Measurement
TCP	Trading Corporation of Pakistan
WFP	World Food Programme
WTO	World Trade Organization

SUPPORT PRICE POLICY FOR WHEAT, 2006-07 CROP

EXECUTIVE SUMMARY AND RECOMMENDATIONS

At the country level, wheat production has fluctuated between 16.65 and 21.70 million tonnes and area ranged between 8.03 and 8.46 million hectares during the last decade. During the same period, production has increased @ 2 per cent per annum. The increase in production is entirely attributed to yield improvement as the area under wheat has nominally contracted.

2. According to estimates provided by the MINFAL, wheat production at country level for 2005-06 crop is estimated at 21.70 million tonnes, marginally higher than the last year. Except Punjab, wheat production has improved in other provinces at varying proportions.

3. Punjab is the largest producer of wheat, accounting for 76 per cent of its area and 79 per cent of the production. The shares of Sindh in area and production are 11 and 12 per cent, respectively. The NWFP and Balochistan together contribute about 13 per cent in area and 9 per cent in production of wheat.

4. To reduce the uncertainty and price risk in wheat farming and maintain food security in the country, the government has been announcing the support prices for wheat crop every year. It was meant to provide a floor to the market prices in the harvest season. Accordingly, the Cabinet in its meeting held on 14th October 2005 announced the support price of wheat at Rs 415 per 40 kgs for the 2005-06 crop. The market prices of wheat during the season in various markets in the Punjab have ruled higher than the support price fixed by the government. In Sindh, the market prices of wheat in all markets except Hyderabad market remained below the support price of wheat announced by the government.

5. In order to sustain the upward trend and self sufficiency in wheat production, it is imperative to improve yield for which there is ample scope. Higher yields can be obtained through adoption of optimal technology package including improved crop management practices. This will reduce unit cost of production and improve domestic supply and food security.

6. At the current input prices, the market level cost of production of wheat for the 2006-07 crop is estimated at Rs 449 per 40 kgs, which is higher by 5 per cent than the last year. The cost of production of wheat in Sindh calculates to Rs 423 per 40 kgs at the market level, up by 4 per cent over the last year. The cost escalations in wheat production are mainly attributed to cost of cultural operations, higher costs of supplementary irrigation, diesel, chemical fertilizers, rise in wage rate, etc.

7. Annual meeting of the Agricultural Prices Commission's Standing Committee on wheat was held at Islamabad on July 17, 2006. The issues relating to the production and marketing of wheat including prices of inputs and cost of production and changes therein were discussed at length. The meeting highlighted a number of constraints impacting on farm production in general and wheat in particular. As a result, a number of measures to improve the efficiency of wheat farming and marketing system were proposed. There was a consensus in the meeting for having a programme which ensures incentive prices to the farmers in general and in years of bumper harvest in particular in the harvest season.

8. World production of wheat estimated at 617 million tonnes in 2005-06 is forecast to decline to 605 million in 2006-07 against the likely consumption of 613 million tonnes. The closing stocks in 2006-07 are reported to fall to 121 million tonnes from 130 million in 2005-06. However, the global trade in wheat is reported to slightly rise to 111 million tonnes from 110 million.

9. According to the International Grains Council, London, the international prices of wheat have experienced fluctuations during the last decade, the lowest level of US $ 112 per tonne in 1999-00 and the highest of US $ 165 per tonne in 1996-97. The world prices

have averaged at US $ 134 per tonne in 2005-06. In view of the lower production, declining stocks and falling ratio of stocks to consumption, the prices of wheat in international markets are likely to go up in future.

10. Based on the analysis of relevant factors, the likely pricing options for wheat, 2006-07 crop are summarized below:

Base	Likely price of domestic wheat at procurement center
	Rs per 40 kgs
1. Import parity price on the basis of:	
a) Average fob (Pacific) quoted prices of US western white wheat during 2005-06, if consumed at:	
- Karachi	384
- Lahore	480
b) Average fob (Pacific) quoted prices of US western white wheat during 2001-02 to 2005-06, if consumed at:	
- Karachi	402
- Lahore	498
c) Current c&f (Karachi) price quoted by the MINFAL	
- Karachi	498
- Lahore	594
2. Export parity price on the basis of:	
a) Average fob (Pacific) quoted prices of US western white wheat during 2005-06, if exported from Multan	227
b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if exported from Multan	244
3. Monthly average wholesale market prices of wheat in producing area markets during post-harvest of 2005-06 crop:	
- Punjab	420
- Sindh	403
4. Cost of production at market/procurement level for 2006-07 crop	
- Punjab	449
- Sindh	423

11. The parity ratio between market prices of nitrogen and wheat estimated at 2.03 moved against wheat and touched the highest level of 2.54 during 1998-99. However, the purchasing power of wheat improved significantly in 1999-00 and only 1.97 units of the produce were needed to buy one unit of nitrogen. The parity ratio improved in favour of wheat and reached to the lowest level of 1.81 during 2004-05 due to high market price of wheat. However, during current crop season the upward high prices of N fertilizer low prices of wheat again deteriorated the purchasing power of wheat in terms of nitrogen.

12. The parity ratio between market price of wheat and phosphatic fertilizers was 2.68 during 1996-97. Thereafter, it moved against wheat and remained fluctuating between 2.70 and 3.52. The parity estimated for 2005-06 crop at 3.52 is the highest ratio during the period under consideration. This is attributed to 15 per cent increase in the market price of phosphatic fertilizer and 4.9 per cent decline in wheat price.

13. Economic efficiency in wheat production during the last five years (2001-2006) has been estimated by the most commonly used economic parameters of NPC, EPC and DRC. The examination of NPCs has revealed that under importing country scenario wheat production has not received any protection during the period. The prices received by the growers have been much below the corresponding import parity prices.

14. The EPCs also reinforce the conclusion drawn from NPCs. However, the magnitude of implicit tax on the producers under wheat importing situation has been higher than that estimated through NPCs. The DRCs have also been estimated below one implying that Pakistan enjoys comparative advantage in producing wheat in the global context. It would be an economical proposition to maintain hard earned self-sufficiency in staple food crop of wheat.

Recommendations

Prices of Wheat, 2006-07 Crop

15. The Commission strongly feels that the country should emphasize on maintaining its self sufficiency in wheat which currently seems at the margin.

16. Based on the analysis of relevant factors summarized in paras 123 to 131 of this Report, the APCom recommends to enhance the support price of wheat to Rs 425 per 40 kgs for the 2006-07 crop.

17. The actual incentive to the farmers should come through the market forces. The government policy of encouraging the role of private sector in wheat marketing should continue as it has played a positive role during the last couple of years.

18. The support price as fixed by the government should be widely publicized for the information of the growers. There is also a dire need to ensure implementation of the support price.

Improving Productivity

Drought resistant /high yielding varieties of wheat:

19.

i) Evolution of drought resistant varieties should be focused in the provincial and national varietial development programmes.

ii) Provincial Agriculture Extension Departments should launch special campaigns to motivate farmers for cultivating improved varieties.

iii) There is a need to encourage seed agencies to meet at least 20% replacement requirement of certified seed of wheat.

Seed Bed Preparation and Timely Sowing:

20. In order to reduce the gap in yield of wheat at the progressive and average category of farms, following measures may be undertaken:

i) Provincial Departments of Agriculture Extension may expedite its efforts to aware the farmers about realizable high yield levels.

ii) Fertilizer application and sowing should be done by drilling to obtain higher returns from fertilizer and highest rate of germination of seed.

iii) Increase seed rate for late sowing to mitigate yield loss effects.

Weed Control

21.

i) Crop rotation and use of bar harrow needs to be promoted by the Department of Agriculture Extension to control the weeds.

ii) Quality of chemical weedicides must be improved and new products should be provided at cheaper rates.

Proper and balanced use of fertilizer:

22.

i) There is a dire need to maintain a proper mix of NP fertilizer to achieve the desired NP ratio.

ii) Quality and availability of fertilizers must be ensured at the sowing times.

iii) There must be strict measures to check black marketing of fertilizers for creating artificial shortage in the market and charging of higher prices.

iv) Use of Farm Yard Manure regularly needs to be promoted to prolong longer retention of phosphorus in available form in the soil.

v) Research must be promoted to identify bacterial strains that may facilitate conversion of fixed forms of phosphorus in the soil to available form and their inoculum should be supplied for farmers' adoption.

Farm Management

23. Special efforts are required to educate farmers to improve cultural practices, moisture retention in the soil before wheat sowing and use of IMP techniques, etc to achieve progressive farmers' yield levels.

Greening Manuring

24. In order to encourage the cultivation of Jantar crop for the purpose of green manuring, abiana/water rate for this crop should be eliminated.

Improving Marketing

25. Free movement of the commodity has encouraged the private sector in purchasing and storage of wheat and relaxed procurement burden on public sector agencies. It has also helped farmers in quick disposal of marketable surplus at reasonable prices. This policy of free movement of wheat alongwith liberal credit line to private traders should be continued.

Timely Entrance of Procurement Agencies

26. Provincial Food Departments and PASSCO equipped with pre-requisite for procuring wheat should enter well in time in the field especially in Sindh province.

Storage Capacity

27. The Government should give more attention to enhance storage capacity both in public and private sectors particularly at grassroots level.

Improving quality of wheat

28.

- For improving wheat quality, threshing machinery be improved by making necessary adjustments in it. The threshing techniques used also need to be modernized. In this respect, Farm Machinery Research Institute of PARC should be mobilized.

- The import of only standardized machinery may be allowed and the import of sub standard/second hand machinery may be banned.

Improving Statistics

29. In order to safeguard interest of growers, provincial governments should manage to improve the system for crop estimates.

(M.B. Malik)
Chairman, APCom.

August 19, 2006

SUPPORT PRICE POLICY FOR WHEAT, 2006-07 CROP

INTRODUCTION

30. Being a staple foodgrain for the masses, wheat is the most important crop of Pakistan. It is annually cultivated over an area of 8 million hectares. It accounts for 37 per cent of the cropped area and 39 per cent of the value added by major crops. Wheat supplies 72 per cent calories and protein in average diet with per capita consumption at 118 kgs a year.

31. During the last decade, wheat production has increased @ 2 per cent per annum. Based on the last 3 years average, wheat production has averaged at 20.94 million tonnes and acreage at 8.29 million hectares. About 86 per cent of wheat area is irrigated which accounts for around 90 per cent of the annual production. During 2005-06, wheat production is reported at 21.70 million tonnes, marginally exceeding the last year.

32. Among the important wheat producing countries, Pakistan ranks 9th each in terms of global area and production of wheat but lies way behind at 48th in terms of yield per hectare. The yield potential in HYVs of wheat is about 6 tonnes per hectare at Research Farms while the national average yield is about 2.5 tonnes per hectare. This yield gap per hectare could be narrowed through adoption of optimal of wheat production technology on general field conditions. Possibilities for such increase are supported by the yields already obtained by some progressive farmers in the country. Wheat faces competition for land and other resources from cotton, which precedes as well as follows wheat. Other competing crops include spring maize; sunflower, sugarcane and rabi fodders.

33. APCom considers that 'grow more wheat campaign' by integrating price and non-price measures should be launched well before the sowing time so that wheat growers may decide their acreage under wheat cultivation keeping in view the announcement of support price. To reduce the uncertainty and price risk in wheat farming and maintain food security in the country, the government has been announcing the support price for

wheat crop every year. Accordingly, the ECC of the Cabinet in its meeting held on 14-10-2005 approved the support price of Rs 415 per 40 kgs for wheat 2005-06 crop.

34. The PASSCO and the Provincial Food Departments are reported to have procured 3.88 million tonnes of wheat against the target of 4.37 million tonnes. Farmers and their organizations have complained about the low market price this season. They were of the view that only few influential farmers have received support price. The majority of the farmers particularly small farmers had to sell their produce in the open market ranging from Rs 350 to 420 per 40 kgs, against the support price of Rs 415 per 40 kgs. The problem of lower price was more serious in Sindh as compared to Punjab. Effective implementation of support price of the commodity may be helpful in enhancing farm income level and providing conducive economic environment for farm investments.

35. In formulating the price policy recommendations for 2006-07 wheat crop, following steps were undertaken by the APCom:

i) To update data on prices of inputs, hiring rates of farm operations and marketing costs, a mini field survey in important wheat growing areas of the Punjab and Sindh was organized during May 2006.

ii) The data on crop area, yield and production, stocks, trade and prices; domestic as well as global, subsidy and incidentals, in wheat handling and consumer price Index were collected from various agencies and published matter. Producer prices of wheat in selected countries were collected from various national and international agencies. These data have been analyzed to reflect the domestic and international position on various aspects of wheat production and marketing.

iii) Annual meeting of the APCom's Standing Committee on wheat was held on 17th July 2006 at Islamabad. The meeting was attended by the wheat growers, crop experts, policy makers and representatives of the provincial chambers of agriculture, farmers associations and officials from the Federal and provincial governments. The issues relating to the production and marketing of wheat including prices of inputs and cost of production were discussed at length. The meeting highlighted a number of constraints impacting on farm production in general and wheat in particular. The committee also suggested a number of measures to improve the efficiency of wheat farming and marketing. The views expressed in the meeting have been duly considered in formulating policy recommendations.

36. As the wheat is a staple food commodity for the populace, its pricing is a complex phenomenon. It involves harmony of conflicting interests of various stakeholders like growers, consumers, millers, etc. In view of rising prices of inputs and cost of wheat production, the farmers argue for higher output prices otherwise wheat farming may not be a viable proposition. High producer prices of wheat in turn escalates consumer prices, leading to inflationary trend in view of the sensitive nature of the commodity and its high weight in the average household's budget. Accordingly, governments have been shy to enhance consumer prices of wheat to their economic levels and subsidized the issue prices at considerable cost to the public exchequer.

37. It will be desirable to maintain self-sufficiency in wheat production by removing the constraints. There is also a need to achieve the potential productivity by adopting the optimal inputs package and improved farm management practices as the progressive growers are getting double the level of national average yield by adoption of such practices. This would require the timely supply of inputs and production technology at the grassroots level alongwith incentive prices for their produce. In addition to support price, a number of non-price measures aiming at increasing the efficiency of production and marketing systems have been recommended. Effective implementation of these measures would help in achieving self-sufficiency in wheat.

3. SOWING AND HARVESTING TIMES

38. Pakistan Agriculture Research Council has recommended a comprehensive schedule of wheat sowing for various ecological zones in the country which is given in Table-1.

Table-1: Recommended Sowing times of Wheat

Province	Sowing Times
Punjab	
i) Southern	1st November to 30th December
ii) Central	1st November to 15th December
iii) Northern:	
Irrigated	1st November to 15th December
Barani	20th October to 15th November
Sindh	
i) Southern	1st November to 25th December
ii) Northern	1st November to 31th December
NWFP	
i) Plain area	25th October to 15th December
ii) Hilly area	1st November to 15th December
Balochistan	
i) Upper	1st October to 20th February
ii) Plain	1st November to 15th December

Source: PARC, Islamabad

39. It may be seen that in the Punjab wheat sowing in the irrigated area generally commences from the first week of November and extends upto end of December while in barani area it begins from 20th October and continues upto 15th November.

40. In Sindh, wheat sowing starts from 1st November and extends upto the end of December.

41. In the NWFP, wheat is sown from 25th October to 15th December both in the plain and hilly areas.

42. In Balochistan, wheat sowing starts earlier than other provinces. It begins from 1st October in upper part of the province and continues upto 20th February. However, in plain area of the Province recommended sowing time of wheat extends from 1st November to 15th December.

43. Harvesting of wheat depends on the climatic conditions and varieties sown. Normally it starts in March/April and continues even upto May depending upon the sowing time, management practices, climatic conditions and varieties grown.

4. PROVINCIAL SHARES IN AREA AND PRODUCTION OF WHEAT

44. The average production at country level is estimated at 20.94 million tonnes and area at 8.29 million hectares (20.5 million acres) on the basis of 2003-04 to 2005-06 crops. The provincial shares in area and production of wheat are given in Table-2 and shown in Figures 1 and 2.

Table-2: Provincial Shares in Area and Production of Wheat (Average of 2003-04 to 2005-06)

Country/province	Area		Production	
	000 ha	Per cent	000 tonnes	Per cent
Pakistan	**8293.7**	**100.0**	**20940.1**	100.00
Punjab	6318.8	76.2	16608.4	79.3
Sindh	899.6	10.8	2525.8	12.1
NWFP	744.5	9.0	1136.9	5.4
Balochistan	330.9	4.0	669.0	3.2

Source: Worked out from the data given in Annex-I.

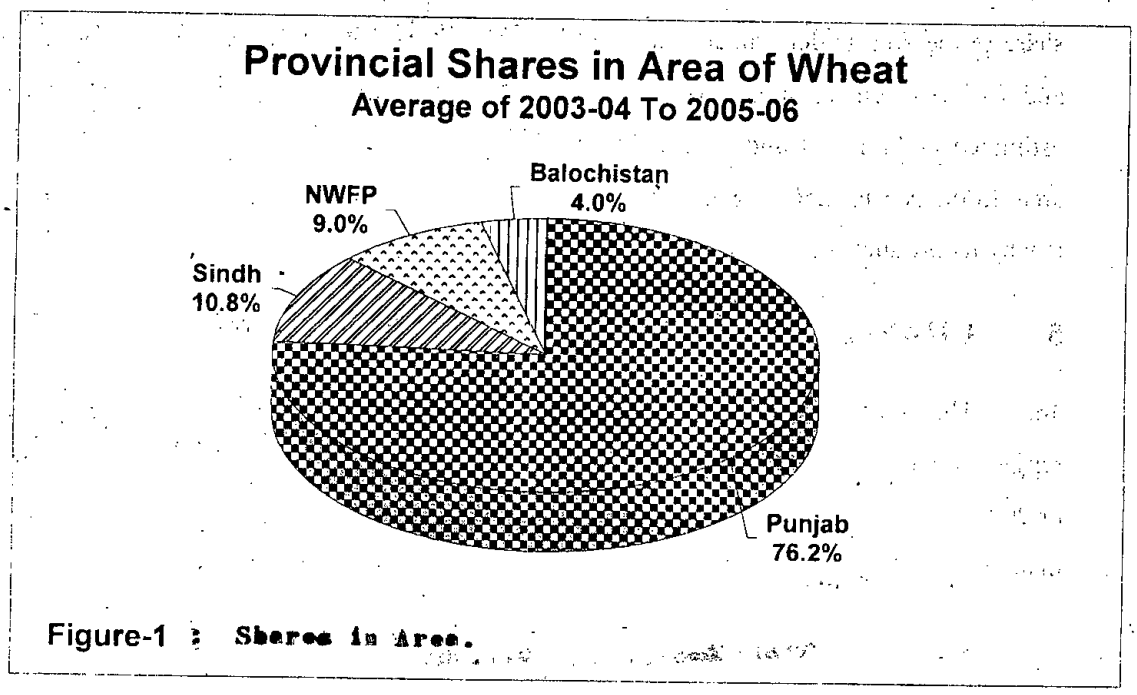

Figure-1 : Shares in Area.

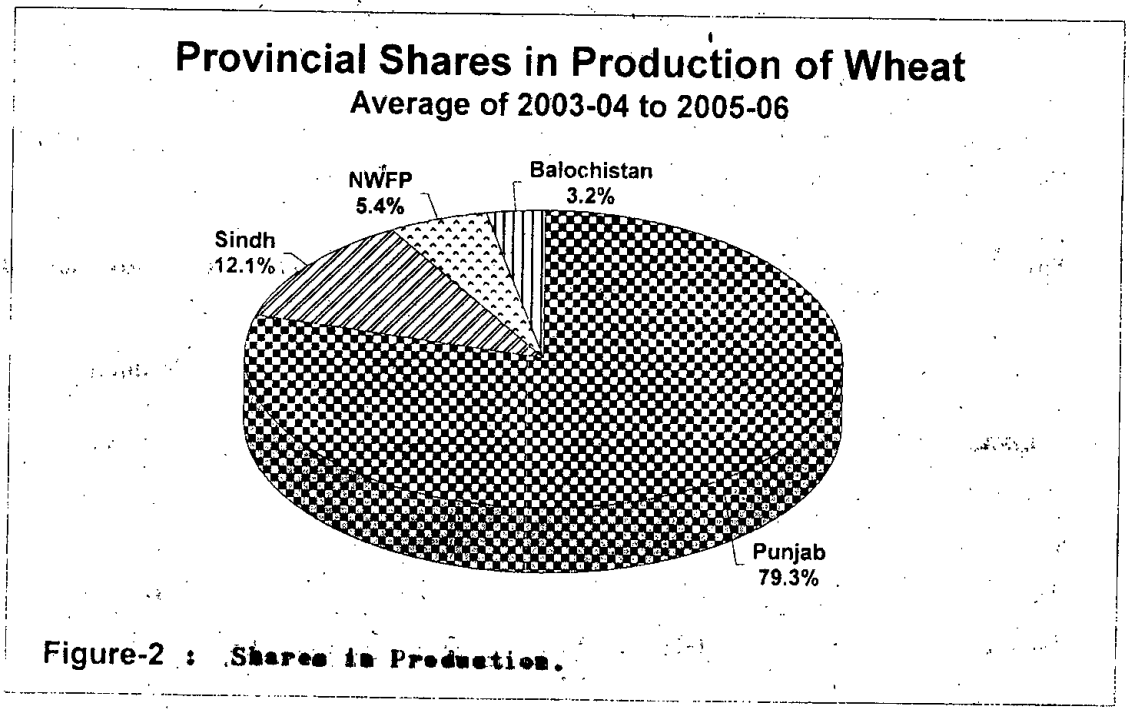

Figure-2 : Shares in Production.

45. Punjab is the main contributor in the production of wheat and also have largest share in the area under wheat crop. It is contributing around 79.3 per cent in production and 76.2 per cent in area. The respective shares of Sindh, NWFP and Balochistan are estimated at 12.1, 5.4 and 3.2 per cent in production and 10.8, 9.0 and 4.0 per cent in area. In the NWFP about 58 per cent wheat is cultivated under un-irrigated condition that is why its production share is substantially low as compared to wheat area.

5. CHANGES IN AREA, YIELD AND PRODUCTION

46. The annual wheat production during 1995-96 to 2005-06 in the country has ranged between 16.9 to 21.7 million tonnes and area between 8.1 to 8.5 million hectares or 20.0 to 21.0 million acres (Annex-I). Long-term, medium term and short-term changes in area, yield and production have been discussed below:

5.1 Long-term Changes: 1995-96 to 2005-06

47. During the decade ending 2005-06, wheat production is estimated to have increased @ 2.2 per cent per annum. Increase in yield @ 2.2 per cent per annum have a major bearing on the increased production as the area under wheat is reduced @ 0.1 per cent per annum (Table-3).

Table-3: Average Annual Growth Rates of Area, Yield and Production of Wheat: 1995-96 to 2005-06

Country/ Province	Area	Yield	Production
	---------- Per cent ----------		
Pakistan	**(-) 0.1**	**(+) 2.2**	**(+) 2.2**
Punjab	(+) 0.8	(+) 2.4	(+) 3.2
Sindh	(-) 2.9	(+) 2.8	(-) 0.3
NWFP	(-) 2.1	(+) 0.4	(-) 1.6
Balochistan	(-) 1.4	(-) 1.3	(-) 2.7

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

48. In the Punjab, production has increased by 3.2 per cent annually due to 2.4 per cent improvement in yield and 0.8 per cent expansion in area.

49. Due to water stress conditions after 1999-00, area under wheat has contracted in all the provinces except Punjab. Consequently production of wheat has shown declining trend in these provinces. Supplementary tubewell irrigation in the Punjab is keeping up the production.

5.2 Medium Term Changes: 2000-01 to 2005-06

50. During the period under reference wheat production increased at an annual rate of 3.3 per cent based upon 2.7 per cent improvement in yield and 0.6 per cent expansion in area. (Table-4).

Table-4: Average Annual Growth Rates of Area, Yield and Production of Wheat: 2000-01 to 2005-06

Country/Province	Area	Yield	Production
	--------- Per cent ---------		
Pakistan	(+) 0.6	(+) 2.7	(+) 3.3
Punjab	(+) 0.6	(+) 2.2	(+) 2.8
Sindh	(+) 2.2	(+) 3.2	(+) 5.5
NWFP	(-) 0.8	(+) 7.5	(+) 6.6
Balochistan	(-) 0.5	(+) 2.5	(+) 2.0

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

51. Wheat production in the medium term has increased at a faster pace as compared to long term. Yield has increased with different pace in both periods. However area has increased in medium term compared to declining trend in long term. As a result production has increased at faster pace in medium term.

5.3 Short-term Changes: 2005-06 Vs 2004-05

52. Wheat production at country level for 2005-06 crop is estimated at 21.7 million tonnes which is 0.4 per cent higher than the previous year's production of 21.6 million tonnes. Increase from the crop harvested during 2005-06 is only due to 1 per cent improvement in yield. The area, however, is 0.6 per cent less than the previous year (Table-5).

Table-5: Area, Yield and Production of Wheat: 2004-05 and 2005-06 Crops

Country/ Province	Area		Changes	Yield		Changes	Production		Changes
	2004-05	2005-06		2004-05	2005-06		2004-05	2005-06	
	-- 000 hectares --		Per cent	Kgs/hectare		Per cent	-- 000 tonnes --		Per cent
Pakistan	8358.0	8306.9	(-)0.6	2586	2613	(+)1.0	21612.3	21708.3	0.4
Punjab	6378.9	6321.9	(-)0.9	2724	2659	(-)2.4	17375	16811.2	-3.2
Sindh	887.4	933.2	(+)5.2	2827	3104	(+)9.8	2508.6	2896.8	15.5
N.W.F.P.	748.6	743.2	(-)0.7	1458	1742	(+)19.5	1091.1	1294.3	18.6
Balochistan	343.1	308.6	(-)10.1	1858	2288	(+)23.1	637.6	706	10.7

Source: Annex-I.

53. In the Punjab, wheat production from 2005-06 crop reported at 16.81 million tonnes is short by 3.2 per cent over the 17.4 million tonnes achieved in 2004-05. The decrease in production is attributed to 2.4 per cent shortfall in yield and 0.9 per cent in area.

54. In Sindh, production estimated at 2.9 million tonnes is 15.5 per cent higher than 2.5 million tonnes estimated in 2004-05. This improvement in production is due to increase of 5.2 per cent in area and 9.8 per in yield.

55. In NWFP, wheat production has gone up by 18.6 per cent due to improvement in yield by 19.5 per cent. The area however decreased by 0.7 per cent during 2005-06 as compared to 2004-05.

56. In Balochistan the wheat production during 2005-06 is up by 10.7 per cent as compared to 2004-05 because of increase in yield by 23.1 per cent. Area, however, has decreased by 10.1 per cent which has offset the effect of increase in yield to some extent.

6. TARGETS VS ACHIEVEMENTS: 2005-06 CROP

57. FCA had fixed wheat production target for 2005-06 crop at 22 million tonnes. The estimated production of 21.7 million tonnes lagged behind the target by 1.3 per cent because of under achievement of area target by 1.3 per cent (Table-6).

Table-6: Targets and Estimated Achievements of Area, Yield and Production of Wheat: 2005-06 Crop

Country/ Province	Area		Deviation from target	Yield per hectare		Deviation from target	Production		Deviation from target
	Targets	Achieve:		Targets	Achieve:		Targets	Achieve:	
	000 ha		Per cent	Kgs		Per cent	000 tonnes		Per cent
Pakistan	8415.0	8306.9	(-)1.3	2614	2613	(-)0.4	22000.0	21708.3	(-)1.3
Punjab	6403.0	6321.9	(-)1.3	2757	2660	(-)3.5	17655.0	16811.2	(-)4.8
Sindh	900.0	933.2	(+)3.7	2753	3104	(+)12.7	2478.0	2896.8	(+)16.9
N.W.F.P.	767.0	743.2	(-)3.1	1514	1742	(+)15.1	1161.0	1294.3	(+)11.5
Balochistan	345.0	308.6	(-)10.6	2046	2284	(+)11.6	706.0	706.0	0

Sources: 1. For targets: Minutes of the 8th Meeting of FCA held on 4th April, 2006.
2. For achievements: Annex-I

58. All the provinces except Punjab achieved the wheat production targets. In the Punjab production fell short of the target by 5 per cent due to under achievements in yield and area targets by 4 and one per cent, respectively.

7. IMPORTANT WHEAT PRODUCING DISTRICTS

59. The districts producing 400 thousand tonnes or more of wheat per year in the country are, Jhang, Sheikhupura, R.Y.Khan, Faisalabad, Bahawalnagar, Okara, Muzaffargarh, Vehari, Bahawalpur, Gujranwala, Khanewal, Pakpattan, Sargodha, Multan, Lodhran, Sialkot, Sahiwal, T.T.Singh, Kasur and Layyah. These all 20 districts fall in the Punjab and are producing 63 per cent of total domestic wheat. While their share in area is estimated at about 56 per cent. Sanghar from Sindh, Swat and Mardan from NWFP, Nasirabad and Jaffarabad from Balochistan are other important districts.

60. Districts have been arranged in descending order of wheat production in Annex-III.

8. FACTORS CONSIDERED FOR PRICE POLICY OPTION

61. In formulating the price policy proposals for wheat, 2006-07 crop, following factors have been considered and analysed:

8.1 Domestic Demand, Supply, Stocks and Prices of Wheat
8.2 World Production, Consumption, Stocks and Trade Situation
8.3 International Prices of Wheat
8.4 Import /Export Parity Prices of Wheat
8.5 Cost of Production of Wheat
8.6 Nominal and Real Support Prices of Wheat: 2000-01 to 2005-06
8.7 Comparative Economics of Wheat and Competing Crops: 2005-06 Prices
8.8 Economic Efficiency in Wheat Production
8.9 Support Prices of Wheat in Selected Countries
8.10 Parity Between Prices of Fertilizers and Wheat Support Prices
8.11 Impact of Increase in Support Price of Wheat on CPI and Average Household's Expenditure

8.1 Domestic Demand, Supply, Stocks and Prices Situation

8.1.1 Domestic demand, supply and stocks

8.1.1.1 Domestic supply

62. According to the latest estimates provided by the MINFAL, 21.7 million tonnes of wheat have been produced from 2005-06 crop to be available for consumption during 2006-07. Adding carry over stocks of 2.1 million tonnes, total availability works out 23.8 million tonnes as under:

i)	Opening stocks (as on 1st May 2006)	2.1 million tonnes
ii)	Production from 2005-06 crop	21.7 million tonnes
iii)	Total supply	23.8 million tonnes

8.1.1.2 Domestic demand

63. The important parameters needed for calculating national requirements of a commodity are per capita consumption and the size of the population. Per capita consumption may be either estimated through balance sheet method or through household surveys conducted by the FBS. According to the balance sheet method, annual per capita availability of wheat during 2003-04 to 2005-06 averages at 118 kgs per annum (Annex-IV). Using mid year population (as on 1st November) of 163.80 million (including AJ&K, NAs and Afghan Refugees), human consumption requirement for 2006-07 is estimated at 19.33 million tonnes. Adding allowance for seed, feed and wastage @ 10 per cent of production and accounting for one million tonnes as reserve stocks, gross domestic requirements for 2006-07 wheat year works to 22.38 million tonnes.

64. According to the Pakistan Social and Living Standards Measurement (PSLM) Survey of Household Integrated Economic Survey (HIES), 2004-05, conducted by the FBS, per capita consumption of wheat is estimated at 98 kgs per annum. The FBS survey estimate is exclusively for internal requirements and does not take into account possible leakages inside and outside the country. Therefore, the APCom does not consider appropriate to use the data provided by the FBS for estimating the domestic requirements, which shows lower side. However, on this basis total requirement works out to 19.10 million tonnes.

65. On the basis of last five years i.e. 2001-02 to 2005-06, per capita availability of wheat averaged at 116 kgs per annum. On this basis total requirements are estimated at 22.05 million tonnes (Table-7).

Table-7: Domestic Requirements of Wheat for 2006 - 07 Wheat Year: (May – April)

S.No.	Item	Based on annual per capita consumption of:		
		98 kgs	116 kgs	118 kgs
		---------- Million tonnes ----------		
1.	Consumption requirements for a population of 163.80 million as on 1st November, 2006[a]	16.05	19.00	19.33
2.	Allowance for seed, feed and wastage @ 10 per cent of total production	2.05	2.05	2.05
3.	Food Security reserves	1.00	1.00	1.00
4.	Total requirements	19.10	22.05	22.38

Note:

a) Data on population also include AJ&K, NAs and Afghan refugees after accounting for the refugees repatriated recently.

Source: Annex-IV.

8.1.2 Post harvest prices

66. Average monthly wholesale prices of wheat during the post harvest period of 2005-06 crop in the main producing area markets of the Punjab and Sindh are given in Table-8.

Table-8: Monthly Average Wholesale Prices of Wheat in Main Producing Area Markets of the Country during Post-Harvest Season of 2005-06 Crop

District	April	May	June	Average
	---------- Rupees per 40 kgs ----------			
Punjab				
Faisalabad	436	415	422	424
Gujranwala	428	420	427	425
Okara	434	402	418	418
Sargodha	430	411	407	416
Multan	422	413	410	415
Average	**430**	**412**	**417**	**420**
Sindh				
Hyderabad	427	427	427	427
Sanghar	410	403	405	406
Sukkur	395	405	410	403
Nawabshah	395	395	395	395
Jacobabad	390	393	393	392
Larkana	390	400	-	395
Shikarpur	410	406	-	408
Average	**402**	**404**	**406**	**403**

Sources:

1. ALMA, Karachi, for Hyderabad.
2. For Punjab, Directorate of Agriculture (E&M), Punjab, Lahore.
3. For Sindh, Agriculture Market Committee of respective districts.

67. Table-8 reveals that monthly average wholesale prices of wheat in main markets of Punjab ruled higher than the support price of Rs 415 per 40 kgs during the 2005-06 post harvest season, except Okara, Sargodha and Multan markets where prices were slightly below during the months of May and June 2006. Prices of wheat in the Punjab ranged between Rs 402 per 40 kgs in Okara market during the month of May, 2006 and Rs. 436 per 40 kgs in Faisalabad market during April, 2006. Monthly average in all the markets of Punjab comes to Rs. 430, Rs. 412, and Rs. 417 per 40 kgs during the months of April, May and June, 2006 respectively.

68. In Sindh, monthly average market prices generally ruled below the support price except Hyderabad market. Monthly average market prices ranged between Rs. 390 per 40 kgs in Jacobabad and Larkana markets during the month of April, 2006 and Rs. 427 per 40 kgs in Hyderabad during April, May and June, 2006. The overall average comes to Rs 402, Rs 404 and Rs 406 per 40 kgs during April, May and June, 2006 respectively.

8.2 World Production, Consumption, Stocks and Trade Situation

69. The information regarding world production, consumption, stocks and trade situation from 2003-04 to 2006-07, is presented in Table-9.

Table- 9: World Wheat Balance Sheet: 2003-04 to 2006-07

Item	2003-04	2004-05	2005-06 (Estimated)	2006-07 (Forecast)
	---------- Million tonnes ----------			
1. Opening stocks	165	125	137	130
2. Production	556	629	617	605
3. Total supply (items 1+2)	721	754	754	735
4. Consumption	596	616	624	613
5. Closing stocks	125	137	130	121
6. Trade	103	110	110	111

Note: Opening and closing stocks may not tally due to rounding of data.

Source: Grain Market Report, International Grains Council, London, GMR No.357 dated 29th June 2006

70. The world wheat production in 2005-06 is estimated at 617 million tonnes, showing 12 million tonnes (1.91 percent) lower than previous year. After adding the opening stocks of 137 million tonnes, world supply of wheat in 2005-06 resumes the last year level of 754 million tonnes. Due to decline in production and increase in requirements of 624 million tonnes, the closing stocks are estimated to decline to 130 million tonnes in 2005-06 against 137 million tonnes in last year.

71. The global wheat production in 2006-07 is projected to fall to 605 million tonnes i.e. 12 million tonnes or 2.94 per cent lower than in 2005-06. Accounting for the opening stocks of 130 million tonnes, total supply is anticipated at 735 million tonnes against the consumption forecast of 613 million tonnes in 2006-07, thus leaving the closing stocks at 121 million tonnes. If the above forecasts come true, wheat prices in international markets during 2006-07 should move further. World trade in wheat is forecast at 111 million tonnes, 1 million tonnes higher than in 2005-06.

8.3 International Prices of Wheat

72. Average fob (pacific) prices of US Western White Wheat comparable in quality to the domestically produced wheat in Pakistan from 1996-97 to 2005-06 are presented in Annex-V and depicted in Fig-3. The prices of US Western White Wheat showed a volatile pattern during the period under review. Averaging at US $ 165 per tonne in 1996-97, the price declined sharply and averaged at $ 112 per tonne in 1999-00. During last five years, prices have shown ups and downs and reached at US $ 149 during 2003-04, the 2nd highest level. In 2004-05, the prices have shown downward trend and averaged at US $ 143 per tonne. During 2005-06, the monthly prices have shown a downward trend upto December 2005. Since then these prices are increasing gradually and averaged at US $ 142 per tonne in June 2006.

8.4 Import/ Export Parity Prices of Wheat

73. Pakistan is a regular importer of wheat except 1999-00 when a bumper crop of 1999-00 changed this situation and country exported about 1.7 million tonnes of wheat in 2002-03. Due to onward shortfall in crop production, it again resumed imports from 2003-04. During 2005-06, it has imported 850 thousand tonnes of wheat for domestic requirements.

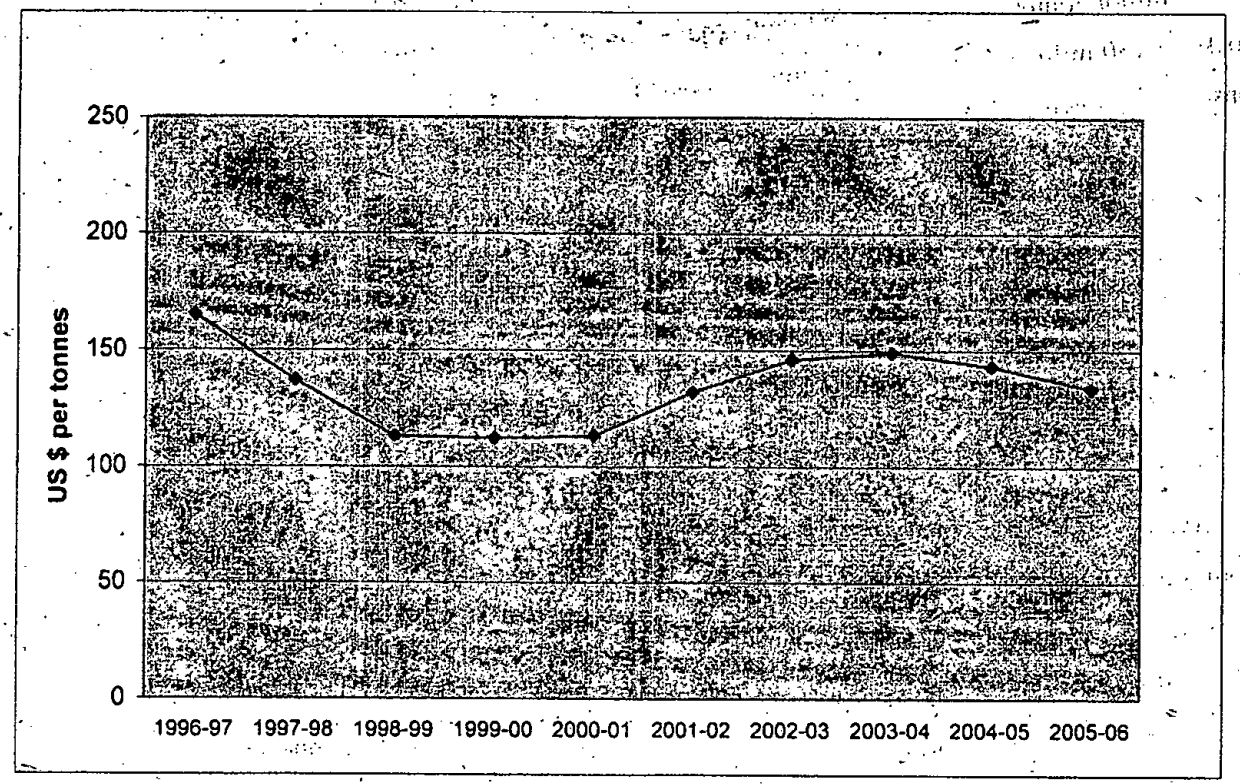

FIG-3: INTERNATIONAL (FOB PACIFIC) PRICE OF US WESTERN WHITE WHEAT: 1996-97 TO 2005-06

74. Estimation of the import parity prices of a commodity is helpful in determining the opportunity cost of resources used in its domestic production while export parity prices are helpful in ascertaining its competitiveness in international market. Since Pakistan has been importer in general and exporter in some years, both the import and export parity prices of wheat have been worked out for analyzing price policy options.

75. Both the import and export parity prices have been calculated on the basis of fob(Pacific) quoted price of US Western white wheat. The calculations of import/ export parity price are based on economic analysis only. Inter-bank selling exchange rate for import parity and buying for export parity prices have been used in the calculations. Detailed calculations in this connection are presented at Annexes-VI and VII while results are summarized in Tables-10 and 11.

76. The import parity prices of wheat on the basis of average fob(Pacific) price of $ 141 per tonne during 2001-02 to 2005-06 is estimated at Rs 402 per 40 kgs if consumed at Karachi and Rs 498 per 40 kgs if consumed at Lahore. On the basis of 2005-06, the import parity prices calculate at Rs 384 and Rs 480 per 40 kgs for Karachi and Lahore, respectively. On the basis of current c&f (Karachi) prices quoted by the MINFAL, the corresponding prices work back to Rs 498 and Rs 594 per 40 kgs for Karachi and Lahore, respectively.

Table-10: Import parity prices of Wheat

Base/period	Base	Landed cost at Karachi		Import parity prices of wheat at procurement centre if consumed at: (a)	
				Karachi	Lahore
	US $/tonne	Rs/tonne	Rs per 40 kgs	-----Rs/40 kgs---	
Average fob (Pacific) Price of US Western White Wheat During:					
- 2005-06 (Jul-June)	134	11,023	441	384	480
- 2001-02 to 2005-06	141	11,478	459	402	498
- Current c&f (Karachi) price quoted by MINFAL	208	13,882	555	498	594

Source: Annexes-VI and VI(a)

Note: (a) In case wheat is consumed at Karachi, the up country cost is deducted from the landed cost of wheat as the domestically procured wheat will have to be taken to Karachi, while it is added to the landed cost if consumed at Lahore.

77. The export parity prices of wheat on the basis of average fob (pacific) prices of US Western White Wheat at US $ 141 per tonne from 2001-02 to 2005-06 come to Rs 8,488 as fob (Karachi) and Rs 244 per 40 kgs at Multan. On the basis of 2005-06, the export parity prices work out to Rs 8,067 per tonne at Karachi port and Rs 227 per 40 kgs at Multan.

Table –11: Export parity prices of Wheat

Base/Period	Base	Fob (Karachi) Cost		Export parity prices of wheat exported from Multan
	US $/tonne	Rs/tonne	Rs per 40 kgs	-----Rs/40 kgs---
Average fob (Pacific) Price of US Western White Wheat During:				
- 2005-06 (Jul-June)	134	8,067	323	227
- 2001-02 to 2005-06	141	8,488	340	244

Source: Annex-VII.

8.5 Cost of Production of wheat

78. The cost of production is one of the important factors in formulating prices of farm produces. Its empirical estimation, however, involves many conceptual problems and practical difficulties due to wide variations in the use level of farm inputs and diverse farming systems, employed in the production of a given farm produce, resulting in varying levels of farm productivity.

79. The cost of production (COP) of wheat for the 2006-07 crop in the Punjab and Sindh has been synthesized by using the input-output parameters as used in the price policy for wheat 2005-06 crop in conjunction with the latest prices of farm inputs and custom hire rates for various cultural operations. These rates have been supplemented

with the information supplied by the representatives of the Provincial Governments and Farmers' Associations in the meeting of the APCom' s Standing Committee on wheat held on 17th July 2006 at Islamabad. Details of the COP estimates for the Punjab and Sindh are given at Annex-VIII and IX, while a summary of the results is presented in Table-12.

Table-12: Average Farmers' Cost of Production of Wheat: 2005-06 and 2006-07 Crops

Items	Units	2005-06 Crop	2006-07 Crop	Increase in 2006-07 over 2005-06
Punjab				
1. Cost of cultivation	Rs/acre	11444	11993	549
2. Yield	Kgs/acre	1108	1108	-
3. Cost of production at farm level	Rs/40 kgs	413	433	20
4. Marketing cost	"	15	16	1
5. Cost of production at market/ Procurement centre	"			
a) With land rent		428	449	21
b) Without land rent		329	350	21
Sindh				
1. Cost of cultivation	Rs/acre	9468	9852	384
2. Yield	Kgs/acre	968	968	-
3. Cost of production at farm level	Rs/40 kgs	391	407	16
4. Marketing cost	"	15	16	1
5. Cost of production at market/ Procurement centre	"			
a) With land rent		406	423	17
b) Without land rent		324	341	17

Source: Annex-VIII and IX.

- **Punjab**

80. As per summary information given in the Table-12 and details in Annex-VIII, raising one acre of wheat in the Punjab, during 2006-07 crop year is estimated to cost Rs 11993, including land rent. Distributing this cost over the average yield of 1108 kgs per acre, cost of production of wheat at farm level works to Rs 433 per 40 kgs. Adding marketing cost @ Rs 16 per 40 kgs, the market/procurement center level cost of produce would be Rs 449 per 40 kgs, higher by Rs 21 (5 per cent) than the corresponding cost estimates of the 2005-06 crop.

- **Sindh**

81. Growing one acre of wheat in Sindh, during 2006-07 crop year, is likely to cost Rs 9852, including land rent. With the average yield of 968 kgs per acre, farm level cost of production would work to Rs 407 per 40 kgs. Accounting for the marketing charges @ Rs 16 per 40 kgs, the cost of the produce at market/procurement centre should be around Rs 423, reflecting increase of Rs 17 per 40 kgs (4 per cent) over the corresponding cost estimates of wheat for the 2005-06 crop (for details, Annex-IX).

82. The rises in the expected cost of production of wheat for the 2006-07 crop over the last year's cost are attributable to the increases in the custom hire rates of cultural operations, supplementary irrigation and marketing charges on accounting of increases in the prices of diesel. The increased prices of fertilizer, escalations in farm wage rates, and mark-up rates have also added to the increases in cost of production. However, increased values of wheat bhoosa and depressed values of kind payments for harvesting and threshing have partly offset the escalation in the cost of production of wheat.

- **Cost of major farm inputs and operations**

83. The cost of major farm inputs and operations of wheat cultivation during 2005-06 and 2006-07 crops along with per cent changes therein in the Punjab and Sindh is given in the Table-13.

Table-13: Cost of major operations/inputs of wheat: 2005-06 and 2006-07 Crops

Operations/inputs	2005-06 crop	2006-07 crop	Changes in 2006-07 over 2005-06
	(Rs/acre)		(Per cent)
Punjab			
1. Land preparation	1094 (9)	1204 (9)	10
2. Seed and sowing operations	1474 (12)	1515 (12)	3
3. Weedicides	315 (2)	315 (2)	-
4. Irrigation	1562 (13)	1837 (14)	18
5. Fertilizer including FYM	2260 (18)	2367 (18)	5
6. Land rent	2750 (22)	2750 (21)	-
7. Harvesting and threshing etc	2353 (19)	2320 (18)	(-) 1
8. Others	636 (5)	835 (6)	31
9. Total cost	12444 (100)	13143 (100)	6
Sindh			
1. Land preparation	1267 (12)	1394 (13)	10
2. Seed and sowing operations	1283 (12)	1299 (12)	1
3. Interculture/weedicides	223 (2)	224 (2)	-
4. Irrigation	784 (8)	886 (8)	13
5. Fertilizer including FYM	2252 (22)	2376 (21)	6
6. Land rent	2000 (19)	2000 (18)	-
7. Harvesting and threshing etc	2001 (19)	1994 (18)	-
8. Others	658 (6)	829 (8)	26
9. Total cost	10468 (100)	11002 (100)	5

Notes: 1. Others include mark-up, management chares, land tax and drainage cess.
2. Figures in parenthesis are percent shares in total cost of cultivation.

- **Punjab**

84. In the Punjab, land rent is the principal component in the total cost of cultivation of wheat for the 2006-07 crop, accounting for 21 per cent. The other major constituents are: harvesting and threshing operations (18 %), fertilizers including FYM (18 %), irrigation (14 %), seed and sowing operations (12 %), land preparation (9 %).

85. The increase of Rs 699 per acre (6 per cent) in the total cost of cultivation of wheat in the Punjab over last year's has been primarily resulted in escalations in cost of: Irrigation (18 %), land preparation (10 %), fertilizers (5 %) and seed and sowing operation (3 %).

- **Sindh**

86. The major components in the total cost of cultivation of wheat during 2006-07 crop year in Sindh, are: fertilizers including FYM (21 %), land rent (18 %), harvesting and threshing (18 %), land preparation (13 %), seed and sowing operations (12 %), and irrigation (8 %).

87. The increase of Rs 534 (5 per cent) per acre in the total cost of cultivation of wheat in Sindh, during 2006-07 crop year has mainly caused escalations in: irrigation (13 %), cultural operations (10 %) and fertilizers including FYM (6 %).

- **Prices of major farm inputs**

88. The average market prices of major farm inputs used in the cost estimation of wheat cultivation for the 2005-06 and 2006-07 crops and changes therein are given below:

Items	Units	2005-06 crop	2006-07 crop	Per cent
Punjab				
1. HSD	Rs/litre	31.81	38.80	21.97
2. Power tariff	Rs/kwh	3.28	3.28	-
3. Seed	Rs/kg	20	20	-
4. Fertilizers	Rs/bag			
4.1 DAP		1037	1076	3.76
4.2 Urea		490	521	6.33
4.3 NP		707	706	(-) 0.14
Sindh				
1. HSD	Rs/litre	31.81	38.80	21.97
2. Power tariff	Rs/kwh	3.28	3.28	-
3. Seed	Rs/kg	20	20	-
4. Fertilizers	Rs/bag			
4.1 DAP		1010	1047	3.66
4.2 Urea		488	530	8.61
4.3 NP		733	710	(-) 3.14

8.6 Nominal and Real Support Prices of Wheat: 2000-01 to 2005-06

89. It is the policy of the government to annually review and announce support price well before sowing time to facilitate wheat growers in acreage allocation. The changes in the prices of a commodity in relation to general price level in the economy influence its purchasing power, welfare and real income of its producers. To ascertain over time changes in the purchasing power of wheat, the nominal support prices of wheat from 2000-01 to 2005-06 crops were deflated by the Consumer Price Index (CPI), the most common measure of inflation in the economy. The results of the exercise are set out in Table-14 and depicted in Figure-4.

Table-14: Nominal and Real Support Prices of Wheat: 1999-00 to 2005-06

Crop year	Consumer Price Index (CPI)	Support Prices of Wheat	
		Nominal	**Real**
1	2	3	4=(3/2)x100
	2000-01=100	**Rs/ per 40 Kgs**	
2000-01	100.00	300.00	300.00
2001-02	103.54	300.00	289.74
2002-03	106.75	300.00	281.03
2003-04	111.63	350.00	313.54
2004-05	122.98	400.00	325.26
2005-06	132.72	415.00	312.69

Sources: i) Economic Survey of Pakistan: 2005-06.
ii) Economic Advisors Wing, Ministry of Finance, Islamabad.

90. The nominal support prices of wheat during the period 2000-01 to 2005-06 indicate a cumulative increase of 38 per cent, from Rs 300 per 40 kgs in 2000-01 to Rs 415 in 2005-06. During the same period, the CPI has spiraled by 33 per cent. Consequently, the real support price of wheat for 2005-06 crop, estimated at Rs 313 per 40 kgs in terms of 2000-01 rupee, showing an improvement of 4 per cent over the real price of Rs 300 for 2000-01 crop. However, the real support prices of wheat have experienced ups and downs during the period under review, touching the lowest level of Rs 281 in 2002-03 and the highest of Rs 325 per 40 kgs in 2004-05.

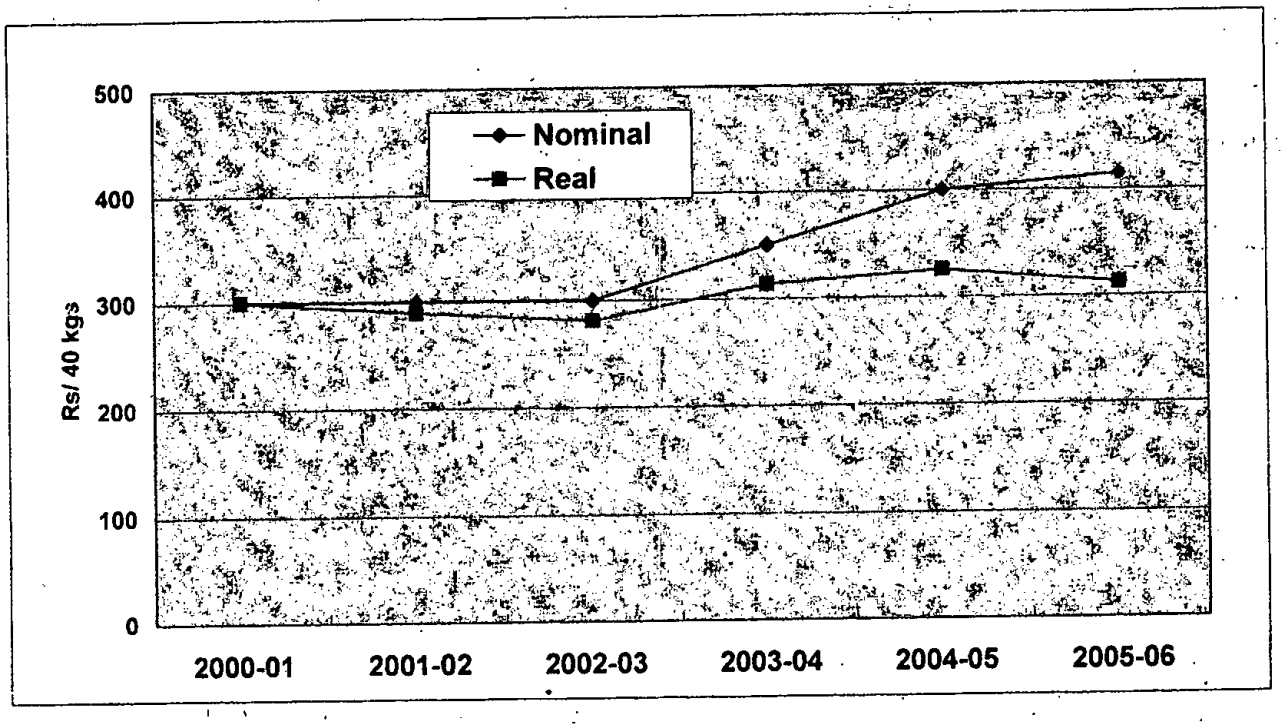

Fig-4: NOMINAL AND REAL SUPPORT PRICES OF WHEAT: 2000-01 TO 2005-06

91. The support price of wheat was enhanced from Rs 400 to Rs 415 per 40 kgs for 2005-06 crop, its real value in terms of 2000-01 prices is estimated at Rs 313 per 40 kgs, reflecting a decline of 4 per cent against the last year.

8.7 Comparative Economics of Wheat and Competing Crops

92. Resource allocation among the competing enterprises is primarily governed by economic considerations as reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc. The estimation of these indicators may provide useful insights into the pattern of resource use at farm level. Wheat, a rabi crop, is cultivated under both irrigated and rainfed conditions. However, the bulk of production comes from the irrigated regions where it mainly competes against oilseeds like canola and spring-sown sunflower. It also faces indirect competition from sugarcane which occupies the land throughout the year and competes against both kharif and rabi crops. In such a situation, wheat combinations with the kharif crops would need to be considered. The likely combinations are basmati+wheat, IRRI+wheat and cotton+wheat.

93. The economics of wheat and competing crops has been analysed in terms of input-output prices paid and received by the growers for the 2005-06 crops. The details of the analysis are provided in Annex-X. A summary of the relevant economic indicators emerging from the analysis is presented in Table-15.

- **Punjab**

94. The economic position of wheat farming is generally poor as compared to the oilseeds like sunflower and canola during the 2005-06 crop season. It is primarily because of better prices of sunflower and canola received by the growers during the current season. The economic position of wheat has been quite inferior to both sunflower and canola in respect of output-input ratio and gross revenue per rupee of purchased inputs cost. Wheat farming has performed much better than canola in view of gross returns to crop duration and irrigation water. Wheat cultivation has also an edge over sunflower in respect of gross revenue to irrigation water. In respect of gross revenue per day of crop duration, sunflower farming has an edge over wheat, while wheat cultivation has an edge over canola.

Table-15: Economics of Wheat and Competing Crops at Prices Realized by the Growers: 2005-06 Crops

Province/Crop/Crop combination	Output-input ratio	Gross revenue per		
		Rupee of purchased inputs cost	day of crop duration	acre inch of water used
		--------- Rupees --------		
Punjab				
1. Wheat	0.96	2.24	67.73	1015.90
2. Sunflower (spring sown)	1.05	3.76	74.38	486.82
3. Canola	1.19	4.14	46.66	753.70
4. Basmati+Wheat	0.97	1.94	68.33	351.41
5. IRRI+Wheat	0.93	1.89	60.23	293.02
6. Cotton+Wheat	1.07	2.37	72.05	890.02
7. Cotton+Sunflower	1.12	2.83	74.95	654.09
8. Sugarcane	1.54	4.42	84.99	697.61
Sindh				
1. Wheat	0.98	2.34	57.71	865.65
2. Sunflower (spring sown)	1.05	3.76	74.38	486.82
3. Canola	1.19	4.14	46.66	753.70
3. IRRI+Wheat	1.07	2.43	58.65	310.51
4. Cotton+Wheat	1.14	2.82	67.39	943.43
5. Cotton+ Sunflower	1.17	3.39	74.54	715.63
8. Sugarcane	1.72	4.93	95.83	658.69

Source: Annex-X.

95. In case of indirect competition with sugarcane, all the wheat combinations have been out-competed by sugarcane in most of the economic criteria adopted in the current analysis except in case of gross returns to irrigation water where cotton+wheat rotation has an edge over sugarcane. Among the crop combinations, cotton +sunflower generally outperforms the wheat combinations.

- **Sindh**

96. In Sindh also, wheat farming does not compare favourably with competing crops like sunflower and canola during the 2005-06 crop season. The wheat farming has been quite inferior than oilseeds in respect of gross returns to overall investment and purchased inputs. In respect of gross return to crop duration, wheat farming has an edge

over canola farming while sunflower has an edge over wheat. However, wheat performed better than both oilseeds in terms of gross returns to irrigation water (Table-15).

97. In case of indirect competition with sugarcane, both the IRRI+wheat and cotton+wheat combinations do not compare favourably with sugarcane. Sugarcane outperformed both combinations in terms of gross returns to overall investment, purchased inputs and crop duration. However, the cotton+wheat rotation performed better than sugarcane in respect of gross returns to irrigation water. Among the crop combinations, cotton+sunflower generally outcompeted IRRI+wheat and cotton+wheat combinations.

8.8 Economic Efficiency in Wheat Production

98. Wheat is not only the staple food but also the largest crop in terms of area, production and value addition in Pakistan. Its production, involves extensive use of land, water and other resources. In view of its importance, it is imperative to examine its competitiveness from the farmers' as well as the national perspective as it has implications for the sustainability of wheat farming in the country. Accordingly, the economic efficiency parameters like Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC), and Domestic Resource Cost Coefficient (DRC) are estimated, both for the Punjab and Sindh in the context of wheat farming. These efficiency parameters, also called measures of protection.

8.8.1 Nominal Protection Coefficient (NPC)

99. NPC is estimated as domestic output prices divided by social prices. It measures the impact of output pricing policies without any consideration about intervention/distortion in input markets. The NPC if greater than one indicates that domestic producers are getting more than the economic price for their produce. When the producers receive more than the economic price they receive a protection which

encourages production. In case the coefficient is less than one, it implies that domestic producers are getting less than the economic prices and are thus being taxed. Taxation of producers entails resource transfer to other sectors which acts as a disincentive.

8.8.2 Effective Protection Coefficient (EPC)

100. It is the ratio of the difference between the revenue and tradable inputs' costs (value addition) in private prices to that in social prices. Unlike the NPC, which ignores the distortions and policy interventions in the input markets altogether, EPC takes into account the policy interventions in both input and output markets. Thus it is a preferred measure for estimating the protection/taxation of a given commodity.

101. EPC is the indicator of the net incentive and disincentive effects of all policies affecting prices of tradable output and inputs. EPC greater than one means the private profit is higher than it would be without government interventions in input – output market. EPC less than one indicates that net effect of policies that change prices of tradeable inputs and outputs is to reduce private profits. In the former case the domestic production of a commodity is being protected and encouraged whereas in the latter situation opposite is the case.

8.8.3 Domestic Resource Cost (DRC)

102. The domestic Resource Cost indicates the cost of non-tradable domestic resources used per unit of the value added in the production of a commodity, estimated at social prices. 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.

103. DRC coefficient greater than one indicates a 'comparative disadvantage' in domestic production as the cost associated with domestic production is greater than the corresponding cost of imports. A situation where domestic resource cost coefficient is

less than one implies 'comparative advantage' since the domestic production can save/generate foreign exchange at costs less than the corresponding cost of imports. It may however be pointed out that DRC would vary with the changes in the opportunity cost of non tradable inputs as well the social value of output.

104. Based on the detailed cost of production data of 'average' farmers and import prices of wheat as used in the APCom's price policy reports, the NPC, EPC and DRCs in wheat farming for 2001-02 to 2005-06 have been estimated and summarized in Table-16. Data on private and social profitability for these years alongwith the assumption used in the analysis are detailed at Annexes-XI and XII.

Table-16: Economic Efficiency Co-efficients for Wheat in the Punjab and Sindh: 2001-02 to 2005-06

Year	Punjab			Sindh		
	NPC	EPC	DRC	NPC	EPC	DRC
2001-02	0.70	0.43	0.52	0.73	0.52	0.54
2002-03	0.68	0.41	0.48	0.74	0.53	0.50
2003-04	0.81	0.59	0.52	0.81	0.63	0.51
2004-05	0.76	0.53	0.47	0.73	0.53	0.48
2005-06	0.87	0.62	0.86	0.92	0.90	0.96
Average	0.77	0.52	0.56	0.79	0.62	0.60

Source: Annex-XI and XII.

105. The nominal protection coefficients as well as effective protection coefficients are less than one throughout the period of analysis indicating no economic protection given to wheat farming in the country. Rather wheat producers have been taxed or resources transferred out of wheat farming as these coefficients are substantially less than one.

106. The examination of the nominal protection coefficients, reveals that wheat production during 2001-02 to 2005-06 has not received any protection. The prices received by the growers have been substantially below the corresponding import parity prices. The data also reveal that the implicit taxation of wheat was on the decline as the NPC improved progressively. The perusal of the effective protection coefficient also reinforces the conclusions drawn from the examination of nominal protection coefficients.

107. The domestic resource cost coefficients in wheat production calculated at the import parity prices are also less than one which suggests that the resource cost of domestic production is less than the corresponding import costs, indicating a comparative advantage in domestic production and import substitution. Therefore, it would be an economical proposition for the country to invest in the wheat production and marketing to maintain hard earned self-sufficiency in the staple food crop of wheat.

8.9 Producer Prices of Wheat in Selected Countries

108. Wheat is widely grown all over the world. Major wheat producing countries provide a variety of incentives including the minimum guaranteed prices to the growers. To compare the producer prices in Pakistan with other countries, the relevant information has been obtained through the courtesy of the International Grains Council, London and Pak Missions abroad.

109. The data on the minimum guaranteed producer prices of wheat for 2003-04 to 2005-06 crops in major wheat producing countries are presented in Table-17.

110. While comparing the producer prices of a commodity across the globe, following factors should be kept in view:

i) quality of the produce;
ii) structure of input prices;
iii) policy objectives;
iv) fluctuations in exchange rates
v) stage of agriculture development;
vi) adjustment payments
vii) country-specific commodity programmes;
viii) counter-cyclical payments

Table-17: Minimum Guaranteed Producer Prices of Wheat in Selected Countries: 2003-04 to 2005-06 Crops

Country	2003-04		2004-05		2005-06		Remarks
	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	
Australia	147	343	147	352	140	338	AWB Ltd Estimated No.1 Pool Return for Premium White
Brazil	120	280	126	302	139	336	Minimum price for Class 1 Wheat
Canada [1)]	136	317	120	288	161	389	Initial guaranteed payment for No.1 CWRS 13.5%.
EU	114	266	126	302	121	292	Basic Intervention price
India	138	322	147	352	155	374	Minimum support price
USA [2)]	120	280	120	288	120	290	National average loan rate + Direct payments.
Pakistan	150	350	167	400	172	415	Support price

Sources:

1. International Grains Council, London, U.K.
2. Pak Missions, abroad.
3. The daily 'DAWN' for exchange rates.

Notes:

1. In Canada, additional payments are also made in view of returns from market operations.
2. In USA, counter-cyclical payments are also made whenever the effective price is less than target price.
3. The exchange rates are those as applicable during the post-harvest period of wheat crop in Pakistan.

8.10. Parity Between Prices of Fertilizers and Wheat

111. Fertilizer is one of the most important factors of wheat production. However, its use depends on the purchasing power of wheat in terms of different fertilizers. The purchasing power of wheat in terms of fertilizers may be estimated from the parity ratio between prices of fertilizer nutrients and wheat. The parity ratio indicates the quantity of wheat required to buy one nutrient unit of fertilizer. Higher the ratio, lower the purchasing power of wheat as more units of the commodity to buy a given quantity of fertilizer and vice versa. A favourable parity will be required to stimulate fertilizer application towards optimal level. As the prices of inputs and outputs do not change proportionately, the parity ratios may favour or go against the output. Hence, it is important to monitor and analyse the parity ratios between prices of wheat and fertilizes.

112. To study overtime changes in the purchasing power of wheat in terms of nitrogen and phosphatic fertilizers, the parity ratios between fertilizer nutrients and wheat have been worked out for the period of 1996-97 to 2005-06 and presented in Table-18.

Table-18: Parity Between Market Prices of Fertilizers and Wheat: 1996-97 to 2005-06

Crop year	Price of fertilizer		Market price of wheat	Units of wheat needed to buy one unit of fertilizer	
	N	P		N	P
	---------- Rupees per tonne----------				
1996-97	14500	19109	7138	2.03	2.68
1997-98	15000	18913	6788	2.21	2.79
1998-99	15217	20567	6000	2.54	3.43
1999-00	14783	25085	7500	1.97	3.34
2000-01	13913	18470	6850	2.03	2.70
2001-02	16956	21626	7025	2.41	3.08
2002-03	17870	25181	7750	2.31	3.25
2003-04	18000	28740	9625	1.87	2.99
2004-05	19565	31474	10800	1.81	2.91
2005-06	21260	36180	10275	2.07	3.52

Sources: Support Price Policy Reports on Wheat.

113. The parity ratio between market prices of nitrogen and wheat for 1996-97 shows that 2.03 units of wheat were needed to buy one unit of N. In 1997-98 and 1998-99, market price of wheat fell sharply and thus parity ratios moved to 2.21 and 2.54 respectively. In 1999-00, market price of wheat increased by 25 per cent while prices of nitrogen fell by 3 per cent which led parity ratio to improve in favour of wheat. In the subsequent three years, parity ratio again weighed against wheat crop mainly because of sharp increase in the price of nitrogenous fertilizer. During 2003-04 and 2004-05, prices of N fertilizer though increased significantly but wheat prices increased in higher proportion which improved the parity ratio in favour of wheat. In the current year, prices of nitrogen and wheat moved in the opposite directions which again deteriorated purchasing power of wheat in terms of N fertilizer.

114. A similar pattern of parity ratio is observed in prices of P fertilizer and wheat. However, the magnitude of change in parity ratio has been higher in the case of P fertilizer as compared to N fertilizer. The parity ratio increased from 2.68 in 1996-97 to 3.43 in 1998-99. In the following years, this ratio moved in favour of wheat as 2.70 units of wheat were required to buy one unit of P fertilizer in 2000-01. The parity ratio again moved against wheat in 2001-02 and 2002-03 due to unmatching change in prices of wheat and P fertilizer. Thereafter, the purchasing power of wheat in terms of P fertilizer improved as parity declined to 2.99 in 2003-04 and 2.91 in 2004-05 due to remunerative market prices of wheat. However, during 2005-06 wheat again lost its purchasing power as the parity ratio jumped to 3.52.

8.11 Impact of Increase in the Support Prices of Wheat on Consumer Price Index (CPI) and Average Household Expenditure

115. Expenditure on wheat is an important item in average household budget. Similarly, wheat and wheat made ups are included in the basket of goods used in estimating the Consumer Price Index (CPI). Support price of wheat affects both the household budget and CPI via consumer prices of wheat flour and its products. Any change in the price of wheat and general level in the economy impacts on the family

budget. The details of analysis are presented in Annex-XIII, while a summary of the results is provided in Table-19. The findings of the analysis are discussed as under:

8.11.1 Impact on CPI

116. The Federal Bureau of Statistics has estimated the changes in CPI as a result of increase in the support price of wheat over the existing level of Rs 415 per 40 kgs in 2005-06. The analysis is based on the assumption that the market prices of wheat and wheat flour would increase in the same proportion as the support price. The impact of increases in the support price of wheat on CPI and average household expenditure are given in Table-19.

Table-19: Impact of Increase in Support Price of Wheat on CPI and Average Household Expenditure

Support price	Rise in CPI	Increase in annual expenses on the basis of average per capita wheat availability @ 118 kgs per year	
		Per person	Per household
Rs/40 kgs	Per cent	---------- Rupees ----------	
415 (for 2005-06 crop)			
419	0.054	12	81
423	0.108	24	162
427	0.162	36	243
431	0.216	47	317
435	0.270	59	398
439	0.324	71	479
443	0.378	83	560
447	0.431	95	641

Sources:

1. Federal Bureau of Statistics, (FBS), Karachi.
2. Annex-XIII.

Note: The average size of household comprises 6.75 members.

117. It may be seen from Table-19 that every increase of Rs 4 per 40 kgs over the existing support price of wheat of Rs 415 per 40 kgs is expected to raise the CPI by 0.054 per cent, other things remaining the same. Accordingly, the CPI is likely to increase by 0.270 per cent if wheat support price is increased by Rs 20 per 40 kgs.

118. The above analysis is predicted on the assumption that prices of wheat flour would increase in the same proportion as that of wheat. Moreover, the escalations in the CPI analysed above are the direct effects of increase in the support price of wheat. The indirect and multiplier effects, if any, resulting from the increase in support price should be over and above these changes in CPI.

8.11.2 Impact on Houshold's Expenditure

119. According to the Pakistan Social and Living Standards Measurement (PSLM) Survey of Household Integrated Economic Survey (HIES) 2004-05 by the FBS, the average household in Pakistan consists of 6.75 members. The annual per capita availability of wheat based on the balance sheet method averages at 118 kgs during 2003-04 to 2005-06. In view of per capita availability @ 118 kgs per annum and average household size of 6.75 members, the impact of selected increases in the support price of wheat on the average household expenditure has been detailed in Annex-XIII and summarized in Table-19.

120. It may be seen from Table-19 that every increase of Rs 4 in the support price over the existing level of Rs 415 per 40 kgs in 2005-06 would push up the CPI by 0.054 per cent. Accordingly, an increase of Rs 4 in the support price of wheat would increase per head expenditure by Rs 12 per year or Rs 81 per year of average household, other factors remaining constant. In other words, the monthly expenses on wheat consumption would rise by Re 1 per capita with every increase of Rs 4 per 40 kgs in the support price. Thus, an increase of Rs 20 over the existing support price of Rs 415 per 40 kgs in 2005-06 would result in an additional expenditure of Rs 33 per month or Rs 398 per year, if support price of wheat increases from Rs 415 to Rs 435 per 40 kgs. The above results are

premise on the assumption that increases in the support price of wheat are proportionately reflected in prices of wheat flour and other wheat products.

9. CONSULTATION

121. Annual meeting of the APCom's Standing Committee on Wheat was held at Islamabad on July 17, 2006. It was attended by the representatives of farmers associations, agriculture chambers, progressive growers, wheat experts and officials of the Federal and Provincial Governments concerned with wheat production and marketing. The meeting discussed, at length, the situation with regard to wheat crop and problems encountered by the farmers in wheat production and marketing. Future prospects of wheat crop in the changing economic scenario also engaged the attention of the committee.

122. The participants of the meeting emphasized the need for development of suitable technology package for sustainable production of wheat. The grower members expressed their concern over rising prices of inputs and pleaded for stable prices of inputs. There was a consensus in the meeting for having a programme which ensures incentive prices to the farmers in the harvest season in general and in good crop year in particular. The meeting highlighted a number of constraints impacting on farm production in general and wheat in particular and suggested a number of measures to improve the efficiency of wheat farming and marketing system.

10. TO SUM UP

123. The domestic wheat production is estimated at 21.70 million tonnes during 2005-06, marginally exceeding the last year. The yield has risen by 1 per cent and acreage declined by 0.6 per cent.

124. World production of wheat estimated at 617 million tonnes in 2005-06 is forecast to decline to 605 million in 2006-07 against the likely consumption of 613 million tonnes. The closing stocks in 2006-07 are reported to fall to 121 million tonnes from 130

million in 2005-06. However, the global trade in wheat is reported to slightly rise to 111 million tonnes from 110 million.

125. According to the International Grains Council, London, the international prices of wheat have experienced several fluctuations during the period under review, touching the lowest level of US $ 112 per tonne in 1999-00 and the highest of US $ 165 per tonne in 1996-97. The world prices have averaged at US $ 134 per tonne in 2005-06. In view of the lower production, declining stocks and falling ratio of stocks to consumption, the prices of wheat in international markets are likely to firm up in future.

126. Based on the analysis of relevant factors in the main text of this Report, the likely pricing options for wheat, 2006-07 crop are summarized below:

Base	Likely price of domestic wheat at procurement center
	Rs per 40 kgs
1. Import parity price on the basis of:	
a) Average fob (Pacific) quoted prices of US western white wheat during 2005-06, if consumed at:	
- Karachi	384
- Lahore	480
b) Average fob (Pacific) quoted prices of US western white wheat during 2001-02 to 2005-06, if consumed at:	
- Karachi	402
- Lahore	498
c) Current c&f (Karachi) price quoted by the MINFAL	
- Karachi	498
- Lahore	594
2. Export parity price on the basis of:	
a) Average fob (Pacific) quoted prices of US western white wheat during 2005-06, if exported from Multan	227
b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if exported from Multan	244
3. Monthly average wholesale market prices of wheat in producing area markets during post-harvest of 2005-06 crop:	
- Punjab	420
- Sindh	403
4. Cost of production at market/procurement level for 2006-07 crop	
- Punjab	449
- Sindh	423

127. The wholesale market prices of wheat during the post-harvest period of 2005-06 crop were reported in the range of Rs 402 to Rs 436 per 40 kgs in the major producing area markets of the Punjab and of Rs 390 to Rs 427 per 40 kgs in Sindh.

128. At the current input prices, the market/procurement level cost of production of wheat for the 2006-07 crop is estimated at Rs 449 per 40 kgs in the Punjab, exceeding by 5 per cent over the last year. The corresponding COP estimate in Sindh comes to Rs 423 per 40 kgs, up by 4 per cent over the last year.

129. The post-harvest market prices of wheat generally ruled higher than the support price of Rs 415 per 40 kgs in 2005-06 season in the Punjab. However, in Sindh, these prices remained below the support price.

130. The Commission strongly feels that the country should work hard to maintain its self sufficiency in wheat. In view of the foregoing situation, the commission recommends to enhance the support price of wheat to Rs 425 per 40 kgs for the 2006-07 crop. The actual incentive to the farmers should come through the market forces. The government policy of encouraging the role of private sector in wheat marketing should continue as it has played a positive role during the last couple of years.

131. The support price as fixed by the government should be widely publicized for the information of the growers. There is also a dire need to ensure the implementation of the support price.

11. ISSUE PRICE OF WHEAT AND SUBSIDY

132. Before 2001-02, the Government used to fix the uniform issue price of wheat supplied to flour mills from its stocks. This uniform price did not cover the full costs incurred on storage, marketing and unforeseen losses, shortage etc. Resultantly, the government had to bear huge amount of losses in the shape of subsidy on supply of wheat during the year. Simultaneously, this system discouraged private sector to invest on

development of marketing and storage facilities for wheat. To overcome the situation, the ECC of the Cabinet had fixed the cascading issue price from 2001-02 to 2004-05.

133. For 2005-06 instead of fixing cascading issue prices, indicative issue price of Rs 425 per 40 kgs has been fixed by the Cabinet, Rs.10 per 40 kgs higher than support price. The government has released wheat to flour mills during May 2005 to April 2006 as under:

Million tonnes

Provinces/Agencies	2005-06
Punjab	1.083
Sindh	0.231
NWFP	0.227
Balochistan	0.101
Others (AJK, NA, Refs)	0.445
Total	2.087

Source: MINFAL, Islamabad.

134. The removal of subsidy has affected the low income groups, particularly the population living in remote areas of the country like Northern Areas, FATA etc. There is a need to compensate these masses through social programme of food stamps and subsidy in transportation of wheat.

12. MARKETING OF WHEAT

135. Agricultural Prices Commission conducted a mini field survey during May 2006 in the main producing areas of Punjab and Sindh. On the basis of survey results and discussion in the Standing Committee meeting on wheat held on 17-7-2006. The wheat marketing situation was reviewed and the important points are discussed below:

12.1 Wheat Procurement Targets and Achievements

136. For the procurement of wheat from 2005-06 crop through Provincial Food Departments and PASSCO, the Federal Government had fixed the target at 4.37 million tonnes. Agency-wise targets alongwith their achievements by provinces are shown in Table-20.

Table-20: Procurement Targets and Achievements: 2005-06 Wheat Crop

Province/agency	Target	Achievement	Achievement as per cent of target
	-------- Million tonnes ------		Per cent
Pakistan	**4.37**	**3.88**	**88.79**
- Provincial Food Departments	3.07	2.64	85.99
- PASSCO	1.30	1.24	95.38
Punjab	**4.20**	**3.74**	**89.05**
- Food Department	3.00	2.56	85.33
- PASSCO	1.20	1.18	98.33
Sindh	**0.14**	**0.13**	**92.86**
- Food Department	0.07	0.08	114.29
- PASSCO	0.07	0.05	71.43
Balochistan	**0.03**	**0.01**	**33.33**
- Food Department	0.00	0.00	0.00
- PASSCO	0.03	0.01	33.33

Source: MINFAL.

137. The PASSCO and Provincial Food Departments have reported to procure 3.88 million tonnes of wheat (88.79 per cent of target). Out of that, 2.64 million tonnes have been procured by the Provincial Food Departments and 1.24 million tonnes by PASSCO.

138. In the Punjab, the main wheat producing province, 3.74 million tonnes have been procured against the target of 4.20 million tonnes thus achieving the target by 89 per cent. In Sindh, 0.13 million tonnes of wheat were procured against the target of 0.14 million tonnes which shows 93 per cent achievement of the target. In Balochistan only a nominal quantity of one thousand tonnes was procured, while no procurement has been made in NWFP.

139. The market prices in the main producing area markets of Punjab from April to June 2006 were reported at Rs 420 per 40 kgs against the support price of Rs 415 per 40 kgs. The produce was generally purchased by the local beoparies at the farm or village level. The prices received by farmers ranged between Rs 402 to Rs 436 per 40 kgs. The overall average market price received by the farmers in Sindh was Rs 403 per 40 kgs, which were much lower than the support price of wheat. The prices ranged between Rs 390 to Rs 427 per 40 kgs.

140. The procurement of wheat in relation to the production from 1997-98 to 2005-06 alongwith respective support and average market prices in these years is given in Table-21.

Table-21: Production, Procurement, Market Prices and Support Prices of Wheat: 1997-98 to 2005-06

Crop year (May-April)	Production	Procure-Ment	Procurement as a per cent of production	Support price	Average market price (May-July)*
	------Million tonnes------		Per cent	---Rupees per 40 kgs---	
1997-98	18.69	3.98	21.29	240	261
1998-99	17.86	4.07	22.79	240	260
1999-00	21.08	8.55	40.6	300	295
2000-01	19.02	4.00	21.0	300	275
2001-02	18.23	4.04	22.2	300	292
2002-03	19.18	3.52	18.3	300	315
2003-04	19.50	3.33	17.0	350	384
2004-05	21.19	3.93	18.55	400	417
2005-06	21.70	3.88	17.88	415	411**

(*) Average market prices of Multan, Faisalabad, Sargodha, Gujranwala, Okara and Hyderabad markets during post-harvest period.

(**) Average market prices of Multan, Faisalabad, Sargodha, Gujranwala, Okara and Hyderabad, Sanghar, Nawabshah, Jacobabad, Larkana and Shikarpur markets during post-harvest period (April to June 2006).

Sources:

1. For production and procurement: MINFAL, Islamabad
2. For market prices:
   - ALMA, Karachi for Hyderabad.
   - Nawabshah and Mirpurkhas Market Committees of their respective districts.
   - Provincial Directorate of Agriculture (E&M), Punjab, Lahore.

141. During the period under review, wheat production has ranged between 17.86 and 21.70 million tonnes. Procurement has been in the range of 3.33 million tonnes to 8.55 million tonnes. The wheat procurement by the support prices implementing agencies have varied from 17.00 to 40.60 per cent of the corresponding production. The average post harvest market prices ranged between Rs 260 to Rs 417 per 40 kgs during the period under review.

12.2 Wheat Prices Received by the Farmers

142. For 2005-06 wheat crop, the government announced Rs 415 per 40 kgs as support price which was to be implemented by the Provincial Food Departments and PASSCO. According to the APCom's field survey conducted in the Punjab and Sindh, the prices of wheat received by the farmers were not satisfactory at the start of the season. In case of Punjab, marketing situation of wheat was not in favour of farmers during first week of harvesting. The prices reported were depressed to the level of Rs 380 to 390 per 40 kgs. It was reported that at the start of harvesting season millers and private traders did not make purchases. With the concrete efforts of the Food Department and PASSCO, the wheat market mobilized and marketing conditions twisted in favour of farmers as price of wheat jumped to Rs 410 to Rs 425 per 40 kgs in the open market. By the end of June 2006, most of the procurement centres achieved 89 per cent of their procurement targets.

143. In Sindh, the average market price of wheat prevailed in Nausharo Feroze, Nawabshah, Sangher, Mirpurkhas and Hyderabad districts was recorded at Rs 389 per 40 kgs. These prices ranged between Rs 370 and 400 per 40 kgs which were less than the support price of Rs 415 per 40 kgs. The majority of the wheat growers particularly small farmers sold their produce to middlemen. Farmers complained about the poor implementation of support price programme. However, by the end of June 2006, 0.13 million tonnes of wheat were procured against the target of 0.14 million tonnes which shows 93 per cent achievement of the target.

13. MEASURES FOR IMPROVING WHEAT PRODUCTIVITY AND MARKETING

13.1 Improving Productivity

144. Average yield of wheat in Pakistan remains considerably lower than the realizable potential. Currently average yield ranges between 2 and 2.5 tonnes per hectare while the progressive growers are getting the double yield. In view of alternative uses of land, scope for increasing area of wheat remains limited. So it is imperative to improve yield of the crop to meet needs of the country. The following measures may be adopted to promote yield of the crop:

13.1.1 High Yield Varieties (HYVs):

145. Some of the high yielding varieties of wheat recommended for early and late planting with yield potential upto 5-7 tonnes per hectare are produced in the Table-22.

Table-22: High Yielding Varieties and their Yield Potential

Variety	Yield Potential (Kgs/hect.)	Suitability
Pasban 90	6500	Early Saline Area
Inqlab 91	6800	General Cultivar
Kohistan 97	6100	Barani Areas
Chakwal 97	5500	Barani Areas
Auqab 2000	6900	General cultivar
Iqbal 2000	5500	Late sowing
AS 2002	7000	Early sowing
SH 2002	6900	Early sowing

Source: Wheat Crop Management for Yield Maximization 2003 by Dr. M. Aqil Khan, Director, Wheat Research Institute, Faisalabad.

146. Among these varieties, Inqlab-91 occupies dominant position covering almost 60 percent of the area under wheat. The variety is almost equally popular all around the country. Cultivation of a single variety on such a large scale may have serious repercussions in case of failure of the crop. Wheat being staple food and agriculture being subject to vagaries of nature substantiates a broad-based varietal adoption for ensuring stable supply of wheat in the country.

13.1.2 Improved Seed

147. Quality seed of potential varieties owes considerable role in the yield performance. To sustain the yield potential, experts recommend that improved seed should be replaced within 5 years period at the farm level. Thus 20 per cent of the total area under the crop must be replaced with improved seed every year. To assess the requirement and supply situation of improved seed, data for the period 2001-02 to 2005-06 is provided and discussed below. Details of actual requirement and availability of improved seed of wheat are given in Annex-XIV.

13.1.3 Availability of Improved Seed

148. Availability of improved seed from the 2005-06 wheat crop stood at 222.8 thousand tonnes at the country level which turns out to be 147 per cent of the annual replacement requirement and 30 per cent of the total seed requirement for the 2006-07 crop (Annex-XIV).

13.1.4 Seed Bed Preparation and Timely Sowing

149. To reduce the wheat yield losses caused by the factors stated above, the APCom has deduced in consultation with the crop experts and other stake holders several measures in its previous reports which are produced as follows:

a) For ensuring in time sowing of wheat, canal water supply for Rabi season must be ensured at proper time.

b) Managing last irrigation to Kharif crops so that the soil moisture is at optimum level at the time of harvesting of these crops.

c) Sowing of seed and application of fertilizer by drilling methods so that maximum plant population is obtained in addition to maximize returns from fertilizer.

d) For late sowing, increasing the seed rate to mitigate yield the effect of late sowing.

e) After Kharif crops, planting medium and short duration varieties of wheat. Seed of such varieties should be increased to facilitate the farmers and compensate for yield losses.

13.1.5 Weed Control

150. Weeds pose serious threat to yield of the wheat crop. In addition to cultural measures, weeds can be effectively controlled by chemicals and crop rotation. Cultural methods of weed eradication have been replaced to a large extent by chemical control methods but quality of weedicides is frequently condemned by the farmers which results in poor eradication of weeds. In view of the situation following measures are suggested:

a) Department of Agriculture Extension may play significant role in apprising the farmers of the significance of weed eradication and benefits of cultural control methods like use of bar harrow and crop rotation etc.

b) Strict measures are required to ensure quality of different weedicides available in the market and by supplying new products at cheaper rates which suit to different soil conditions..

13.1.6 Proper and Balanced Use of Fertilizer:

151. Though fertilizers are extensively used in the country but it is commonly noticed that a balance among different nutrients i.e. N,P,K is not maintained which on one side increases cost of production and on the other reduces efficacy of fertilizers for increasing the crop yield. Data regarding N:P ratio maintained during Rabi season over the time period extending from 1996-97 to 2005-06 are produced in Table-23.

Table-23: Off-take of N & P Fertilizers during the Rabi Season in Pakistan: 1996-97 to 2005-06

Year	Nitrogen	Phosphorus	NP Ratio
1996-97	941	233	4
1997-98	1089	359	3
1998-99	1070	263	4.1
1999-00	1133	362	3.1
2000-01	1211	360	3.4
2001-02	1111	295	3.8
2002-03	1201	422	2.8
2003-04	1346	454	3
2004-05	1432	453	3.16
2005-06	1530	476	3.21

Sources: i) Fertilizer Off-take 1996-97 to 2004-05: Agricultural Statistics of Pakistan 2004-05, MINFAL, Islamabad.
ii) For 2005-06, NDFC, Islamabad.

152. The data produced in the previous Table indicate that recommended ratio of 2:1 between Nitrogen and Phosphorus was never maintained during Rabi season throughout the period under review. The relatively most optimal ratio 2.8:1 was observed only in 2002-03. During 2005-06, the gap between N and P has even widened over 2004-05. During 2004-05, the NP ratio was 3.16:1 which increased to 3.2:1 in 2005-06. To improve the situation, APCom recommends the following measures:

i) The provincial governments should take steps to ensure adequate supply of N and P fertilizers at the sowing time of wheat.

ii) Maintenance of good quality of Phosphatic fertilizers particularly P&K must be ensured by the provincial governments.

iii) Parity between prices of wheat and different fertilizers must be maintained at reasonable levels to encourage fertilizers' use in recommended ratios.

iv) Use of farm yard manure at regular intervals needs to be promoted to lessen rate of conversion of Phosphatic fertilizers from available to unavailable form and help stay it in the available form in the soil for maximum absorption by the plants.

v) Research initiative should be undertaken to find bacteria which help convert fixed forms of Phosphorus present in the soil into useable forms. Their inoculums needs to be prepared and provided the farmers for applying to the soil.

13.1.7 Farm Management

153. Concrete evidence exists that wide differences in per acre yield of wheat exists on different farms. Progressive growers are getting much higher yield than the average growers due to better management practices. For example, it is found through the wheat crop survey held during May 2006 that due to better land preparation yield of the crop improved. Likewise, preservation of water in the soil before sowing of the crop helps mitigate drought effects. To combat insect attacks biologically progressive farmers have moved on to Integrated Pest Management (IPM) techniques which are relatively economical. Also crop rotation practices help to a large extent to reduce the effects of harmful pests etc.

154. To induce farmers towards all these measures, an educational campaign needs to be launched by the provincial departments of Agriculture so that best practices of progressive farmers could be shared with average farmers to persuade them to improve the yield of the wheat crop.

13.1.8 Green Manuring

155. The soils of Pakistan are losing their fertility level and holding capacity due to deteriorating organic matter contents. The intensive cultivation of crops is further aggrevating this situation. To overcome the problem, there is a need to improve the application of organic matter through green manuring, compost, etc. In order to encourage the cultivation of Jantar crop for the purpose of green manuring, abiana/water rate for this crop should be eliminated.

13.2 Improving Quality of Wheat and its Marketing

13.2.1 Threshing

156. Threshing plays a vital role in improving the wheat quality. With the passage of time, quality of wheat threshed by the mechanical threshers has deteriorated. The foreign matter and broken percentage in the threshed wheat seems to be on the increase. The quality has also deteriorated due to usage of imported low quality machinery. It is therefore, necessary that wheat quality should be improved by making necessary improvement/adjustments in threshing techniques and the machinery use. The Farm Machinery Research Institute of PARC should take necessary steps in this respect. Moreover, import of second hand machinery should be regulated under some qualitative standards.

13.2.2 Timely Entrance of Procurement Agencies

157. The growers complained during the field surveys that there was no procurement agency in the remote areas in early post-harvest period. As a result they were not able to sell their produce at support price. Provincial Food Departments and PASSCO equipped with pre-requisites for procuring wheat should enter well in time in the field especially in Sindh province.

13.2.3 Free Movement

159. The implementation of the support price policy in true spirit is very important. To make it effective there should not be any restriction on movement of wheat across the districts and provinces. Free movement of the commodity has encouraged the private sector in purchasing and storage of wheat and relaxed procurement burden on public sector agencies. It has also helped farmers in quick disposal of marketable surplus at reasonable prices. This policy of free movement of wheat alongwith liberal credit line to private traders should be continued.

13.2.4 Storage Capacity

160. The country has achieved bumper crops from the consecutive couple of years. It has created storage problem particularly in rural areas of the major producing districts. The Government should give more attention to enhance storage capacity both in public and private sectors particularly at grassroots level.

13.3 Improving Statistics

161. Wheat is an important and sentive commodity for the country. Its production plays an important role in the economy. Different interested groups in wheat trade give their own estimates of its production and twist them according to their changing situation. This is detrimental to growers' interest as they affect the market adversely. In order to safeguard interest of growers, provincial governments should manage to improve the system for crop estimates.

14. ACKNOWLEDGEMENT

163. The assistance and cooperation of the following staff members is appreciated in the preparation of the Report on Support Price Policy for Wheat, 2006-07 crop.

Officers

1. Mr. Abdul Rauf Chaudhry, Deputy Chief ***(Coordinator)***
2. Mr. M. B. Siddiqui, Chief
3. Mr. Ghulam Sarwar Soomro, Deputy Chief
4. Mrs. Viqar-un-Nisa, Deputy Chief
5. Mr. Rafique Ahmad Khan, Deputy Chief
6. Rana Muhammad Akbar, Systems Analyst
7. Mr. Sherzada Khan, Assistant Chief
8. Mr. Muhammad Ikram, Assistant Chief
9. Mr. Sardar Ali Khan, Assistant Chief
10. Syed Waseem Raza Zaidi, Assistant Chief
11. Mr. Muhammad Ijaz Ahmed, Assistant Chief
12. Mr. Muhammad Saleem Butt, Computer Programmer
13. Mr. Muhammad Azeem Hakro, Computer Programmer
14. Mr. Hussain Ali Turi, Assistant Chief
15. Mr. Muhammad Amin, Assistant Chief
16. Syed Riaz Ali Shah, Assistant Chief

Staff

17. Mr. Hafeez Ahmad, Stenographer **(Composed the Report)**
18. Mr. Muhammad Altaf, Stenographer
19. Mr. Muhammad Rauf, Stenographer
20. Mr. Shamir Ahmad, Stenographer
21. Mr. Muhammad Naeem, DMO

M.B. Malik
Chairman, APCom

ANNEX-I

PROVINCE-WISE AREA , PRODUCTION AND YIELD OF WHEAT IN PAKISTAN : 1995-96 TO 2005-06

YEAR	PUNJAB	SINDH	NWFP	BALOCHISTAN	PAKISTAN
AREA			000 hectares		
1995-96	5973.5	1106.4	866.1	430.5	8376.5
1996-97	5839.9	1106.8	842.8	319.6	8109.1
1997-98	5934.6	1120.2	918.1	381.7	8354.6
1998-99	5934.6	1123.7	857.6	314.0	8229.9
1999-00	6180.3	1144.2	806.5	332.0	8463.0
2000-01	6255.5	810.7	790.3	324.4	8180.9
2001-02	6101.8	875.2	746.9	333.6	8057.5
2002-03	6097.3	863.7	732.1	340.8	8033.9
2003-04	6255.5	878.2	741.6	340.9	8216.2
2004-05	6378.9	887.4	748.6	343.1	8358.0
2005-06	6321.9	933.2	743.2	308.6	8306.9
YIELD			kgs per hectare		
1995-96	2081	2119	1388	2161	2018
1996-97	2118	2208	1263	2413	2053
1997-98	2327	2374	1477	2283	2238
1998-99	2226	2381	1425	2384	2170
1999-00	2667	2623	1324	1595	2491
2000-01	2465	2746	967	1893	2325
2001-02	2392	2401	1192	1920	2262
2002-03	2518	2442	1454	1921	2388
2003-04	2500	2473	1382	1946	2373
2004-05	2724	2827	1458	1858	2586
2005-06	2659	3104	1742	2288	2613
PRODUCTION			000 tonnes		
1995-96	12430.0	2344.8	1202.5	930.1	16907.4
1996-97	12371.0	2443.9	1064.4	771.2	16650.5
1997-98	13807.0	2659.4	1356.0	871.6	18694.0
1998-99	13212.0	2675.1	1221.8	748.7	17857.6
1999-00	16480.0	3001.3	1067.8	529.5	21078.6
2000-01	15419.0	2226.5	764.0	614.2	19023.7
2001-02	14594.4	2101.0	890.5	640.6	18226.5
2002-03	15355.0	2109.2	1064.4	654.7	19183.3
2003-04	15639.0	2172.2	1025.2	663.4	19499.8
2004-05	17375.0	2508.6	1091.1	637.6	21612.3
2005-06	16811.2	2896.8	1294.3	706.0	21708.3

Sources:

1) For 1995-96 to 2004-05 : Agricultural Statistics of Pakistan, 2004-05, MINFAL, Islamabad.
2) For 2005-06: MINFAL, Islamabad.

ANNEX-II

AREA, YIELD AND PRODUCTION OF WHEAT BY PROVINCE AND BY MODE OF IRRIGATION: 2003-04 AND 2004-05

Country/ Province	Area			Yield			Production		
	2003-04	2004-05	Change	2003-04	2004-05	Change	2003-04	2004-05	Change
	----- 000 ha ----		Per cent	----- kgs/ha ----		Per cent	-- 000 tonnes --		Per cent
Irrigated									
Pakistan	**7127.8**	**7220.6**	**1.30**	**2555**	**2759**	**7.97**	**18213.4**	**19921.9**	**9.38**
Punjab	5645.3	5733.9	1.57	2628	2836	7.92	14833.2	16259.3	9.61
Sindh	856.5	875.5	2.22	2505	2848	13.70	2145.5	2493.5	16.22
NWFP	315.1	313.3	-0.57	1906	1860	-2.44	600.6	582.6	-3.00
Balochistan	310.9	297.9	-4.18	2040	1969	-3.47	634.1	586.5	-7.51
Un-irrigated									
Pakistan	**1088.4**	**1137.4**	**4.50**	**1182**	**1486**	**25.74**	**1286.4**	**1690.4**	**31.4**
Punjab	610.2	645.0	5.70	1321	1730	30.99	805.8	1115.7	38.5
Sindh	21.7	11.9	-45.16	1230	1269	3.13	26.7	15.1	-43.4
NWFP	426.5	435.3	2.06	996	1168	17.34	424.6	508.5	19.8
Balochistan	30.0	45.2	50.67	977	1131	15.75	29.3	51.1	74.4
Total									
Pakistan	**8216.2**	**8358.0**	**1.73**	**2373**	**2586**	**8.95**	**19499.8**	**21612.3**	**10.8**
Punjab	6255.5	6378.9	1.97	2500	2724	8.95	15639.0	17375.0	11.1
Sindh	878.2	887.4	1.05	2473	2827	14.29	2172.2	2508.6	15.5
NWFP	741.6	748.6	0.94	1382	1458	5.43	1025.2	1091.1	6.4
Balochistan	340.9	343.1	0.65	1946	1858	-4.51	663.4	637.6	-3.9

Source: Annex-1

ANNEX-III

DISTRICT- WISE AREA, YIELD AND PRODUCTION OF WHEAT
AVERAGE OF 2002-03 TO 2004-05

Area 000 ha
Production 000 tonne
Yield kgs/hectar

S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield	S.No	Province/ District/ Agency	Area	Production	Share in total production	Yield
	PUNJAB						**NWFP**				
1	Jhang	365.6	1001.9	5.0	2740.7	1	Swat	60.7	92.1	0.5	1518.0
2	Sheikhupura	300.7	826.3	4.1	2748.2	2	Mardan	44.9	81.3	0.4	1809.9
3	R.Y.Khan	309.0	819.7	4.1	2652.3	3	D.I.Khan	46.4	75.0	0.4	1618.2
4	Faisalabad	264.9	804.4	4.0	3036.2	4	Mansehra	38.0	72.4	0.4	1906.3
5	Bahawalnagar	291.6	757.0	3.8	2595.7	5	Charsadda	26.2	68.0	0.3	2592.5
6	Okara	218.9	756.5	3.8	3455.2	6	Bunir	48.5	66.0	0.3	1361.2
7	Muzaffargarh	286.0	696.6	3.5	2435.7	7	Peshawar	34.2	63.7	0.3	1860.6
8	Vehari	256.2	689.0	3.5	2689.5	8	Haripur	37.2	56.8	0.3	1528.6
9	Bahawalpur	269.4	681.9	3.4	2531.3	9	Swabi	35.0	47.9	0.2	1366.4
10	Gujranwala	220.3	648.6	3.3	2944.6	10	Nowshera	21.7	46.9	0.2	2165.5
11	Khanewal	216.1	600.8	3.0	2780.1	11	Bajour AG.	38.2	37.5	0.2	983.3
12	Pakpattan	155.8	532.8	2.7	3419.9	12	Dir Uper	21.5	36.8	0.2	1710.6
13	Sargodha	198.0	511.0	2.6	2580.8	13	Kohat	30.8	36.6	0.2	1188.7
14	Multan	194.2	493.0	2.5	2538.2	14	Malakand	28.9	34.2	0.2	1182.0
15	Lodhran	178.9	492.1	2.5	2751.0	15	Lakki Marwat	38.2	29.3	0.1	767.1
16	Sialkot	191.8	469.5	2.4	2447.5	16	Dir Lower	23.9	25.2	0.1	1052.5
17	Sahiwal	153.2	468.3	2.3	3056.2	17	Chitral	9.2	22.9	0.1	2480.9
18	T.T.Singh	150.8	440.7	2.2	2922.5	18	Bannu	11.6	20.6	0.1	1775.7
19	Kasur	167.7	438.0	2.2	2612.5	19	Abbottabad	15.9	19.4	0.1	1219.6
20	Layyah	181.6	425.9	2.1	2345.5	20	Shanlapar	20.7	19.1	0.1	923.9
21	D.G.Khan	160.3	399.6	2.0	2493.8	21	Kurram AG.	12.1	14.3	0.1	1176.8
22	Hafizabad	135.8	375.7	1.9	2765.5	22	Khyber AG.	11.3	12.7	0.1	1125.9
23	Rajanpur	140.7	347.0	1.7	2466.2	23	Mohmand AG.	14.2	10.3	0.1	723.6
24	Bhakkar	133.9	323.3	1.6	2413.6	24	Hangu	9.7	9.2	0.0	948.7
25	M.B.Din	121.7	322.3	1.6	2648.7	25	Karak	22.6	9.0	0.0	399.7
26	Mianwali	145.7	308.6	1.5	2118.4	26	Tank	5.9	8.0	0.0	1369.7
27	Narowal	130.6	293.8	1.5	2250.2	27	N.Waziristan	7.1	6.4	0.0	912.4
28	Gujrat	134.5	245.8	1.2	1828.0	28	Battagram	7.1	6.3	0.0	891.9
29	Attock	136.8	208.4	1.0	1523.3	29	F.R.Peshawar	3.7	5.0	0.0	1331.2
30	Rawalpindi	111.0	181.7	0.9	1636.3	30	Orakzai AG	5.5	4.6	0.0	836.3
31	Chakwal	123.6	156.2	0.8	1264.5	31	S.Waziristan	6.6	4.6	0.0	699.6
32	Lahore	54.8	149.9	0.8	2736.7	32	F.R.Bannu	4.0	2.8	0.0	711.1
33	Khushab	74.3	133.4	0.7	1794.4	33	F.R.D.I.Khan	2.5	2.1	0.0	862.5
34	Jhelum	46.3	70.8	0.4	1531.3	34	Kohistan	1.3	2.0	0.0	1518.7
35	Islamabad	13.2	21.0	0.1	1585.7	35	F.R.Kohat	1.8	1.3	0.0	733.5
	Sub Total	**6233.8**	**16091.3**	**80.6**	**2581.3**		***Sub Total***	**747.0**	**1050.4**	**5.3**	**1406.2**
	SINDH						**BOLUCHISTAN**				
1	Sanghar	108.8	321.7	1.6	2956.3	1	Nasirabad	101.5	205.1	1.0	2021.5
2	N.Feroze	94.5	262.5	1.3	2777.6	2	Jaffarabad	65.3	134.0	0.7	2051.2
3	Khairpur	89.7	244.1	1.2	2721.7	3	Khuzdar	38.1	76.6	0.4	2010.8
4	Hyderabad	85.9	237.2	1.2	2763.3	4	Loralai	34.6	56.3	0.3	1626.4
5	Nawabshah	75.1	216.4	1.1	2882.1	5	Chagai	13.6	28.3	0.1	2080.8
6	Mirpurkhas	80.4	213.3	1.1	2651.9	6	Kharan	12.2	22.7	0.1	1859.2
7	Ghotki	74.7	208.7	1.0	2794.0	7	Killa Saifullah	11.8	22.2	0.1	1878.1
8	Dadu	62.3	122.1	0.6	1959.0	8	Sibi	8.2	13.9	0.1	1698.1
9	Sukkur	37.5	103.6	0.5	2762.1	9	Pishin	6.7	12.2	0.1	1832.8
10	Larkana	64.3	93.5	0.5	1454.5	10	Mastung	7.1	12.0	0.1	1702.1
11	Jacobabad	43.7	58.5	0.3	1338.3	11	Kalat	6.5	11.9	0.1	1830.0
12	Badin	22.6	36.3	0.2	1605.0	12	Lasbela	5.5	9.7	0.0	1761.6
13	Shikarpur	25.4	35.6	0.2	1400.3	13	Dera Bughti	6.2	9.6	0.0	1542.0
14	Thatta	9.7	15.3	0.1	1580.0	14	Awaran	5.6	8.3	0.0	1481.1
15	Tharparkar	0.7	1.0	0.0	1552.4	15	Quetta	2.7	5.4	0.0	2005.1
16	Karachi	0.1	0.2	0.0	1477.4	16	K. Abdullah	2.3	4.3	0.0	1865.0
						17	Kohlu	3.3	4.2	0.0	1284.9
						18	Zhob	2.2	3.6	0.0	1640.0
						19	Panjgoor	1.7	2.3	0.0	1361.7
						20	Turbat	0.8	1.9	0.0	2470.5
						21	Ziarat	0.1	0.3	0.0	2092.3
						22	Gwadar	0.0	0.0	0.0	ERR
	Sub Total	**875.4**	**2170.0**	**10.9**	**2478.9**		***Sub Total***	**336.0**	**644.9**	**3.2**	**1919.5**
							Pak Total	**8192.1**	**19956.7**	**100.0**	**2436.1**

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

Sources: MINFAL, Islamabad.

ANNEX-IV

PER CAPITA AVAILABILITY (CONSUMPTION) OF WHEAT: 2000-01 TO 2005-06 (MAY-APRIL)

S. No.	Description	Production year / Consumption year	2000-01 / 2001-02	2001-02 / 2002-03	2002-03 / 2003-04	2003-04 / 2004-05	2004-05 / 2005-06
				Million			
1	Population as on 1st November(a)		148.71	150.88	154.91	157.75	160.75
				Thousand tonnes			
2	Opening stock as on 1st May		3552	3683	992	161	337
3	Production of Pakistan		19024	18227	19183	19500	21612
4	Production of AJK and Nas (b)		152	152	152	236	262
5	Imports		0	184	108	1368	815
6	Exports		1039	1704	0	0	0
7	Closing stocks as on 31st April		3683	992	161	337	2109
8	Total availability		**18006**	**19550**	**20274**	**20928**	**20917**
9	Deduction for seed, feed and wastage @ 10 percent of production		1918	1838	1934	1974	2187
10	Available for human consumption (item 8 minus 9)		**16088**	**17712**	**18341**	**18954**	**18729**
				Kgs per annum			
11	Per capita availability (item 10 divided by item 1)		108	117	118	120	117
12	Average per capita availability during 2003-04 to 2005-06 (Three years):					118	
13	Average per capita availability during 2001-02 to 2005-06 (Five years):					116	

Note: (a) Population of AJ&K, NAs and Afghan refugees have also been included.
(b) Due to non-availability of data, production of AJ&K and Nas in the past has been estimated on the basis of ratio between the production of Pakistan and that of AJ&K and Nas during 1991-92

Sources:

1. For Carryover Stocks: MINFAL, Islamabad.
2. For Import/Exports & Production: Agricultural Statistics of Pakistan: 2004-05.
3. For Population of Pakistan: Economic Survey of Pakistan, 2005-06.
4. For Population of AJ&K and NAs: Population Sensus Organization, Islamabad.
5. For Population of Afghan refugees: Kashmir Affairs and Northern Areas and State and Frontier Regions Division, Government of Pakistan, Islamabad.

ANNEX-V

EXPORT PRICES (FOB PACIFIC) OF US WESTERN WHITE WHEAT 1996-97 TO 2005-06

Year (July - June)	Month	Fob (Pacific) price US$ per tonne
1996-97		165
1997-98		137
1998-99		113
1999-00		112
2000-01		113
2001-02		132
2002-03		146
2003-04		149
2004-05		143
2005-06		134
	July	138
	August	132
	September	131
	October	134
	November	129
	December	127
	January	128
	February	132
	March	134
	April	135
	May	141
	June	142

Source: International Grains Council, London, (various reports)

ANNEX-VI

IMPORT PARITY PRICE OF WHEAT BASED ON AVERAGE FOB (PACIFIC) QUOTED PRICE OF US WESTERN WHITE WHEAT

S.No	Item	2005-06		2001-02 to 2005-06	
		If consumed at		If consumed at	
		Karachi	Lahore	Karachi	Lahore
		----------US $ per tonne----------			
1.	Average fob (Pacific) price	134.00	134.00	141.00	141.00
2.	Freight charges from Pacific port to Karachi	30.00	30.00	30.00	30.00
3.	Average c&f (Karachi) price	164.00	164.00	171.00	171.00
		OR ---------- Rupees per tonne----------			
		9906	**9906**	**10328**	**10328**
4.	Lc opening & marine insurance @0.75 of c&f cost	74	74	77	77
5.	Stevedoring, clearing, handling, wharfage, weightment charges and provision for / unforseen losses	468	468	472	472
6.	TCP commission @4% of c&f cost as per ECC decision of 1976	396	396	413	413
7.	Bank markup @ 11per per annum for 60 days	179	179	187	187
8.	Landed cost at Karachi (item 3 to 7)	11023	11023	11478	11478
9.	Transport cost from Karachi to Lahore	1200	1200	1200	1200
10.	Expenses from procurement centre to Lahore	230	230	230	230
11.	Import parity price per tonne of wheat at procurement centre level (c)	**9593**	**11993**	**10048**	**12448**
12.	Import parity price per 40 kgs at procurement centre level	**384**	**480**	**402**	**498**

Notes:

(a) Selling exchange rate of one US $ = 60.40 Pak Rupees announced by State Bank of Pakistan on July 19, 2006.

(b) The cost of bag is not included in the incidentals as these import parity calculations are meant to provide the opportunity cost of the domestic wheat wherein also this cost is not accounted for.

(c) In case wheat is consumed at Karachi, the up-country transport cost is deducted as the domestically procured wheat will have to be taken to Karachi. While it is added to the landed cost if consumed at Lahore. Expenses from procurement centre to Lahore are however, deducted in both cases.

Sources:

i) For fob (Pacific) prices: Annex - VI.

ii) For freight, incidential and transport charges from Karachi to Lahore, Seatrade (private) Limited.

iii) For expenses from procurement centre to Lahore: PASSCO, Lahore.

ANNEX-VI (a)

IMPORT PARITY PRICE OF WHEAT BASED ON CURRENT C&F (KARACHI) PRICE QUOTED BY MINFAL

S.No	Item	Current Price If consumed at	
		Karachi	Lahore
		--US $ per tonne--	
1.	Average c&f (Karachi) price	208.00	208.00
		OR --- Rupees per tonne--	
		12563	**12563**
2.	Lc opening & marine insurance @0.75 of c&f cost.	94	94
3.	Stevedoring, clearing, handling, wharfage, weightment charges and provision for / unforseen losses	495	495
4.	TCP commission @4% of c&f cost as per ECC decision of 1976	503	503
5.	Bank markup @ 11per per annum for 60 days	227	227
6.	Landed cost at Karachi (item 2 to 5)	13882	13882
7.	Transport cost from Karachi to Lahore	1200	1200
8.	Expenses from procurement centre to Lahore	230	230
9.	Import parity price per tonne of wheat at procurement centre level (c)	**12452**	**14852**
10.	Import parity price per 40 kgs at procurement centre level	**498**	**594**

Notes:

(a) Selling exchange rate of one US $ = 60.40 Pak Rupees announced by State Bank of Pakistan on July 19, 2006.

(b) The cost of bag is not included in the incidentals as these import parity calculations are meant to provide the opportunity cost of the domestic wheat wherein also this cost is not accounted for.

(c) In case wheat is consumed at Karachi, the up-country transport cost is deducted as the domestically procured wheat will have to be taken to Karachi. While it is added to the landed cost if consumed at Lahore. Expenses from procurement centre to Lahore are however, deducted in both cases.

Sources:

i) For c&f(Karachi) prices: MINFAL, Islamabad.

ii) For freight, incidential and transport charges from Karachi to Lahore, Seatrade (private) Limited.

iii) For expenses from procurement centre to Lahore: PASSCO, Lahore.

ANNEX-VII

EXPORT PARITY PRICE OF WHEAT BASED ON FOB (PACIFIC) QUOTED PRICE

S.No	Item	2005-06	2001-02 to 2005-06
		US $ Per Tonne	
1.	Actual average fob (Pacific) price	134	141
		OR Rs per tonne (a)	
2.	Average fob (Karachi) Price assuming equivalent to fob (Pacific price	8067	8488
3.	**Incidental charges: (items i to xiii)**	2381	2396
	i) Expenses from procurement centre to Multan	230	230
	ii). Transport cost from surplus producer area (Multan) to Karachi	1000	1000
	iii). Cleaning/grading	400	400
	iv). Bagging, spillage, loading, unloading & testing	11	11
	v). Clearing and forwarding charges	400	400
	vi). Wharfage / port charges	25	25
	vii). Weighment charges at port	3	3
	viii). Pre shipment inspection charges @0.5% of fob price	40	42
	ix). Export development surcharges @0.25% of fob price	20	21
	x). Insurance charges at port	7	7
	xi). Bank commission & charges	10	10
	xii). Mark up @ 11% per annum for one month	73	77
	xiii). Miscellaneous charges @ 2% of fob price	161	170
4.	Export parity price of FAQ wheat at procurement centre level(item 2- items 3)	5686	6092
5.	Export parity price per 40 kgs at procurement centre level	227	244

Notes: (a) Buying exchange rate of one US $ = 60.20 Pak Rupees announced by State Bank of Pakistan as on July 19, 2006.

Sources: i) For fob (Pacific) prices: Annex - VI.
ii) Incidental charges: Trading Corporation of Pakistan (Pvt) Ltd, Karachi.
iii) For expenses from procurement centre and transport charges: PASSCO, Lahore.

ANNEX-VIII

AVERAGE FARMERS' COST OF PRODUCTION OF WHEAT IN THE PUNJAB: 2005-06 AND 2006-07 CROPS

Sr. No.	Operations/Inputs	Avg.No. of oprs/ units/per acre	2005-06 crop		2006-07 crop		Change in 2006-07 over 2005-06
			Rate per unit	Cost per acre	Rate per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
				------- Rupees -------			
1.	Land preparation:						
	1.1 Rotavator/disc plough	0.598	500.00	299.00	550.00	328.90	29.90
	1.2 Ploughing	2.137	200.00	427.40	220.00	470.14	42.74
	1.3 Ploughing & planking	0.714	250.00	178.50	275.00	196.35	17.85
	1.4 Planking	0.649	100.00	64.90	110.00	71.39	6.49
	1.5 Levelling (hrs)	0.498	250.00	124.50	275.00	136.95	12.45
2.	Seed and sowing operations:	4.59					
	2.1 Seed used (kgs)	52.577	20.00	1051.54	20.00	1051.54	0.00
	2.2 Tractor drilling	0.166	200.00	33.20	220.00	36.52	3.32
	2.3 Labour for seed broadcasting (m.hrs)	0.858	15.00	12.87	16.00	13.73	0.86
	2.4 Ploughing in case of broadcasting	1.390	200.00	278.00	220.00	305.80	27.80
	2.5 Planking in case of broadcasting	0.321	100.00	32.10	110.00	35.31	3.21
3.	Bund making:						
	3.1 Manual (m. hrs)	1.033	15.00	15.50	16.00	16.53	1.03
	3.2 Tractor (hrs)	0.203	250.00	50.75	275.00	55.83	5.08
4.	Weedicides	0.787	400.00	314.80	400.00	314.80	0.00
5.	Irrigation: (Nos)						
	5.1 Canal alone	0.507	-	50.00	-	50.00	0.00
	5.2 Private tubewell	3.002	420.00	1260.84	505.00	1516.01	255.17
	5.3 Mixed	0.230	280.00	64.40	335.00	77.05	12.65
6.	Labour for irrigation and water-course cleaning (m.days)						
	6.1 For irrigation	1.225	120.00	147.00	125.00	153.13	6.13
	6.2 For water-course cleaning	0.329	120.00	39.48	125.00	41.13	1.65
7.	Farm yard manure (50 %)	-	-	75.00	-	80.00	5.00
8.	Chemical fertilizers (bags)						
	8.1 DAP	1.090	1037.00	1130.33	1076.00	1172.84	42.51
	8.2 Urea	1.747	490.00	856.03	521.00	910.19	54.16
	8.3 SSP	0.132	349.00	46.07	361.00	47.65	1.58
	8.4 NP	0.079	707.00	55.85	706.00	55.77	-0.08
	8.5 CAN	0.039	396.00	15.44	393.00	15.33	-0.12
	8.6 SOP	0.024	1139.00	27.34	1157.00	27.77	0.43
	8.7 Gypsum	0.024	60.00	1.44	60.00	1.44	0.00
	8.8 Transport and application	3.135	17.00	53.30	18.00	56.43	3.14
9.	Mark- up on investment on item 1 to 8 excluding item 5 (1) @ 12.00 % per annum for 6 months	-	-	266.22	-	431.31	165.09
10.	Harvesting charges (40 kgs/acre)	2.997	408.00	1222.78	400.00	1198.80	-23.98
11.	Threshing:						
	11.1 Threshing @ 3.23 kgs/40 kgs (40 kgs)	2.237	408.00	912.70	400.00	894.80	-17.90
	11.2 M. days	1.810	120.00	217.20	125.00	226.25	9.05
12.	Land rent per acre for 6 months	-	5500.00	2750.00	5500.00	2750.00	0.00
13.	Average weighted land tax @ 131/acre/annum for 6 months	-	131.00	65.50	131.00	65.50	0.00
14.	Management charges for 6 months	-	-	304.00	-	338.00	34.00
15	Total cost per acre	-	-	12443.97	-	13143.17	699.20
16.	Value of wheat bhoosa	-	-	1000.00	-	1150.00	150.00
17	Net cost per acre (item 15 - item 16)	-	-	11443.97	-	11993.17	549.20
18.	Yield per acre (kgs)	-	-	1108.00	-	1108.00	0.00
19	Cost of production at farm level (Rs/ 40 kgs)	-	-	413.14	-	432.97	19.83
20.	Marketing cost (Rs/ 40kgs)	-	-	15.00	-	16.00	1.00
21.	Cost of production at market/procurement centre (Rs/ 40 kgs)						
	21.1 With land rent	-	-	428.14	-	448.97	20.83
	21.2 Without land rent	-	-	328.86	-	349.69	20.83

ANNEX-IX

AVERAGE FARMERS' COST OF PRODUCTION OF WHEAT IN SINDH: 2005-06 AND 2006-07 CROPS

Sr. No.	Operations/Inputs	Avg.No. of oprs/ units/per acre	2005-06 crop		2006-07 crop		Change in 2006-07 over 2005-06
			Rate per unit	Cost per acre	Rate per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
				Rupees			
1.	Preparatory tillage:						
	1.1 Rotavator/disc plough	0.349	500.00	174.50	550.00	191.95	17.45
	1.2 Ploughing	3.034	250.00	758.50	275.00	834.35	75.85
	1.3 Ploughing and planking	0.070	300.00	21.00	330.00	23.10	2.10
	1.4 Planking	0.081	125.00	10.13	140.00	11.34	1.22
	1.5 Levelling (hrs)	1.010	300.00	303.00	330.00	333.30	30.30
2.	Seed and sowing operations:						
	2.1 Seed used (kgs)	55.817	20.00	1116.34	20.00	1116.34	0.00
	2.2 Tractor drilling	0.037	250.00	9.25	275.00	10.18	0.92
	2.3 Labour for seed broadcasting (m.hr)	1.127	15.00	16.91	16.00	18.03	1.13
	2.4 Ploughing in case of broadcasting	0.275	250.00	68.75	275.00	75.63	6.88
	2.5 Planking in case of broadcasting	0.162	125.00	20.25	140.00	22.68	2.43
3.	Bund making:						
	3.1 Manual (m.hrs)	1.611	15.00	24.17	16.00	25.78	1.61
	3.2 Tractor (hrs)	0.091	300.00	27.30	330.00	30.03	2.73
4.	Interculture/weeding						
	4.1 Interculture	0.037	300.00	11.10	330.00	12.21	1.11
	4.2 Weedicides	0.529	400.00	211.60	400.00	211.60	0.00
5.	Irrigation: (Nos)						
	5.1 Canal alone	1.763	-	53.30	-	53.30	0.00
	5.2 Lift pump	0.551	217.00	119.57	253.00	139.40	19.84
	5.3 Private tubewell	1.046	326.00	341.00	381.00	398.53	57.53
	5.4 Mixed	0.449	235.00	105.52	275.00	123.48	17.96
6.	Labour for irrigation and water course cleaning (m.days)						
	6.1 For irrigation	1.022	120.00	122.64	125.00	127.75	5.11
	6.2 For water course cleaning	0.349	120.00	41.88	125.00	43.63	1.75
7.	Farm Yard Manure (50 %)			70.00		75.00	5.00
8.	Chemical fertilizers (bags)						
	8.1 DAP	1.013	1010.00	1023.13	1047.00	1060.61	37.48
	8.2 Urea	1.950	488.00	951.60	530.00	1033.50	81.90
	8.3 NP	0.186	733.00	136.34	710.00	132.06	-4.28
	8.4 CAN	0.020	389.00	7.78	395.00	7.90	0.12
	8.5 Transport + application	3.169	20.00	63.38	21.00	66.55	3.17
9.	Mark-up on investment on item 1 to 8 excluding item 5 (1) @ 12.00 % per annum for 6 months	-	-	230.22	-	367.49	137.27
10.	Harvesting charges (40 kgs/acre)	2.876	393.00	1130.27	390.00	1121.64	-8.63
11.	Threshing:						
	11.1 Tresher @ 2.95 kgs/40 kgs (40 kgs)	1.784	393.00	701.11	390.00	695.76	-5.35
	11.2 Labour (m.days)	1.415	120.00	169.80	125.00	176.88	7.07
12.	Land rent for 6 months	-	4000.00	2000.00	4000.00	2000.00	0.00
13.	Land tax @ 200/acre/annum for 6 months	-	200.00	100.00	200.00	100.00	0.00
14.	Drainage cess	-	-	24.00	-	24.00	0.00
15.	Management charges for 6 months	-	-	304.00	-	338.00	34.00
16.	Total cost per acre	-	-	10468.32	-	11001.98	533.66
17.	Value of wheat bhoosa	-	-	1000.00	-	1150.00	150.00
18.	Net cost per acre (Item 16 - item 17)	-	-	9468.32	-	9851.98	383.66
19.	Yield per acre (kgs)	-	-	967.81	-	967.81	0.00
20.	Cost of production at farm level (Rs/40 kgs)	-	-	391.33	-	407.19	15.86
21.	Marketing cost (Rs/40 kgs)	-	-	15.00	-	16.00	1.00
22.	Cost of production at market/procurement centre (Rs/40 kgs)						
	22.1 With land rent	-	-	406.33	-	423.19	16.86
	22.2 Without land rent	-	-	323.67	-	340.53	16.86

Notes for Annex-VIII and IX

1. The input-output parameters for estimating cost of production of wheat 2006-07 Crop have been adopted from the Support Price Policy for wheat 2005-06 Crop, APCom's Series No 216.

2. The inputs prices, custom hire rates of field operations, wage rate, land rentals and value of wheat bhoosa have been revised in the light of the information provided by the Provincial Agriculture Departments and Farmers' Associations in the meeting of the Standing Committee on Wheat, held on 17th July 2006 at Islamabad and other sources as:

3. The cost of supplementary irrigation has been revised in view of rise @ 21.93 per cent in the prices of diesel during July 2005 and August 2006. Based on ratios of electric and diesel tube-wells at 8:92 per cent in the Punjab and 24:76 in Sindh, as reported in the Agricultural Statistics of Pakistan, 2004-05, MINFAL, (Economic Wing), Islamabad, the weighted average increases in energy charges have been worked out at 20 per cent in the Punjab and 17 per cent in Sindh.

4. 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 27th July 2006 and supplemented with the information provided by the farmers in the meeting of Standing Committee on wheat.

5. The management charges for a manager looking after a 25-acre farm and devoting one-fourth of his time to the managerial activities have been worked out at Rs 5633 per month for a Field Assistant at the 10th stages in BPS-6, including special allowance @ 25 per cent and 15 per cent ad-hoc relief each announced in the budgets of 2004-05, 2005-06 and 2006-07.

6. Mark-up rate for 2006-07 has worked out @ 12 per cent on the basis of the average weighted mark up on agriculture loans disbursed by different banks. However, the mark-up for 2005-06 crop has been worked out @ 8 per cent per annum.

7. The values of kind payments for harvesting and threshing have revised in the light of average market prices of wheat in the Punjab and Sindh. Marketing charges of Rs 16 per 40 Kgs have been deducted from the market prices to bring these at the farm level.

ANNEX-X

ECONOMICS OF WHEAT AND COMPETING CROPS AT PRICES REALIZED BY THE GROWERS: 2005-06 CROPS

Province/crops/ crop combination	Crop duration	Water used	Gross cost	Cost of purchased inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Revenue per		
									Rupee of purchased inputs	Crop day	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. Wheat	180	12	12757	5435	12191	6756	-566	0.96	2.24	67.73	1015.92
2. Basmati paddy	180	58	12540	7231	12408	5177	-132	0.99	1.72	68.93	213.93
3. IRRI paddy	180	62	10534	6041	9493	3452	-1041	0.90	1.57	52.74	153.11
4. Seed cotton	240	22	15462	7308	18070	10762	2608	1.17	2.47	75.29	821.36
5. Sugarcane	394	48	21691	7583	33485	25902	11794	1.54	4.42	84.99	697.60
6. Sunflower (spring)	144	22	10185	2850	10710	7860	525	1.05	3.76	74.38	486.82
7. Canola	310	13	8247	2364	9798	7434	1551	1.19	4.14	31.61	753.69
8. Seed cotton+ wheat	420	34	28219	12744	30261	17517	2042	1.07	2.37	72.05	890.03
9. Seed cotton+sunflower	384	44	25647	10158	28780	18622	3133	1.12	2.83	74.95	654.09
10. Basmati paddy+wheat	360	70	25298	12666	24599	11933	-699	0.97	1.94	68.33	351.41
11. Basmati paddy+sunflower	324	80	22725	10081	23118	13037	393	1.02	2.29	71.35	288.98
12. IRRI paddy+wheat	360	74	23291	11477	21683	10206	-1608	0.93	1.89	60.23	293.01
13. IRRI paddy+sunflower	324	84	20719	8891	20203	11312	-516	0.98	2.27	62.35	240.51
Sindh											
1. Wheat	180	12	10599	4443	10388	5945	-211	0.98	2.34	57.71	865.67
2. IRRI paddy	180	56	9187	4232	10727	6495	1540	1.17	2.53	59.59	191.55
3. Seed cotton	240	18	14310	5602	17915	12313	3605	1.25	3.20	74.65	995.28
4. Sugarcane	488	71	27153	9478	46767	37289	19614	1.72	4.93	95.83	658.69
5. Sunflower (spring)	144	22	10185	2850	10710	7860	525	1.05	3.76	74.38	486.82
6. Canola	210	13	8247	2364	9798	7434	1551	1.19	4.14	46.66	753.69
7. Seed cotton+ wheat	420	30	24908	10054	28303	18249	3395	1.14	2.82	67.39	943.43
8. Seed cotton+sunflower	384	40	24494	8452	28625	20173	4131	1.17	3.39	74.54	715.63
9. IRRI paddy+wheat	360	68	19786	8675	21114	12439	1328	1.07	2.43	58.65	310.50
10. IRRI paddy+sunflower	324	78	19372	7082	21437	14355	2065	1.11	3.03	66.16	274.83

Notes for Annexes - X

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2005-06 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, 2005-06 crops. However, the relevant data for sunflower and canola were adopted from the last support price policy for non-traditional oilseeds, 2000-01 crops with necessary adjustments in input prices for updating costs and incomes for the 2005-06 crops. To incorporate the escalations in input prices which occurred during the growing period of 2005-06 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 electric and diesel tubewells at 10:90 in the Punjab and at 41:59 in Sindh. Accordingly, the weighted average increase in energy charges works to 9.75 per cent in Punjab and 6.40 per cent in Sindh for sugarcane, 19.60 per cent in the Punjab and 12.85 per cent in Sindh for seed cotton and 15.56 per cent in the Punjab and 11.80 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 2005-06 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 government has been the major buyer of wheat in the past. However, the bulk of wheat has been transacted in the open market during the current season. Therefore, the average wholesale market prices of wheat during the post-harvest months of April-June 2006in the major producer area markets at Rs 419 per 40 kgs in the Punjab and Rs 403 in Sindh have been adopted in this analysis.

   4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post- harvest period in major producer area markets as reported by the Directorate of Agriculture (E&M), Lahore have averaged at Rs 526 and Rs 281 per 40 kgs, respectively. While, the price of IRRI paddy in Sindh averaged at Rs 289 per 40 kgs as per data collected from various Market Committees of Sindh.

   4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug - Nov 2005-06 in the main producer area markets have averaged at Rs 1047 per 40 kgs in the Punjab as reported by the Directorate of Agriculture

(E&M), Lahore. In Sindh, the corresponding prices are reported by the PCCC, Karachi during September and October to average at Rs 1028 per 40 kgs.

4.4 As reported by the PODB, the wholesale market prices of sunflower oilseed have averaged at Rs 729 per 40 kgs in the Punjab and Sindh. The corresponding price for canola oilseed is Rs 802 per 40 kgs.

4.5 The market prices of sugarcane at mill-gate in the major cane producing areas have averaged at Rs 65 per 40 kgs in the Punjab and Rs 75 in Sindh during the crushing season.

5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 5.75 per 40 kgs in Punjab and Rs 5.82 in Sindh for sugarcane, Rs 20 in Punjab and Rs 22 in Sindh for seed cotton, Rs 15 for rice paddy, wheat and oilseeds.

6.	Gross income	=	(Yield per acre multiplied by price of principal produce at farm gate) plus (value of by-products per acre).
7.	Cost of purchased inputs	=	Cost incurred on seed and related items, fertilizer, supplementary irrigation including labour, canal water rate, pesticides and weedicides.
8.	Gross margin	=	Gross income minus cost of purchased inputs.
9.	Net income	=	Gross income minus gross cost.
10.	Output-input ratio	=	Gross income divided by gross cost
11.	Revenue per rupee of purchased inputs cost	=	Gross income divided by cost of purchased inputs
12.	Revenue per crop day	=	Gross income divided by crop duration in days.
13.	Revenue per acre-inch water used	=	Gross income divided by irrigation water of used in acre inches.

ANNEX-XI

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN THE PUNJAB: POLICY ANALYSIS MATRIX
(based on import parity prices for average farmers)

Description	Revenues	Traded cost	Domestic factors cost	Profit
		Rupees per acre		
2001-02				
Private prices	7931	4917	3931	-917
Social prices	11361	4357	3627	3377
Transfers	-3430	560	304	-4294
2002-03				
Private prices	8384	5266	4005	-887
Social prices	12330	4676	3711	3943
Transfers	-3946	590	294	-4830
2003-04				
Private prices	10274	5769	4268	237
Social prices	12617	5010	3961	3646
Transfers	-2343	759	307	-3409
2004-05				
Private prices	11332	6443	4712	177
Social prices	14961	5670	4365	4926
Transfers	-3629	773	347	-4749
2005-06				
Private prices	13053	7129	5511	413
Social prices	14296	6123	5191	2982
Transfers	-1243	1006	320	-2569
Average(2001-02 to 2005-06)				
Private prices	10195	5905	4485	-195
Social prices	13113	5167	4171	3775
Transfers	-2918	738	314	-3970

ANNEX-XII

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN SINDH: POLICY ANALYSIS MATRIX
(based on import parity prices for average farmers)

Description	Revenues	Traded cost	Domestic factors cost	Profits
		Rupees per acre		
2001-02				
Private prices	7275	4010	3668	-403
Social prices	9988	3510	3518	2960
Transfers	-2713	500	150	-3363
2002-03				
Private prices	8079	4342	3699	38
Social prices	10873	3785	3558	3530
Transfers	-2794	557	141	-3492
2003-04				
Private prices	9436	4656	4039	741
Social prices	11612	4031	3870	3711
Transfers	-2176	625	169	-2970
2004-05				
Private prices	10021	5108	4674	239
Social prices	13789	4491	4450	4848
Transfers	-3768	617	224	-4609
2005-06				
Private prices	10672	6480	4620	-428
Social prices	10216	5787	4321	108
Transfers	456	693	299	-536
Average(2001-02 to 2005-06)				
Private prices	9097	4919	4140	37
Social prices	11296	4321	3943	3031
Transfers	-2199	598	197	-2994

ANNEX-XIII

IMPACT OF RISE IN SUPPORT PRICE OF WHEAT ON AVERAGE HOUSEHOLD EXPENDITURE

Proposed support price	Expenditure on wheat at average per capita availability @ 118 kgs per year		Rise in expenses	
	Person	Household	Person	Household
Rs/40 kgs	---------- Rupees per year ----------			
415 (Existing for 2005-06 crop)	1224	8262		
419	1236	8343	12	81
423	1248	8424	24	162
427	1260	8505	36	243
431	1271	8579	47	317
435	1283	8660	59	398
439	1295	8741	71	479
443	1307	8822	83	560
447	1319	8903	95	641

Sources: i) PSLM, Household Integrated Economic Survey (HIES) 2004-05, Federal Bureau of Statistics (FBS), Islamabad.

ii) Annex-IV.

Note: Average size of Household Comprises 6.75 members

ANNEX-XIV

REQUIREMENT AND AVAILABILITY OF CERTIFIED SEED OF WHEAT 2001-02 TO 2005-06

Province/year	Area under wheat	Total annual requirement	Annual replacement requirement	Certified seed available			Certified seed as % of	
				Public sector	Private sector	Total	Replacement requirement	Total requirement
Punjab	000 Hect.	-000 Tonnes-						
2001-02	6101.8	555.3	111.1	59.1	51.2	110.3	99.3	19.9
2002-03	6097.3	554.9	111.0	68.0	55.0	123.0	110.8	22.2
2003-04	6255.5	569.3	113.9	69.0	65.2	134.2	117.9	23.6
2004-05	6349.0	577.8	115.6	68.0	112.4	180.4	156.1	31.2
2005-06	6322.0	575.3	115.1	62.0	147.06	209.1	181.7	36.3
Sindh								
2001-02	875.2	79.6	15.9	2.5	8.6	11.1	69.7	13.9
2002-03	863.7	78.6	15.7	1.1	5.0	6.1	38.8	7.8
2003-04	878.2	79.9	16.0	0.6	4.7	5.3	33.2	6.6
2004-05	883.0	80.4	16.1	0.3	8.8	9.1	56.6	11.3
2005-06	933.0	84.9	17.0	0.29	9.4	9.7	57.1	11.4
NWFP								
2001-02	746.9	68.0	13.6	6.2	3.1	9.3	68.4	13.7
2002-03	732.1	66.6	13.3	6.5	0.4	6.9	51.8	10.4
2003-04	741.6	67.5	13.5	3.8	0.4	4.2	31.1	6.2
2004-05	764.0	69.5	13.9	2.7	0.5	3.2	23.0	4.6
2005-06	743.0	67.6	13.5	2.6	0.3	2.8	20.7	4.1
Balochistan								
2001-02	333.6	30.4	6.1	0.4	0.1	0.5	8.2	1.6
2002-03	340.8	31.0	6.2	0.2	0.0	0.2	3.2	0.6
2003-04	340.9	31.0	6.2	0.3	0.0	0.3	4.8	1.0
2004-05	332.0	30.2	6.0	0.3	0.6	0.9	14.9	3.0
2005-06	309.0	28.1	5.6	0.5	1.1	1.2	21.4	4.3
Pakistan								
2001-02	8057.5	733.2	146.6	68.2	63.0	131.2	89.5	17.9
2002-03	8033.9	731.1	146.2	75.8	60.4	136.2	93.1	18.6
2003-04	8216.2	747.7	149.5	73.7	70.3	144.0	96.3	19.3
2004-05	8328.0	757.8	151.6	71.3	122.3	193.6	127.7	25.5
2005-06	8307.0	755.9	151.2	64.94	157.86	222.8	147.4	29.5

Note: Seed rate of 91 Kgs per hectare has been used for working out the total annual seed requirement, 20 per cent of which has been assumed annual replacement requirement.

Source:
1. For certified seed sold: i) Working paper and minutes of various meeting of FCA
   ii) FSC & RD, Islamabad
2. For area under wheat: Annex-I