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# SUPPORT PRICE POLICY
# FOR
# WHEAT, 2005-06 CROP

AGRICULTURAL PRICES COMMISSION
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 |
| TCP | Trading Corporation of Pakistan |
| WFP | World Food Programme |
| WTO | World Trade Organization |

# SUPPORT PRICE POLICY FOR WHEAT, 2005-06 CROP

## EXECUTIVE SUMMARY AND RECOMMENDATIONS

The wheat production at country level has fluctuated between 17.0 and 21.2 million tonnes and area ranged between 8.0 to 8.3 million hectares during the decade ending 2004-05. During the decade, production is estimated to have increased by 1.9 per cent per annum. Enhancement of yield @ 2.0 per cent per annum has a major bearing on the increased production as the area under wheat reduced by 0.1 per cent.

2. According to 2nd estimates of the Provincial Agriculture Departments wheat production at country level for 2004-05 crop is estimated at 21.19 million tonnes which is 8.7 per cent higher than the previous year's production of 19.50 million tonnes. The excellent record crop harvest during 2004-05 has come from 7.2 per cent improvement in yield and 1.3 per cent expansion in the area. Punjab is the largest producer of wheat, accounting for 76 per cent of its area and 81 per cent of the production. The shares of Sindh in area and production of wheat are 11 per cent each. The NWFP and Balochistan jointly contribute about 13 per cent in area and 8 per cent in production of wheat.

3. 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 which was meant to provide a floor to the market prices in the harvest season. Accordingly, the Cabinet in its meeting held on 29th September 2004 announced the support price of wheat at Rs 400 per 40 kgs for the year 2004-05,. The market prices of wheat ruling in the post harvest season of the 2004-05 crop in various markets have been higher than the support price fixed by the government.

4. 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 husbandry practices. This will reduce unit cost of production and improve domestic surplus leading to export competitiveness.

5. For the Punjab, market level cost of production of wheat for the 2005-06 crop at the current input prices is estimated at Rs 428 per 40 kgs, which is higher by 6 per cent than the corresponding cost of the produce from 2004-05 crop. The cost of production of wheat at the market level in Sindh calculates to Rs 406 per 40 kgs, up by 9 per cent over the last year. The cost increases in wheat are attributable to seed, higher costs of supplementary irrigation, diesel, chemical fertilizers, rise in wage rate, higher values of kind payments, land rentals, etc.

6. Annual meeting of the Agricultural Prices Commission's Standing Committee on wheat was held at Islamabad on June 25, 2005. 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 and suggested a number of measures to improve the efficiency of wheat farming and marketing system. 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.

7. World production of wheat estimated at 625 million tonnes in 2004-05 is forecast to decline to 604 million in 2005-06 against the likely consumption of 608 million tonnes. The closing stocks in 2005-06 are reported to fall to 133 million tonnes from 137 million in 2004-05. However, the global trade in wheat is reported to slightly rise to 108 million tonnes from 106 million.

8. According to the International Grains Council, London, the international prices of wheat have experienced fluctuations during the last ten years, touching the lowest level of

US $ 112 per tonne in 1999-00 and the highest of US $ 199 per tonne in 1995-96. The world prices have averaged at US $ 145 per tonne in 2004-05. In view of the lower production, declining stocks and falling ratio of stocks to consumption, the prices of wheat in international markets may increase further.

9. Based on the analysis of relevant factors, discussed in main text of this Report, the likely pricing options for wheat, 2005-06 crop are summarized below:

| Base | Likely price of domestic wheat at procurement centre<br>Rs per 40 kgs |
|---|---|
| **1. Import parity price on the basis of:** | |
| a) Average fob (Pacific) quoted prices of US western white wheat during 2004-05, if consumed at: | |
| - Karachi | 457 |
| - Lahore | 544 |
| b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if consumed at: | |
| - Karachi | 429 |
| - Lahore | 516 |
| **2. Export parity price on the basis of:** | |
| a) Average fob (Pacific) quoted prices of US western white wheat during 2004-05, if exported from Multan | 271 |
| b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if exported from Multan | 253 |
| **3. Monthly average wholesale market prices of wheat in producing area markets during post-harvest of 2004-05 crop:** | |
| - Punjab | 423 |
| - Sindh | 408 |
| **4. Cost of production at market/procurement level for 2005-06 crop** | |
| - Punjab | 428 |
| - Sindh | 406 |

10. Parity ratio between market prices of nitrogen and wheat estimated 2.29 for 1995-96 improved in favour of wheat during 1996-97 wheat 2.03 units were needed to buy one unit of N. Thereafter it moved against wheat and touched the highest level of 2.54 during 1998-99 but significantly improved in favour of wheat in 1999-00. It remained between 2.03 to 2.41 upto 2002-03. However, during 2004-05 crop season market price of wheat showed significant increase resulting lowest parity ratio of 1.81 during the period under review.

11. The parity ratio between market price of wheat and phosphatic fertilizers declined from 3.23 in 1995-96 to 2.68 during 1996-97. Thereafter, it remained fluctuating between 2.70 and 3.43. However, in 2004-05 purchasing power of wheat has shown 2.7 per cent improvement in terms of P fertilizer as compared with the previous year.

12. Economic efficiency in wheat production during the last six years (1999-05) has been examined/determined through estimating the most commonly used economic parameters of NPC, EPC and DRC. The examination of the NPCs has revealed that under importing country scenario wheat production all along during the period under review has not received any protection. The prices received by the growers have been substantially below the corresponding import parity prices. The EPC also reinforces the conclusion drawn from NPC but magnitude of implicit tax on the producers under wheat importing situation has been higher than that estimated through NPC. 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, 2005-06 Crop

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

14. Based on the analysis of relevant factors summarized in paras 121 to 129 of this Report, the APCom recommends to enhance the support price of wheat to Rs 425 per 40 kgs for the 2005-06 crop. The proposed price hardly covers the cost of production at the current input prices in the Punjab while it provides a margin of 5 per cent in Sindh.

15. The actual incentive to the farmers should come from market. In this context, the government policy of encouraging the role of private sector in wheat marketing, which has proved worth in the couple of years, should continue.

16. 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 support price.

### Improving Productivity

- **Heat Tolerant/High Yielding Varieties**

17.

i) Evolution of heat tolerant varieties needs to be an integral part of our provincial/national rsearch programme.

ii) Provincial Agriculture Extension Departments should launch special campaign to educate growers for adoption of other improved varieties of wheat alongwith Inqlab-91.

- **Improved Seed**

18. The provincial governments particularly in Sindh, NWFP and Balochistan should encourage their seed agencies both in public and private sectors to meet at least 20% replacement requirement of certified seed of wheat.

- **Seed Bed Preparation and Timely Sowing**

19. In order to increase the wheat yield, Provincial Agriculture Departments should educate the farmers to:

a) Manage the last irrigation to kharif crops in such a way that the soil moisture is at optimum at the time of harvesting those crops.

b) Use the tillage implements recommended for preparation of seedbed.

c) Drill the seed and fertilizer so as to get maximum plant population as well as return from fertilizer.

d) In case of late sowing use higher seed rate so as to partially overcome the effect of late sowing.

e) Select medium and short duration varieties of wheat for planting after kharif crops. For this purpose, the supply of seed of varieties suitable for late planting should be increased.

- **Weed Control**

20.

a) Growers should be persuaded for adopting cultural control through bar harrow and crop rotation where it is possible.

b) Efficiency of weedicides needs to be increased both through improving the quality of existing products as well as introduction of new chemicals which are cheap, effective and can be applied under varied soil moisture conditions.

- **Proper and Balanced Use of Fertilizer**

21.

a) The provincial governments should ensure adequate supply of fertilizer particularly of P&K at sowing times of wheat and advise farmers to use recommended doses of N&P fertilizers.

b) Provincial governments should take serious notice of the adulteration in phosphatic fertilizers being marketed and adopt measures to improve the situation

c) Parity between prices of P&K be maintained at reasonable levels to encourage their use in recommended ratios.

d) The growers should be persuaded to apply Farm Yard Manure (FYM) at regular intervals to help reduce/lower the rate of conversion of P fertilizer from available to unavailable form and prolong its retention in the available form in the soil to permit maximum absorption by plants.

e) Research should be undertaken to identify bacterial strains which help in converting fixed forms of P in the soil to available form and their inoculum should be prepared and introduced to growers for adoption.

f) Feasibility of processing of city wastes and its utilization as source of nutrients, soil conditioners etc. be undertaken.

- **Farm Management**

22. Special educational programmes are to be launched for transforming average and traditional growers into progressive growers.

**Marketing of Wheat**

23.

- Removal of restrictions on commodity movement has given free hand to private sector in purchasing and storage of wheat and lessened the wheat 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 maintained.

**Issue Price and Subsidy**

24.

- The current policy of cascading issue prices of wheat to cover all the procurement and distribution costs involved should be maintained to minimize the burden of subsidies on wheat.
- As the removal of subsidy and hence increase in wheat prices have hit the low income groups and population living in far flung areas of the country i.e. Northern Areas, FATA etc. They need to be compensated through the social programme of food stamps and subsidy in transportation of wheat.

**Improving Quality**

25.

- 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.

**( Rana Muhammad Ashiq )**
Chairman, APCom.

**July 15, 2005**

# SUPPORT PRICE POLICY FOR WHEAT, 2005-06 CROP

## INTRODUCTION

26. Wheat is the most important and largest crop in Pakistan, annually cultivated over an area of 8 million hectares. It accounts for 36 per cent of the cropped area and 38 per cent of the value added by major crops. Among the important wheat producing countries, Pakistan ranks 9th in terms of area and 8th in production but lies way behind at 49th in terms of yield per hectare. This is indicative of the vast potential for improvement on the productivity frontier. The case for increasing the production of this staple food is further substantiated by the yields obtained by the progressive farmers which is more than double the national average. Harnessing this yield potential can go a long way towards the quest for self sufficiency.

27. The production of wheat in the country during 1994-95 to 2004-05 has increased 1.9 per cent per annum. The production of wheat during last three years have averaged around 19 million tonnes. As per second estimates, the record production of wheat at 21.20 million tonnes is expected during 2004-05 which is higher by 9 per cent over 19.49 million tonnes in 2003-04.

28. 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. Accordingly, the Cabinet in its meeting held on 29th September 2004 approved the support price of Rs 400 per 40 kgs for wheat, 2004-05 crop.

29. In formulating the price policy recommendations for 2005-06 wheat crop, following steps were undertaken by the APCom.

i) To update data on prices of inputs, hiring rates of various field operations and marketing costs of wheat, a mini field survey in important wheat growing areas of the Punjab and Sindh was organized during June 2005.

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

iii) The annual meeting of APCom's Standing Committee on wheat was held on 25th June 2005 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 and changes therein were discussed at length. 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 systems. The views expressed in the meeting have been duly considered in formulating policy recommendations.

30. Pricing of wheat, the staple food commodity, is a complex issue involving reconciliation of conflicting interests of diverse groups of growers, consumers, millers, etc. In view of the hefty increases in the prices of inputs, and cost of wheat production in the past, the farmers argue for higher output prices otherwise wheat farming may not be a viable proposition. Increasing producer prices of wheat in turn raises consumer prices,

leading to inflationary pressures, both real and psychological, all around in view of the sensitive nature of the commodity and its high weight in the average household's budget. Accordingly, governments have been reluctant to raise consumer prices of wheat to their economic levels and subsidized the issue prices at considerable cost to the public exchequer. The pricing policy involves balancing of such conflicting considerations.

31. It will be difficult to maintain self-sufficiency in wheat provided the constraints presently limiting wheat production are removed. This is quite evident from the performance of progressive growers who adopted optimal inputs package and improved farm practices and are realizing yields of about 4-5 tonnes per hectare i.e. more than double the level of the national average yield. This however would require the timely supply of inputs and production technology at the grassroots level. The farmers nevertheless may be reluctant to adopt the technology unless and until they are assured incentive prices for their produce.

32. There is ample evidence that farmers have enthusiastically responded to the challenges whenever they have been offered the technology with the right incentives. Accordingly, 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 the proposals contained in this Report should go a long way towards achieving self sufficiency in wheat.

## 3. SOWING AND HARVESTING TIMES

33. Pakistan Agriculture Research Council (PARC) has recommended a comprehensive schedule of wheat sowing for various ecological zones in the country which is given in Table-1 below:

**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 31st December |
| **NWFP** | |
| i) Plain area | 25th October to 15th December |
| ii) Hilly area | 1st November to 15th December |
| **Balochistan** | |
| Upper | 1st October to 20th February |
| Plain | 1st November to 15th December |

**Source:** PARC, Islamabad

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

35. In Sindh, wheat sowing starts from 1st November and extends upto end of December in all over the province.

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

37. In Baolochistan, wheat sowing starts earlier than other provinces. It begins from 1st October in upper part of the province and continues upto 20th February while in plain area wheat sown from 1st November to 15th December.

38. 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

39. The average production at country level is estimated at 19.96 million tonnes and area at 8.19 million hectares (20.24 million acres). The provincial shares in area and production of wheat averaged on 2002-03 to 2004-05 crops are given in Table-2 and shown in Figures 1 and 2.

**Table-2: Provincial Shares in Area and Production of Wheat (Average of 2002-03 to 2004-05)**

| Country/province | Area | | Production | |
|---|---|---|---|---|
| | 000 ha | Per cent | 000 tonnes | Per cent |
| **Pakistan** | **8192.1** | **100.0** | **19956.7** | **100.0** |
| Punjab | 6233.8 | 76.1 | 16091.3 | 80.6 |
| Sindh | 875.4 | 10.7 | 2170.0 | 10.9 |
| NWFP | 747.0 | 9.1 | 1050.4 | 5.3 |
| Balochistan | 336.0 | 4.1 | 644.9 | 3.2 |

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

## Provincial Shares in Area and Production of Wheat Average of 2002-03 to 2004-05

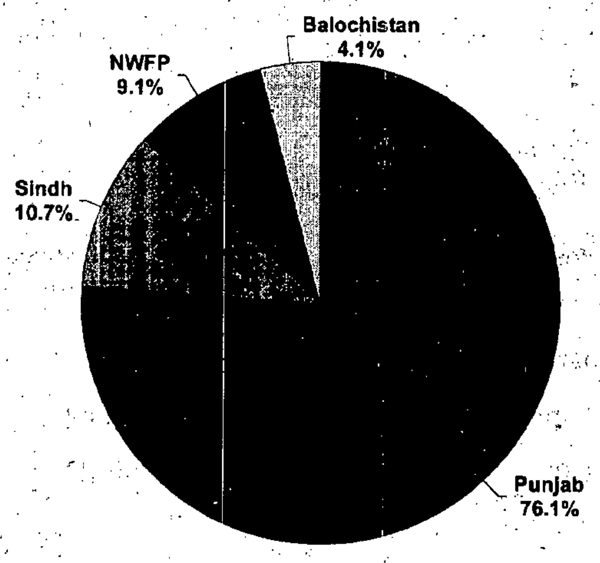


Fig - 1 : Share in Area

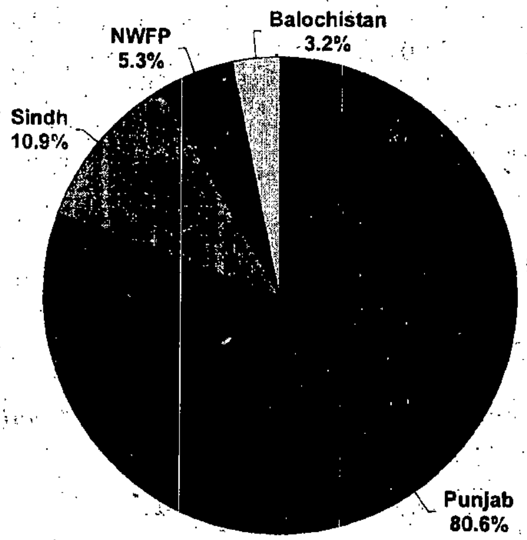


Fig - 2 : Share in Production

40. 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 81 per cent in production and 76 per cent in area. The respective shares of Sindh, NWFP and Balochistan are estimated at 10.9, 5.3 and 3.2 per cent in production and 10.7, 9.1 and 4.1 per cent in area. In the NWFP, about 60 per cent wheat is cultivated under un-irrigated conditions that is why its production share is substantially low as compared to area.

## 5. CHANGES IN AREA, YIELD AND PRODUCTION

41. The annual wheat production during 1994-95 to 2004-05 in the country has ranged between 17.0 to 21.2 million tonnes and area between 8.0 to 8.3 million hectares (20.3 to 20.5 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: 1994-95 to 2004-05

42. During the decade ending 2004-05, wheat production is estimated to have increased by 1.9 per cent per annum. Enhancement of yield @ 2.0 per cent per annum have a major bearing on the increased production as the area under wheat is reduced by 0.1 per cent per annum (Table-3)

**Table-3: Average Annual Growth Rates of Area, Yield and Production of Wheat: 1994-95 to 2004-05**

| Country/ Province | Area | Yield | Production |
|---|---|---|---|
| | ---- Per cent ---- | | |
| **Pakistan** | **(-) 0.1** | **(+) 2.0** | **(+) 1.9** |
| Punjab | (+) 0.7 | (+) 2.4 | (+) 3.1 |
| Sindh | (-) 3.1 | (+) 1.7 | (-) 1.4 |
| NWFP | (-) 1.9 | (-) 0.3 | (-) 2.2 |
| Balochistan | (-) 1.1 | (-) 2.4 | (-) 3.5 |

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

43. In the Punjab, production has increased by 3.1 per cent annually due to significant improvement in yield @ 2.4 per cent a year and increase in area by 0.7 per cent per annum.

44. 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: 1999-00 to 2004-05

45. During the period under reference wheat production increased at an annual rate of 0.4 per cent, solely due to increase in yield @ 0.6 per cent as the area contracted @ 0.2 per cent per year (Table-4).

**Table-4: Average Annual Growth Rates of Area, Yield and Production of Wheat: 1999-00 to 2004-05**

| Country/Province | Area | Yield | Production |
|---|---|---|---|
| | --------- Per cent --------- | | |
| Pakistan | (-) 0.2 | (+) 0.6 | (+) 0.4 |
| Punjab | (+) 0.4 | (+) 0.6 | (+) 0.9 |
| Sindh | (-) 3.0 | (-) 1.4 | (-) 4.4 |
| NWFP | (-) 1.3 | (+) 4.4 | (+) 3.0 |
| Balochistan | (+) 0.2 | (+) 2.7 | (+) 2.9 |

**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.

46. Wheat production in the medium term has increased at a slower pace as compared to long term. In this period area has decreased at faster pace and yield has increased at slower pace.

### 5.2.1 Changes in cropped area and wheat area: 1999-00 to 2004-05

47. In this section the national and provincial growth rates of cropped area and wheat area during medium term (Table-5) have been discussed.

**Table-5: Average Annual Growth Rates of Total Cropped Area and Area Under Wheat: 1999-00 to 2004-05**

| Country/Province | Total Cropped area | Wheat area |
|---|---|---|
| | ------- Per cent ------ | |
| Pakistan | (+) 0.4 | (-) 0.2 |
| Punjab | (+) 0.5 | (+) 0.4 |
| Sindh | (+) 0.4 | (-) 3.0 |
| NWFP | (-) 0.5 | (-) 1.4 |
| Balochistan | (+) 1.9 | (+) 0.6 |

48. During the period ending 2004-05 cropped area grew @ 0.4 per cent while wheat area contracted @ 0.2 per cent at country level. In the Punjab, wheat area grew at slower pace as compared to cropped area.

49. In Sindh, although cropped area is increasing but wheat area is decreasing at an accelerated rate of 3 per cent.

50. The situation in the NWFP is not encouraging where cropped area is decreasing @ 0.5 per cent and wheat area is decreasing at much higher rate of 1.4 per cent.

51. In Balochistan, the increase in area under wheat is only one third of the increase in cropped area.

52. The phenomenon of reduction in wheat area was discussed at length in APCom's Standing Committee meeting on wheat held on 25-6-2005. The views expressed by the participants are summarized below:

1. Due to water scarce conditions after 1999-00 wheat area has contracted at large.
2. Economic gains per acre are less in wheat as compared to other competing crops that is why wheat is loosing its area in favour of more profitable crops.
3. High quality certified seed is generally not available in Sindh. The existing varieties give less yields that is why growers have shifted to other crops. Grower members from NWFP expressed similar views.
4. Yield of maize crop is picking up and it receives high price than wheat that is why growers in the Punjab and NWFP have shifted their area from wheat to maize.
5. In Sindh, sunflower area is about 2 lac hectares which has expanded at the cost of wheat area.

### 5.3 Short-term Changes: 2004-05 Vs 2003-04

53. According to 2nd estimates of the provincial agriculture departments wheat production at country level for 2004-05 crop is estimated at 21.19 million tonnes which is 8.7 per cent higher than the previous year's production of 19.50 million tonnes. The excellent (record) crop harvest during 2004-05 is based upon 7.2 per cent improvement in yield and 1.3 per cent expansion in the area (Table-6).

**Table-6: Area, Yield and Production of Wheat: 2003-04 and 2004-05 Crops**

| Country/ Province | Area | | Changes | Yield | | Changes | Production | | Changes |
|---|---|---|---|---|---|---|---|---|---|
| | 2003-04 | 2004-05 | | 2003-04 | 2004-05 | | 2003-04 | 2004-05 | |
| | -- 000 hectares -- | | Per cent | Kgs/hectare | | Per cent | -- 000 tonnes -- | | Per cent |
| **Pakistan** | **8216.2 (20303.1)** | **8326.4 (20575.4)** | **(+) 1.3** | **2373** | **2545** | **(+) 7.2** | **19499.8** | **21187.1** | **(+) 8.7** |
| Punjab | 6255.5 (15458.0) | 6348.6 (15688.0) | (+) 1.5 | 2500 | 2722 | (+) 8.9 | 15639.0 | 17280.0 | (+) 10.5 |
| Sindh | 878.2 (2170.1) | 884.3 (2185.2) | (+) 0.7 | 2473 | 2520 | (+) 1.9 | 2172.2 | 2228.7 | (+) 2.6 |
| NWFP | 741.6 (1832.6) | 767.2 (1895.8) | (+) 3.5 | 1382 | 1384 | (+) 0.1 | 1025.2 | 1061.7 | (+) 3.6 |
| Balochistan | 340.9 (842.4) | 326.3 (806.3) | (-) 4.3 | 1946 | 1890 | (-) 2.9 | 663.4 | 616.7 | (-) 7.0 |

**Source:** Annex-I.

**Note:** Figures in parentheses are in thousand acres.

54. In the Punjab, wheat production from 2004-05 crop reported at 17.28 million tonnes is up by 10.5 per cent over the 15.64 million tonnes achieved in 2003-04. The increase in production is attributed to 8.9 per cent improvement in yield and 1.5 per cent expansion in area. During 2004-05 good weather conditions prevailed through out the growth period of the crop, consequently more un-irrigated area has come under wheat crop which is instrumental in achieving record production.

55. In Sindh, production estimated at 2.23 million tonnes is 2.6 per cent higher than 2.17 million tonnes estimated in 2003-04. This improvement in production is due to increase of 0.7 and 1.9 per cent in area and yield.

56. In the NWFP, wheat production is up by 3.6 per cent which is mainly due to the expansion in area by 3.5 per cent as there is a slight increase by 0.1 per cent in the yield during 2004-05 as compared to 2003-04.

57. In Balochistan, the wheat production during 2004-05 is reduced by 7 per cent as compared to 2003-04 because of reduction in area under wheat crop by 4.3 per cent and in yield by 2.9 per cent.

58. Wheat production in un-irrigated area at country level is up by 16 per cent due to 25 per cent increase in un-irrigated production in the Punjab (Annex-II)

59. Provincial Agriculture Departments have reported following reasons for the enhancement of wheat production.

- Enhancement of support price of wheat 2004-05 crop
- Corresponding increase in area.
- Sufficient rains received with intervals proved beneficial for growth and grain formations of the crop.
- Application of adequate quantity of Urea fertilizer
- Weeds free crop as a result of use of proper weedicides.

## 6. TARGETS VS ACHIEVEMENTS: 2004-05 CROP

60. FCA has fixed wheat production targets for 2004-05 crop at 20.09 million tonnes. The estimated production of 21.19 million tonnes surpassed the targets by 5.5 per cent because of over achievement in area and yield by 1.7 and 3.8 per cent (Table-7).

**Table-7: Targets and Estimated Achievements of Area, Yield and Production of Wheat: 2004-05 Crop**

| Country/ Province | Area | | Deviation from target | Yield per ha | | 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 | 8190.0 (20238.3) | 8326.4 (20575.4) | (+) 1.7 | 2453 | 2545 | (+) 3.8 | 20090.0 | 21187.1 | (+) 5.5 |
| Punjab | 6200.0 (15320.8) | 6348.6 (15688.0) | (+) 2.4 | 2595 | 2722 | (+) 4.9 | 16090.0 | 17280.0 | (+) 7.4 |
| Sindh | 880.0 (2174.6) | 884.3 (2185.2) | (+) 0.5 | 2565 | 2520 | (-) 1.7 | 2257.0 | 2228.7 | (-) 1.3 |
| N.W.F.P. | 770.0 (1902.7) | 767.2 (1895.8) | (-) 0.4 | 1404 | 1384 | (-) 1.4 | 1081.0 | 1061.7 | (-) 1.8 |
| Balochistan | 340.0 ( 840.2) | 326.3 (806.3) | (-) 4.0 | 1947 | 1890 | (-) 2.9 | 662.0 | 616.7 | (-) 6.8 |

**Sources:** 1. For targets: Minutes of the 82nd Meeting of FCA held on 29-03-2005.
2. For achievements: Annex-I

**Notes:** 1. ha = hectare.
2. Figures in parentheses are in thousand acres.

61. Punjab has exceeded production target which has resulted in excess achievement in production at country level. In Sindh, NWFP and Balochistan targets of area, yield and production of wheat were not achieved except area in Sindh which exceeded the target by 0.5 per cent.

## 7. IMPORTANT WHEAT PRODUCING DISTRICTS

62. 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.

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

## 8. FACTORS CONSIDERED FOR PRICE POLICY OPTION

64. In formulating the price policy proposals for wheat, 2005-06 crop, the following factors have been considered and analysed:

8.1 Domestic demand, supply 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: 1990-91 to 2004-05
8.7 Comparative economics of wheat and competing crops: 2004-05 prices
8.8 Economic efficiency in wheat production
8.9 Producer prices of wheat in selected countries
8.10 Parity between prices of fertilizers and wheat
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 of Wheat

#### 8.1.1 Domestic demand, supply and stocks

##### 8.1.1.1 Domestic supply

65. According to second estimates provided by respective provincial agriculture departments, 21.19 million tonnes of wheat have been produced from 2004-05 crop to be available for consumption during 2005-06. Wheat production in Azad Kashmir and Northern Areas has been estimated at 0.27 million tonnes, leading the national production to 21.46 million tonnes in 2004-05. Adding carry over stocks of 0.36

million tonnes, to the production of 2004-05 crop, total availability works out 21.82 million tonnes. Detail is given as under:

| | | |
|---|---|---|
| i) | Opening stocks (as on 1st May 2005) | 0.36 million tonnes |
| ii) | Production from 2004-05 crop | 21.46 million tonnes |
| iii) | Total supply | 21.82 million tonnes |

### 8.1.1.2 Domestic demand

66. 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 FBS. According to the balance sheet method, annual per capita availability of wheat during 2002-03 to 2004-05 averages at 118 kgs per annum (Annex-IV). At this level, using mid year population (as on 1st November) of 160.60 million (including AJ&K, NAs and Afghan Refugees) human consumption requirement for 2005-06 is estimated at 18.95 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 2005-06 wheat year would work out to 22.09 million tonnes.

67. According to HIES, 2001-02, conducted by FBS, per capita consumption of wheat is 107 kgs per annum. FBS estimate is exclusively for internal requirements and does not take into account possible leakage inside and outside the country. APCom do not consider appropriate to use the data provided by FBS for estimating the domestic requirements, which shows lower side. However on this basis total requirements work out to 20.32 million tonnes.

68. On the basis of last five year's (i.e. 2000-01 to 2004-05) per capita availability of wheat averaged at 115 kgs per annum, total requirements work out to 21.61 million tonnes. Details may be seen in Table-8.

**Table-8: Domestic Requirements of Wheat for 2005 - 06 Wheat Year (May – April)**

| S.No. | Item | Based on annual per capita consumption of | | |
|---|---|---|---|---|
| | | 107 kgs | 115 kgs | 118 kgs |
| | | ------ Million tonnes---- | | |
| 1. | Consumption requirements for a population of 160.60 million as on 1st November, 2005[a] | 17.18 | 18.47 | 18.95 |
| 2. | Allowance for seed, feed and wastage @ 10 per cent of total supply | 2.14 | 2.14 | 2.14 |
| 3. | Food security reserves | 1.00 | 1.00 | 1.00 |
| 4. | Total requirements | 20.32 | 21.61 | 22.09 |

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

Source: Annex-IV.

### 8.1.3 Post harvest prices during 2005

69. Average monthly wholesale prices of wheat during the post harvest period of 2004-05 crop (April – June, 2005) in the main producing area markets are given in Table-9.

**Table-9: Monthly Average Wholesale Prices of Wheat in Main Producing Area Markets of the Country during Post-Harvest Season of 2004-05 Crop**

| District | April | May | June* | Average |
|---|---|---|---|---|
| **Punjab** | ---------------- Rupees per 40 kgs ---------------- | | | |
| Lahore | 433 | 434 | 440 | 436 |
| Faisalabad | 432 | 410 | 417 | 420 |
| Gujranwala | 433 | 421 | 434 | 429 |
| Multan | 431 | 416 | 421 | 423 |
| Okara | 419 | 407 | 412 | 413 |
| Sargodha | 436 | 408 | 409 | 418 |
| **Average** | **431** | **416** | **422** | **423** |
| **Sindh** | | | | |
| Hyderabad | 414 | 411 | 416 | 414 |
| Nawab Shah | 392 | 408 | 432 | 411 |
| Mirpur Khas | 393 | 405 | 405 | 401 |
| **Average** | **400** | **408** | **418** | **408** |

Note: * Prices are upto $10^{th}$ June 2005.

Sources:

1. ALMA, Karachi for Hyderabad, Nawab shah and Mirpurkhas Market Committees of their respective Districts.
2. Directorate of Agriculture (E&M), Punjab, Lahore

70. Table-9 reveals that monthly average wholesale prices of wheat in all main producing area markets of the country during 2004-05 ruled higher than the support price of Rs 400 per 40 kgs except in Nawabshah and Mirpurkhas where prices are below the support price during the month of April 2005 i.e Rs. 392 and Rs. 393 per 40 kgs. respectively. Prices of wheat in the Punjab ranged between Rs 407 (in Okara ) during May 2005 and Rs 440 per 40 kgs in Lahore during the month of June 2005. In case of Sindh, market prices ranged between Rs 392 to 432 per 40 kgs in Nawabshah market during the months of April and June 2005 respectively. On the whole, average market price in Punjab for 40 kgs of wheat ranged between Rs 413 and Rs 436 and in Sindh ranged between 401 and 414 during the period under review.

## 8.2 World Production, Consumption, Stocks and Trade Situation

71. The information regarding world wheat production, consumption, stocks and trade from 2002-03 to 2005-06, as reported by International Grains Council is presented in Table-10.

**Table-10: World Wheat Balance Sheet: 2002-03 to 2005-06**

| Item | 2002-03 | 2003-04 | 2004-05 (Estimated) | 2005-06 (Forecast) |
|---|---|---|---|---|
| | ---------------- | Million tonnes | ---------------- | |
| 1. Opening stocks | 198 | 164 | 124 | 137 |
| 2. Production | 566 | 555 | 625 | 604 |
| 3. Total supply (items 1+2) | 764 | 719 | 749 | 741 |
| 4. Consumption | 600 | 594 | 612 | 608 |
| 5. Closing stocks | 164 | 125 | 137 | 133 |
| 6. Trade | 105 | 102 | 106 | 108 |

Note: Carry over stocks may not tally due to rounding or quantity in pipe line

Source: Grain Market Report, International Grains Council, London, GMR No.346 dated 30th June 2005

72. The world production of wheat reported at 625 million tonnes during 2004-05, is 70 million tonnes (12.61 percent) higher than that of previous year. Accounting for the opening stocks of 124 million tones, global supply of wheat in 2004-05 is estimated at 749 million tonnes against the requirements of 612 million tonnes. The closing stocks are estimated at 137 million tonnes in 2004-05.

73. The global wheat production in 2005-06 is projected to decrease to 604 million tonnes i.e. 21 million tonnes or (3.36 per cent) lower than in 2004-05. Accounting for the opening stocks of 137 million tonnes, total supply is anticipated at 741 million tonnes against the consumption forecast of 608 million tonnes in 2005-06, thus, leaving the

closing stocks at 133 million tonnes. If the above forecasts come true, wheat prices in international markets during 2005-06 should firm up. World trade in wheat is forecast at 108 million tonnes, 2 million tonnes higher than in 2004-05.

### 8.3 International Prices of Wheat

74. The US Western White Wheat is considered close in quality to the domestically produced wheat in Pakistan. Accordingly, the pattern of changes in its fob (Pacific) prices from 1992-93 to 2004-05 (Annex-V) has been examined and depicted in Fig -3. Averaging at US $ 150 per tonne in 1992-93, the price decreased to $ 133 in 1993-94. The prices touched their highest level at $ 199 per tonne in 1995-96. However, in subsequent years, the prices were on decline and averaged at US $ 112 per tonne in 1999-00. During last five years, prices have shown continuous upward trend and reached at US $ 149 during 2003-04. In 2004-05, the international prices have shown slightly downward trend and averaged at US $ 145 per tonne.

### 8.4 Import/ Export Parity Prices of Wheat

75. Pakistan was a regular importer of wheat upto 1999-00. The bumper crop of 1999-00 changed this situation and country exported about 1.7 million tonnes of wheat in 2002-03, but due to continuous short fall in crop, it again resumed imports and has imported 108 thousands tonnes wheat in 2003-04 and 1.4 million tonnes in 2004-05 for domestic requirement. 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 some years and exporter in the others, both the import and export parity prices of wheat have been worked out for analyzing price policy options for the next crop.

76. 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 prices are based on economic analysis only. Inter-bank exchange rate selling for import

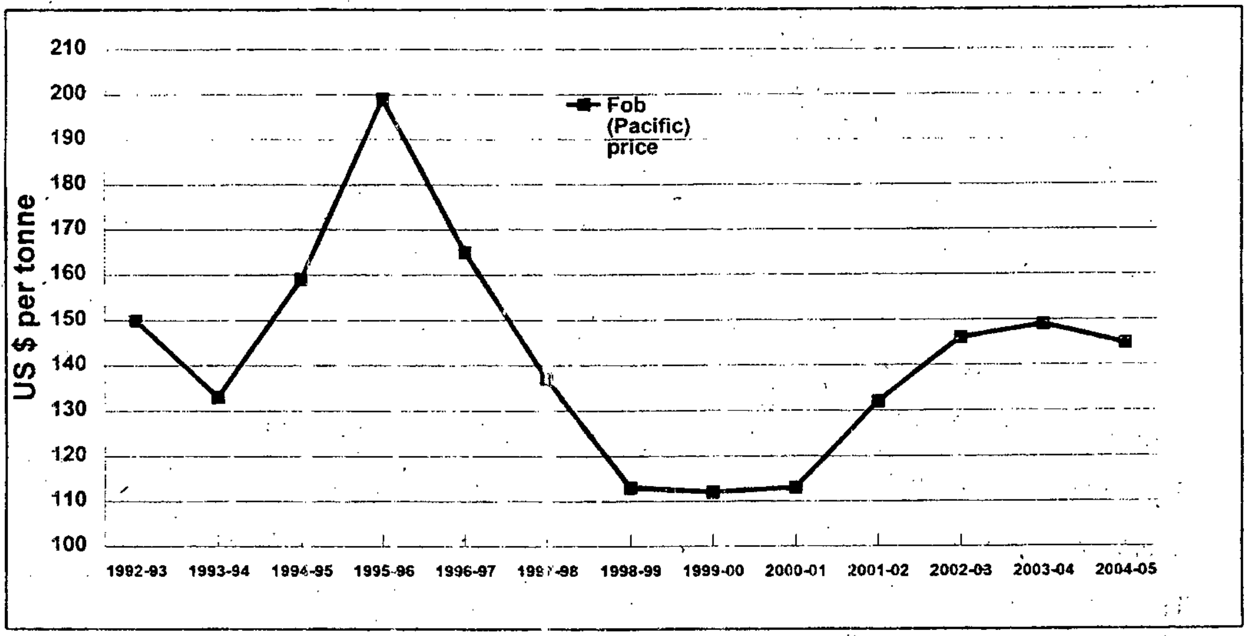


FIG-3:INTERNATIONAL (FOB PACIFIC) PRICE OF US WESTERN WHITE WHEAT: 1992-93 TO 2004-05 parity and buying for export parity prices has been used in the calculations. Detailed calculations in this connection are given at Annexes-VI and VII while results are summarized in Tables-11 and 12.

**Table-11: 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: | | | | | |
| - 2004-05 (Jul-June) | 145 | 11,671 | 467 | 457 | 544 |
| - 2000-01to 2004-05 | 137 | 11,005 | 440 | 429 | 516 |

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.

Source: Annex-VI

**Table -12 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: | | | | |
| - 2004-05 (Jul-June) | 145 | 8,649 | 346 | 271 |
| - 2000-01to 2004-05 | 137 | 8,172 | 327 | 253 |

Source: Annex-VII.

77. According to above calculations, the import parity prices of wheat on the basis of average fob(Pacific) price of $ 137 per tonne during 2000-01 to 2004-05 is estimated at Rs 429 per 40 kgs if consumed at Karachi and Rs 516 per 40 kgs if consumed at Lahore. On the basis of import parity prices for 2004-05, the corresponding import parity prices calculate at Rs 457 and Rs 544 per 40 kgs. Using the same average fob(Pacific ) price of Western White wheat, the export parity prices work out at Rs 253 and Rs 271 per 40 kgs for both the above said periods in case wheat is exported from Multan.

### 8.5 Cost of Production of wheat

78. The cost of production (COP) is one of the most important considerations in formulating the price proposals for farm commodities. However, the empirical estimation of a representative COP involves a number of conceptual and practical difficulties. These difficulties generally arise from the large number of growers with diverse farming systems involving substantial variations in the agro-climatic conditions, cropping pattern, use level of inputs, adoption of farm technologies, crop husbandry practices etc, resulting in varying crop yields and unit cost of production.

79. In order to overcome these difficulties and get the representative COP estimates for a particular crop, APCom organises a stratified large sample field surveys after every 4-5 years in major producing areas. For up-dating the input-output parameters of the cost of production of wheat, APCom conducted large field survey during June 2004 in the Punjab and Sindh. Overall 1254 wheat growers were interviewed during the survey. 871 wheat growers were randomly selected from 80 villages of 27 districts of the Punjab and 383 wheat growers from 35 dehs of 12 districts of Sindh. The design of sample survey is illustrated in Annex-VIII.

80. The cost of production for the wheat 2005-06 crop has been estimated by adopting the input-output parameters obtained from the aforesaid survey along with the latest input prices and custom hire rates of cultural operations, collected through mini field survey by the APCom during June 2005 in the major wheat producing areas of the Punjab and

Sindh. These inputs prices and custom hire rates were also supplemented with the information provided by the Provincial Governments and proceedings of the APCom's Standing Committee meeting on Wheat, held on 25th June 2005 at Islamabad. Details of COP estimates for the Punjab and Sindh are presented at Annex-IX and X, while a summary of the results is given in Table-13.

**Table-13: Average Farmer's Cost of Production of Wheat: 2004-05 and 2005-06 Crops**

| Item | Unit | 2004-05 Crop | 2005-06 Crop | Increase in 2005-06 over 2004-05 |
|---|---|---|---|---|
| **Punjab** | | | | |
| 1. Cost of cultivation | Rs/acre | 9820 | 11442 | 1162 |
| 2. Yield | Kgs/acre | 1008 | 1108 | 100 |
| 3. Cost of production at farm level | Rs/40 kgs | 390 | 413 | 23 |
| 4. Marketing cost | " | 15 | 15 | - |
| 5. Cost of production at market/procurement centre | " | | | |
| a) With land rent | | 405 | 428 | 23 |
| b) Without land rent | | 325 | 329 | 4 |
| **Sindh** | | | | |
| 1. Cost of cultivation | Rs/acre | 8372 | 9467 | 1095 |
| 2. Yield | Kgs/acre | 936 | 968 | 32 |
| 3. Cost of production at farm level | Rs/40 kgs | 358 | 391 | 33 |
| 4. Marketing cost | " | 15 | 15 | - |
| 5. Cost of production at market/procurement centre | " | | | |
| a) With land rent | | 373 | 406 | 33 |
| b) Without land rent | | 311 | 324 | 13 |

Sources: i) For 2004-05: Support price policy report, APCom Series No.212.
ii) For 2005-06 crop: Annex-IX and X.

**Punjab**

81. As per information summarized in the Table-13, the cost of cultivation of one acre of wheat in the Punjab during 2005-06 crop year, at the current prices of farm inputs and custom hire rates is expected at Rs 11442, including land rent. With the average yield of 1108 kgs per acre, farm level cost of producing wheat is worked out at Rs 413 per 40 kgs. Adding the marketing cost @ Rs 15 per 40 kgs, the market/procurement center level cost of production works out to Rs 428 per 40 kgs, reflecting an increase of Rs 23 (6 per cent) over the corresponding cost of Rs 405 in 2004-05.

**Sindh**

82. During 2005-06 crop year, cost of growing one acre of wheat is likely to be Rs 9467, inclusive of land rent. Distributing this cost over the yield of 968 kgs per acre, the farm level cost of production estimates come to Rs 391 per 40 kgs. Accounting for marketing charges @ Rs 15 per 40 kgs, the cost of producing and delivering 40 kgs wheat at the market/procurement centre would be Rs 406 per 40 kgs, representing a rise of Rs 33 (9 per cent) over the previous year's estimates worked out at Rs 373 per 40 kgs.

83. The increases in the production cost of wheat for 2005-06 crop in the Punjab and Sindh are primarily attributed to the higher costs of cultural operations and supplementary irrigation on account of rises in the prices of diesel, increases in prices of seed, chemical fertilizers and higher values of kind payments for harvesting/threshing and land rentals.

**Cost of Major Farm Inputs and Operations**

84. A comparison of the cost of major farm inputs and operations of wheat during 2004-05 versus 2005-06 crops in the Punjab and Sindh is presented in Table-14.

Table-14: **Cost of Major Farm Inputs and Operations of Wheat: 2004-05 and 2005-06 crops**

| Inputs/operations | 2004-05 crop | 2005-06 crop | Changes in 2005-06 crop over 2004-05 |
|---|---|---|---|
| | (Rs/acre) | | (Per cent) |
| **Punjab** | | | |
| 1. Land preparation | 819 (8) | 1094 (9) | 34 |
| 2. Seed and sowing operations | 1088 (10) | 1474 (12) | 35 |
| 3. Weedicides | 206 (2) | 315 (2) | 53 |
| 4. Irrigation | 1972 (18) | 1562 (13) | (-) 21 |
| 5. Fertilizers including FYM | 1990 (18) | 2260 (18) | 14 |
| 6. Land rent | 2000 (19) | 2750 (22) | 38 |
| 7. Harvesting and threshing | 2078 (19) | 2353 (19) | 13 |
| 8. Others | 667 (6) | 634 (5) | (-) 5 |
| 9. Total cost of cultivation | 10820 (100) | 12442 (100) | 15 |
| **Sindh** | | | |
| 1. Land preparation | 1110 (12) | 1267 (12) | 14 |
| 2. Seed and sowing operations | 1194 (13) | 1282 (12) | 7 |
| 3. Interculture and weedicides | 232 (3) | 223 (2) | (-) 4 |
| 4. Irrigation | 663 (7) | 784 (8) | 18 |
| 5. Fertilizers including FYM | 1927 (21) | 2252 (22) | 17 |
| 6. Land rent | 1450 (16) | 2000 (19) | 38 |
| 7. Harvesting and threshing | 1940 (21) | 2001 (19) | 3 |
| 8. Others | 679 (7) | 658 (6) | (-) 3 |
| 9. Total cost of cultivation | 9197 (100) | 10467 (100) | 14 |

Notes: i) Others include mark-up, management charges, land tax and drainage cess.
ii) Figures in parenthesis are per cent share in total cost of cultivation.

**Punjab**

85. In overall cost of cultivation of wheat in the Punjab during 2005-06 crop year, land rent is the major component, accounting for 22 per cent. The other important constituents are: Harvesting and threshing (19 %), fertilizers including FYM (18 %), irrigation (13 %), seed and sowing operations (12 %) and land preparation (9 %).

**Sindh**

86. The fertilizers including FYM is the major constituent of the cost of cultivation of wheat in Sindh during 2005-06 crop season, accounting for 22 per cent. The other important components are: Harvesting/threshing and land rent (19 % each), seed/ sowing operations and land preparation (12 % each) and irrigation (8 %).

**Prices of Major Farm Inputs**

87. The average market prices of the major farm inputs used in estimating cost of production of wheat 2005-06 crop are given below:

| Items | Units | Punjab | Sindh |
|---|---|---|---|
| 1. HSD | Rs/litre | 31.81 | 31.81 |
| 2. Power tariff | Rs/kwh | 2.98 | 2.98 |
| 3. Seed | Rs/kg | 17 | 20 |
| 4. Fertilizers | | | |
| 4.1 DAP | Rs/bag | 1037 | 1010 |
| 4.2 Urea | " | 490 | 488 |
| 4.3 NP | " | 707 | 723 |

## 8.6 Nominal and Real Support Price of Wheat: 1999-00 to 2004-05

88. It is the policy of the government to annually review and announce support price well before sowing time so that wheat growers may decide their area under wheat cultivation. To ascertain overtime changes in the purchasing power of wheat, the nominal support prices from 1999-00 to 2004-05 crops were deflated by the Consumer Price Index (CPI) the most common measure of inflation. The results are given in Table-15 and also shown in Figure-4.

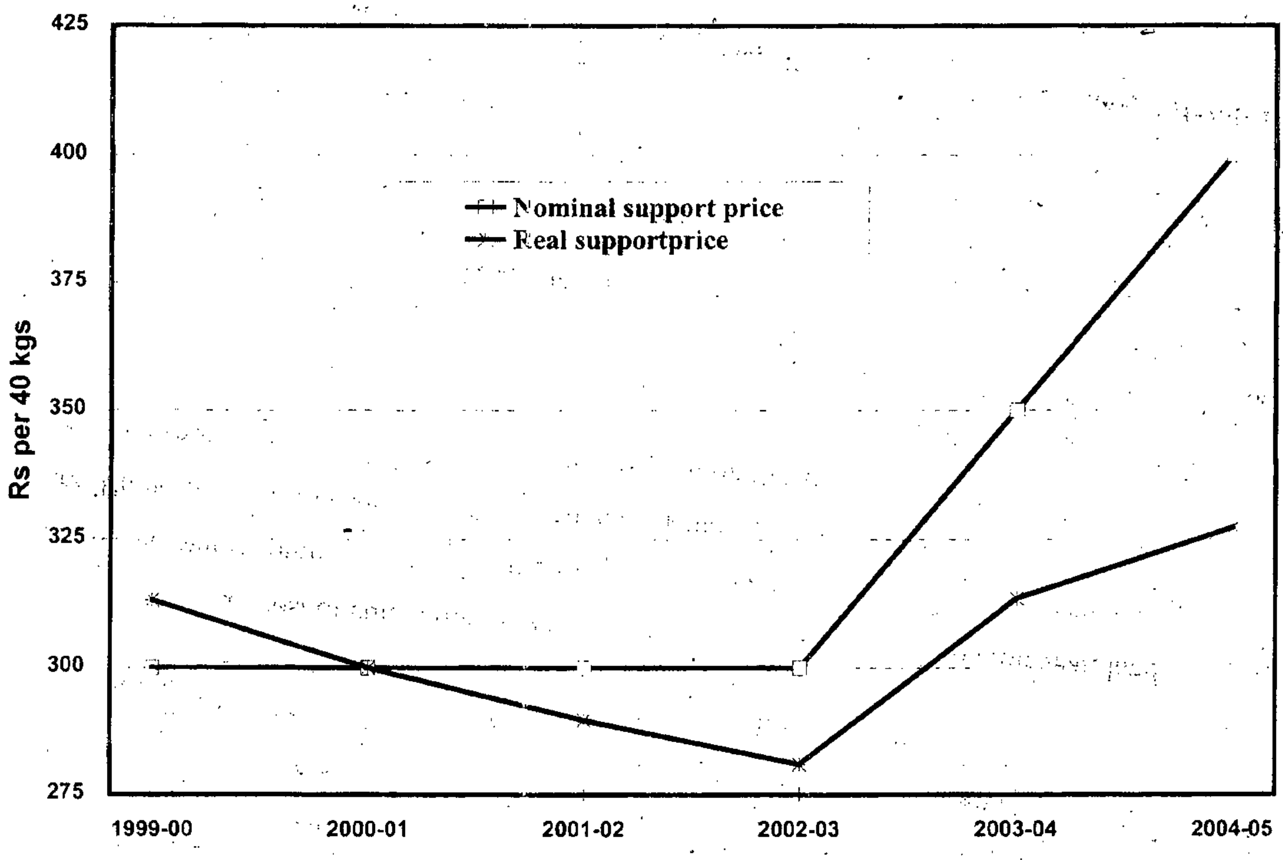


Fig. - 4 : Nominal and Real Support Prices of Wheat : 1999-00 to 2004-05 Crops.

**Table-15: Nominal and Real Support Prices of Wheat: 1999-00 to 2004-05**

| 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 | |
| 1999-00 | 95.78 | 300.00 | 313.22 |
| 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 | 122.23 | 400.00 | 327.25 |

Source: For CPI, Economic Survey of Pakistan: 2004-05.

89. It may be seen from Table-15 that the nominal support price of wheat during the period of 1999-00 to 2004-05 reflected an overall increase of 33.33 per cent i.e. from Rs 300 per 40 kgs in 1999.00 to Rs 400 in 2004-05. During the same period, the CPI has spiraled by 28 per cent. Consequently, the real support price of wheat in 2004-05 crop year, estimated at Rs 327.25 per 40 kgs in terms of 1999-00 rupees, shows an improvement of 4.5 per cent over the corresponding price in 1999-00. However, the real support price has experienced ups and downs during the period under review touching the lowest level of Rs 281.03 in 2002-03 and highest of Rs 327.25 in 2004-05 crop.

### 8.7 Comparative Economics of Wheat and Competing Crops

90. 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.

91. The economics of wheat and competing crops has been analysed in terms of input-output prices paid and received by the growers for the 2004-05 crops. The details of the analysis are provided in Annex XI. A summary of the relevant economic indicators emerging from the analysis is presented in Table-16.

**Punjab**

92. The economics of wheat farming has fallen much below the oilseeds like sunflower and canola during the 2004-05 crop season. It is primarily because of lucrative prices of sunflower and canola received by the growers during the current season. In case of oilseeds, the market prices have been quite remunerative for the oilseed farmers. Accordingly, the economic position of wheat has been quite inferior to both sunflower and canola in most of the criteria used in this exercise. However, wheat farming has performed better than canola in respect of gross revenue per day of crop duration. Wheat cultivation has also an edge over sunflower in view of gross returns to irrigation water. Between sunflower and canola , canola remains an attractive proposition in terms of most of the criteria.

**Table-16: Economics of Wheat and Competing Crops at Prices Realized by the Growers: 2004-05 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 | 1.00 | 2.24 | 62.68 | 663.65 |
| 2. Sunflower (spring sown) | 1.23 | 3.63 | 71.25 | 466.36 |
| 3. Canola | 1.48 | 4.82 | 48.02 | 775.77 |
| 4. Basmati+Wheat | 1.07 | 2.12 | 66.78 | 320.56 |
| 5. IRRI+Wheat | 0.99 | 1.98 | 56.89 | 259.25 |
| 6. Cotton+Wheat | 1.03 | 2.29 | 63.88 | 687.97 |
| 7. Cotton+Sunflower | 1.11 | 2.71 | 67.21 | 586.57 |
| 8. Sugarcane | 0.99 | 2.90 | 49.85 | 409.15 |
| **Sindh** | | | | |
| 1. Wheat | 1.07 | 2.56 | 55.67 | 668.07 |
| 2. Sunflower (spring sown) | 1.30 | 3.81 | 74.79 | 489.55 |
| 3. Canola | 1.30 | 4.24 | 42.27 | 682.85 |
| 3. IRRI+Wheat | 1.28 | 2.96 | 62.71 | 317.96 |
| 4. Cotton+Wheat | 1.09 | 2.60 | 56.47 | 718.76 |
| 5. Cotton+ Sunflower | 1.19 | 3.05 | 63.72 | 611.70 |
| 8. Sugarcane | 1.05 | 2.74 | 49.43 | 339.72 |

Source: Annex-XI.

93. In case of indirect competition with sugarcane, all the wheat combinations compare favourably with sugarcane in respect of output-input ratio. The cotton+wheat combination outperforms sugarcane in most of the economic criteria except gross returns to purchased inputs. The basmati+wheat rotation performs better than sugarcane in terms of gross returns to overall investment and crop duration, while sugarcane outcompetes in terms of gross returns to purchased inputs and irrigation water. However, the IRRI+wheat enterprise does not favourably compete with sugarcane. Among the crop combinations, cotton +sunflower generally outperforms the wheat combinations.

**Sindh**

94. In Sindh too, wheat farming did not compare favourably with competing crops of sunflower and canola during the 2004-05 crop season. The oilseeds have a distinct edge over wheat in most of the economic criteria adopted in the current analysis. However, wheat performs better than canola in respect of gross returns to crop duration. Wheat also has an edge over sunflower in terms of gross returns to irrigation water (Table-16).

95. In case of indirect competition with sugarcane, all the wheat combinations have an edge over sugarcane in terms of gross returns to overall investment as manifest by output-input ratio. The cotton+wheat combination performs better than sugarcane in respect of gross returns to overall investment, crop duration and irrigation water but falls below in view of returns to purchased inputs. IRRI+wheat rotation is also a better proposition than sugarcane in most of economic criteria used in this analysis. However, sugarcane has an edge over IRRI+wheat combination in view of gross returns to irrigation water. Among the crop combinations, cotton+sunflower generally outcompetes the wheat combinations.

### 8.8 Economic Efficiency in Wheat Production

96. Wheat is not only the staple food but also the largest crop in terms of its area, production and value addition in Pakistan. Its production, annually, 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. Under the WTO regime domestic crop production in general and wheat in particular has become a challenging issue. The more direct question is whether Pakistan has comparative advantage in producing wheat? To answer this question the Agricultural Prices Commission has estimated and examined the three commonly used economic efficiency parameters viz. Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC), and Domestic Resource Cost Coefficient

(DRC) in the context of wheat farming. These efficiency parameters, also called measures of protection, are described below:

97. The estimation of NPC, EPC and DRC is based on the detailed data of 'average' farmer's COP and import/export price of wheat as used in the APCom's price policy reports. Fluctuations in the input/output prices both in the domestic as well as international markets are ultimately reflected in the efficiency coefficients mentioned above. Accordingly, to ascertain the impact of price fluctuations the efficiency parameters have been calculated for the period from 1999-00 to 2004-05 crop years. Data on private and social profitability for these years are given at Annexes-XII to XIII.

98. An examination of various parameters presented in the annexes does not suggest cultivation of wheat an economic proposition for the farmers, since total costs involved in the use of tradable and non-tradable inputs in wheat farming are not covered by the gross revenues ,evaluated at the prices actually received by the growers. The unit cost of production has been higher than the prices of wheat received by the farmers. The market prices in the post harvest period of 2000-01 and 2001-02 crop years also fell below the support prices fixed by the Government. During the year 2002-03 post-harvest prices of wheat prevailed very close to the support price of wheat Rs. 300 per 40 kgs. However, during the current year farmers have invariably received higher prices than fixed by the government. On an average, wheat cultivation in farmers perspective has not been profitable during the period under analysis.

### 8.8.1 Nominal Protection Coefficient (NPC)

99. The NPC, estimated by dividing domestic output prices by social prices i.e. import/export parity prices, 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 enjoy 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 ~~being taxed~~. Taxation of producers entails resource transfer to other sectors which acts as a disincentive.

100. The examination of the nominal protection coefficients (NPCs) given below reveals that under importing scenario wheat production all along during the period under review 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 during the period from 1999-2000 to 2002-03 implicit taxation has been on the rise as domestic producer prices in the wake of comfortable stock position have fallen. However, domestic market prices improved in 2003-04 which reduced the extent of implicit tax in the subsequent years.

| Year | NPCs |
|---|---|
| 1999-00 | 0.81 |
| 2000-01 | 0.70 |
| 2001-02 | 0.67 |
| 2002-03 | 0.65 |
| 2003-04 | 0.80 |
| 2004-05 | 0.74 |
| Average | 0.73 |

### 8.8.2 Effective Protection Coefficient (EPC)

101. It is the ratio of the difference between the revenue and tradeable 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 EPCs take 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.

102. EPC is the indicator of the net incentive or disincentive effects of all policies affecting prices of tradable outputs and inputs. EPC greater than one means that private profit is higher than it would be without government interventions in input - output markets. EPC less than one indicates that net effect of policies that change prices of tradable inputs

and outputs is to reduce private profits. In the former case the domestic production of a commodity is being subsidized and encouraged whereas in the latter situation opposite is the case.

103. A perusal of the effective protection coefficients in wheat farming estimated under import situation, given below, also reinforces the conclusions drawn above from the examination of nominal protection coefficients above. The effective protection coefficient in wheat production decreased from 0.66 in 1999-00 to 0.41 in 2002-03. However, in the subsequent years due to increased prices of wheat in domestic market and simultaneously increased input prices have led the EPC to rise implying a reduction in implicit tax

| **Year** | **EPC** |
|---|---|
| 1999-00 | 0.66 |
| 2000-01 | 0.52 |
| 2001-02 | 0.43 |
| 2002-03 | 0.41 |
| 2003-04 | 0.59 |
| 2004-05 | 0.53 |
| Average | 0.48 |

104. The economics of wheat cultivation when evaluated at social prices i.e. import parity prices has been a viable proposition as long as the country remained deficit in its production and relied on imports to bridge the gap between demand and supply.

### 8.8.3 Domestic Resource Cost (DRC)

105. The Domestic Resource Cost (DRC) 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. DRC coefficient greater than one indicates a 'comparative disadvantage' in domestic production as the cost associated with domestic production of the commodity under consideration 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 of the given product.

106. The domestic resource cost coefficients (DRCs) in wheat production calculated at the import parity prices are less than one which suggest that the resource cost of domestic production is less than the corresponding import costs, indicating a comparative advantage in domestic production and import substitution. The domestic resource cost coefficients have declined from 0.61 in 1999-00 to 0.47 in 2004-2005. This implies that earning foreign exchange of US $ 1 required domestic resources of worth US $ 0.61 in 1999-00 which has fallen to US $ 0.47 in 2004-05 due to higher international prices of wheat.

| **Year** | **DRC** |
|---|---|
| 1999-00 | 0.61 |
| 2000-01 | 0.56 |
| 2001-02 | 0.52 |
| 2002-03 | 0.48 |
| 2003-04 | 0.52 |
| 2004-05 | 0.47 |
| Average | 0.48 |

107. It would be an economical proposition for the country to invest in the wheat production and marketing to maintain hard earned self-sufficiency in 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 2001-02 to 2004-05 crops in major wheat producing countries are presented in Table-17.

110. While comparing the producer prices of a commodity across the countries, following differences 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;

**Table-17: Minimum Guaranteed Producer Prices of Wheat in Selected Countries: 2001-02 to 2004-05 Crops**

| Country | 2001-02 | | 2002-03 | | 2003-04 | | 2004-05 | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | US $/ Tonne | Pak Rs/ 40 kgs | US $/ Tonne | Pak Rs/ 40 kgs | US $/ Tonne | Pak Rs/ 40 kgs | US $/ Tonne | Pak Rs/ 40 kgs | |
| Australia [1)] | 111 | 265 | 112 | 258 | 105 | 245 | 147 | 352 | Guaranteed Pool Return for ASW. |
| Brazil | 78 | 186 | 98 | 226 | 120 | 280 | 126 | 302 | Minimum price for type 1 superior quality wheat |
| Canada [2)] | 111 | 265 | 110 | 254 | 136 | 317 | 120 | 288 | Initial guaranteed payment for No.1 CWRS 13.5%. |
| EU | 99 | 237 | 96 | 222 | 114 | 266 | 126 | 302 | Basic Intervention price |
| India | 129 | 308 | 133 | 307 | 138 | 322 | 147 | 352 | Minimum support price |
| USA [3)] | 112 | 268 | 122 | 281 | 120 | 280 | 120 | 288 | National average loan rate + Direct payments. |
| Pakistan | 125.5 | 300 | 130 | 300 | 150 | 350 | 167 | 400 | Support price |

Sources:

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

Notes:

1. In Australia, estimated No.1 Pool Return for Premium White for 2004-05 crop.
2. In Canada, additional payments are also made in view of returns from market operations.
3. In USA, counter-cyclical payments are also made whenever the effective price is less than target price.
4. The exchange rates are those as applicable during the post-harvest period of wheat crop in Pakistan. These are Pak Rs 59.75, Rs 57.68, Rs 58.35 and Rs 59.92 per US $ for 2001-02 to 2004-05 crops, respectively.

### 8.10 Parity Between Prices of Fertilizers and Wheat

111. The use of chemical fertilizers has played a significant role in enhancing production of wheat in the country. However, its use is greatly influenced by the relationship between prices of wheat and the fertilizer applied. This relationship generally termed as fertilizer wheat price ratio, indicates the units of wheat needed to buy one unit of a given fertilizer nutrient. The higher ratio indicates lower purchasing power of wheat

and vice versa. To reflect the overtime changes in purchasing power of wheat in terms of fertilizers, price parity ratios have been estimated for the period from 1995-96 to 2004-05 and discussed below:

**Table-18: Parity Between Market Prices of Fertilizers and Wheat: 1995-96 to 2004-05**

| Crop year | Price of fertilizer | | Market price of wheat | Units of wheat needed to buy one unit of fertilizer | |
|---|---|---|---|---|---|
| | N | P | | N | P |
| | ------------Rs/tonne------------ | | | | |
| 1995-96 | 10870 | 15312 | 4738 | 2.29 | 3.23 |
| 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 | 15181 | 7750 | 2.31 | 3.25 |
| 2003-04 | 18000 | 28740 | 9625 | 1.87 | 2.99 |
| 2004-05 | 19565 | 31474 | 10800 | 1.81 | 2.91 |

Note: The prices of Urea as used in working out COP estimates for Punjab and Sindh for relevant crop years were used to work out prices per nutrient tonne of nitrogen.

Source: APCom's Support Price Policy Reports on Wheat

112. The data presented in Table-18 indicate that the parity ratio between market prices of nitrogen and wheat estimated at 2.29 for 1995-96 improved in favour of wheat during 1996-97 when 2.03 units 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. However, in 1999-00 market price of wheat increased by 25 per cent whereas prices of nitrogen experienced a decrease of 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 the last two years prices of N fertilizer though increased significantly but wheat

prices increased in higher proportion which improved the parity ratio in favour of wheat. This situation if sustained may enhance the use of N on wheat crop.

113. In case of phosphatic fertilizers, the data given in Table-18 reveal that during 1995-96, 3.23 units of wheat were needed to purchase one nutrient unit of phosphatic fertilizer. However, in the subsequent years parity between prices of phosphatic fertilizers and that of wheat remained fluctuating between 2.68 to 3.43. In the current crop year, purchasing power of wheat has improved due to remunerative prices of wheat in the market. Continued this crop favouring parity ratio, use of phosphatic fertilizer may increase on wheat crop.

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

114. Wheat and wheat products constitute a major component in an average household budget. Any change in the prices of wheat and related items impacts on the family's budget. These items are also important components of the basket of goods used for estimating Consumer Price Index (CPI), it is, therefore, necessary to analyse the impact of variations in the support price of wheat on the average household's expenditure and the CPI while considering various price policy options. The details of analysis are presented in Annex-XIV while a summary of the results in provided in Table-19. The findings of the analysis are discussed as under:

#### 8.11.1 Impact on CPI

115. The Federal Bureau of Statistics (FBS) has calculated the impact on the CPI resulting from selected increases in the support price of wheat over the existing level of Rs 400 per 40 kgs in 2004-05 crop. The impact of increases in 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's 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 ----------- | |
| 400 (for 2004-05 crop) | | | |
| 404 | 0.05 | 12 | 84 |
| 408 | 0.12 | 24 | 167 |
| 412 | 0.16 | 35 | 243 |
| 416 | 0.22 | 47 | 327 |
| 420 | 0.28 | 59 | 411 |
| 424 | 0.34 | 71 | 494 |
| 428 | 0.38 | 83 | 578 |
| 432 | 0.45 | 94 | 654 |

Note: The average size of household comprises 6.96 members.

Sources:
1. Federal Bureau of Statistics, (FBS), Karachi.
2. Annex-XIV.

116. 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 400 per 40 kgs is expected to raise the CPI by 0.05 per cent, other things remaining the same. Accordingly, the CPI is likely to increase by 0.28 per cent if wheat support price is increased by Rs 20 (from Rs 400 to 420) per 40 kgs, and by 0.45 per cent if the support price is raised by Rs 32 (from 400 to 432) per 40 kgs.

117. The above analysis is predicted on the assumption that prices of wheat flour would increase in the same proportion as that of wheat. Moreover, increases in the CPI tabulated 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

118. According to Household Integrated Economic Survey (HIES) 2001-02, by FBS, the average household in Pakistan consist of 6.96 members. The annual per capita availability of wheat based on the balance sheet method averages at 118 kgs during 2002-03 to 2004-05. In view of per capita availability @ 118 kgs per annum and average household size of 6.96 members, the impact of selected increases in support price of wheat on the average household's expenditure has been detailed in Annex-XIV and summarized in Table-19.

119. Table-19 indicates that every increase of Rs 4 per 40 kgs in the support price of wheat is estimated to push up the per head expenditure by Rs 12 per year or by Rs 84 per year of average household, holding other factors 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 400 per 40 kgs would result in an additional expenditure of Rs 34.25 per month (Rs 411 per year). Similarly, if support price is enhanced to Rs 432 per 40 kgs from Rs 400 per 40 kgs, this will result in an additional expenditure of Rs 94 per person per year and Rs 654 per household assuming average per head consumption of 118 kgs per annum. The above results are premise on the assumption that increases in support price of wheat are proportionately reflected in prices of wheat flour and other wheat products.

## 9. CONSULTATION

120. Annual meeting of the Agricultural Prices Commission's Standing Committee on Wheat was held at Islamabad on June 25, 2005. 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 environment also engaged the attention of the committee. 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. Though happy about the prices of wheat in the current year, 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

121. The domestic wheat production is estimated at 21.19 million tonnes during 2004-05, reflecting a rise of 8.7 per cent over 19.50 million in the last year. The rise in production primarily attributed to 7.2 per cent improvement in yield, as the wheat acreage has expanded only by 1.3 per cent.

122. World production of wheat estimated at 625 million tonnes in 2004-05 is forecast to decline to 604 million in 2005-06 against the likely consumption of 608 million tonnes. The closing stocks in 2005-06 are reported to fall to 133 million tonnes from 137 million in 2004-05. However, the global trade in wheat is reported to slightly rise to 108 million tonnes from 106 million.

123. According to the International Grains Council, London, the international prices of wheat have experienced several fluctuations during the period under review, touching the lowerst level of US $ 112 per tonne in 1999-00 and the highest of US $ 199 per tonne in 1995-96. The world prices have averaged at US $ 145 per tonne in 2004-05. In view of the lower production, declining stocks and falling ratio of stocks to consumption, the prices of wheat in international markets may increase further.

124. Based on the analysis of relevant factors in the main text of this Report, the likely pricing options for wheat, 2005-06 crop are summarized below:

| Base | Likely price of domestic wheat at procurement centre<br>Rs per 40 kgs |
|---|---|
| **1. Import parity price on the basis of:** | |
| a) Average fob (Pacific) quoted prices of US western white wheat during 2004-05, if consumed at: | |
| - Karachi | 457 |
| - Lahore | 544 |
| b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if consumed at: | |
| - Karachi | 429 |
| - Lahore | 516 |
| **2. Export parity price on the basis of:** | |
| a) Average fob (Pacific) quoted prices of US western white wheat during 2004-05, if exported from Multan | 271 |
| b) Average fob (Pacific) quoted prices of US western white wheat during 2000-01 to 2004-05, if exported from Multan | 253 |
| **3. Monthly average wholesale market prices of wheat in producing area markets during post-harvest of 2004-05 crop:** | |
| - Punjab | 423 |
| - Sindh | 408 |
| **4. Cost of production at market/procurement level for 2005-06 crop:** | |
| - Punjab | 428 |
| - Sindh | 406 |

125. The wholesale market prices of wheat during the post-harvest period of 2004-05 crop were reported in the range of Rs 407 to Rs 440 per 40 kgs in the major producing area markets of the Punjab and of Rs 392 to Rs 432 per 40 kgs in Sindh.

126. The market/procurement level cost of production of wheat for the 2005-06 crop at the current inputs prices is estimated at Rs 428 per 40 kgs, up by 6 per cent over the last year. The corresponding COP estimate in Sindh comes to Rs 406 per 40 kgs, exceeding the last year by 9 per cent.

127. The market prices of wheat have been quite remunerative during the 2004-05 crop season which is likely to encourage acreage expansion and better input management in wheat farming. High production in the coming year may necessitate government intervention to stabilize producer prices, particularly during the post-harvest. Advance planning in this context will be helpful.

128. The Commission strongly feels that the country should work hard to maintain its self sufficiency in wheat which currently seems at the margin. In view of the foregoing situation, the commission recommends to enhance the support price of wheat to Rs 425 per 40 kgs for the 2005-06 crop. The actual incentive to the farmers should come through the market forces. In this context, the government policy of encouraging the role of private sector in wheat marketing, which has proved worth in the couple of years, should be continued.

129. 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

130. Before 2001-02, the government used to fix the uniform issue price of wheat for whole year for wheat supplied to flour mills from its stocks. This uniform price did not cover the full costs incurred on storage and marketing or borne unforeseen losses,

shortages etc. Resultantly, the government had to bear huge amount of losses in shape of subsidy on supply of wheat during the year. For example during 1999-2000, the provincial governments had to bear the burden of subsidy as high as Rs. 8068 million on domestic wheat besides the federal government subsidy of Rs. 923 million paid on imported wheat. 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 has been fixing the cascading issue prices since 2001-02. For 2004-05, the issue prices were fixed as under:

| Month | Rs per 40 kgs |
|---|---|
| September – October | 380 |
| November – December | 386 |
| January – February | 392 |
| March-April | 398 |
| Average | 389 |

131. Against the support/procurement price of Rs. 350 per 40 kgs, the average issue price of wheat has been Rs. 389 per 40 kgs, which covered most of the procurement incidentals, storage cost and other such overhead charges of procurement agencies. The PASSCO and the Punjab Food Department have not reported any subsidies paid on wheat procured during 2004-05. Similarly, the federal government has also not paid subsidy on wheat during last year.

132. The removal of subsidy and subsequent increase in wheat prices have hit hard the low income groups, particularly the population living in far flung areas of the country i.e. Northern Areas, FATA etc. They need to be compensated through the social programme of food stamps and subsidy in transportation of wheat.

## 12. MARKETING OF WHEAT

133. During the past many years, in the post harvest months the inter district and inter provincial movement of wheat was restricted by imposing Section 144 by the administration of wheat producing districts. This measure was meant to facilitate the procurement by provincial Food Departments and the federal agency PASSCO. It has been increasingly recognized that such restrictions are detrimental for the farming community in the wheat surplus areas and for the consumers in deficit regions. In this respect the government has changed its policy in the post harvest season of 2004-05 crop. The government has removed restrictions on wheat movement and encouraged the wheat purchases by traders and flour mills for improving welfare of the producers and consumers. Simultaneously, the Government has provided credit line from banks to the private sector flour mills for purchase of wheat at the same interest rate which is chargeable to the public sector procurement agencies.

134. Due to this significant change in policy and facilities provided to private sector, the traders have purchased and stored much more quantities of wheat than purchased in the past years. It has been reported in the press that traders have purchased and stocked about 2 million tonnes of wheat uptill now which has surely lessened the burden on public sector agencies which procured 3.93 million tonnes. The growers have received reasonable prices of their produce, despite the fact that they have produced 21.19 million tonnes of wheat and there were chances of prices to crash in the open market.

135. APCom conducted a mini field survey in June, 2005 in the main producing areas of Punjab and Sindh. On the basis of survey results and discussions in the Standing Committee meeting held on 25th June 2005, the wheat marketing situation was reviewed and the important points are described below:

### 12.1 Wheat Procurement Targets and Achievements

136. For the procurement of wheat from 2004-05 crop through Provincial Food Departments and PASSCO, the Federal Government had fixed target at 4.73 million tonnes. Agency-wise targets alongwith their achievements are shown in Table-20.

**Table-20: Procurement Targets and Achievements: 2004-05 Wheat Crop**

| Province/agency | Target | Achievement | Achievement as per cent of target |
|---|---|---|---|
| | --------- Million tonnes ------ | | Per cent |
| **Pakistan** | **4.73** | **3.93** | **83.09** |
| - Provincial Food Departments | 3.53 | 2.93 | 83.00 |
| - PASSCO | 1.20 | 1.00 | 83.33 |
| **Punjab** | **4.10** | **3.40** | **82.93** |
| - Food Department | 3.00 | 2.43 | 81.00 |
| - PASSCO | 1.10 | 0.97 | 88.18 |
| **Sindh** | **0.58** | **0.52** | **89.66** |
| - Food Department | 0.50 | 0.50 | 100 |
| - PASSCO | 0.08 | 0.02 | 25.00 |
| **Balochistan** | **0.06** | **0.009** | **15.00** |
| - Food Department | 0.03 | 0.00 | 0.00 |
| - PASSCO | 0.03 | 0.009 | 30.00 |

Note: Procurement upto 19-6-2005.
Source: MINFAL.

137. The PASSCO and Provincial Food Departments started procurement operation at the end of March 2005. Upto 19th June 2005, 3.93 million tonnes of wheat (83.09 per cent

of target) were procured. Out of that 2.93 million tonnes have been procured by provincial food departments and one million tonnes by PASSCO.

138. In the Punjab, the procurement has been 3.40 million tonnes which is about 82.93 per cent of the target of 4.1 million tonnes. Out of that PASSCO has procured 0.97 million tonnes against the target of 1.1 million tonnes while Food Department Punjab procured 2.43 million tonnes against the target of 3 million tonnes. Whereas in Sindh 0.52 million tonnes wheat has been procured by the Government agencies against the target of 0.58 million tonnes which is 89.66 per cent of the target. The Food Department Sindh has procured 0.50 million tonnes wheat and has achieved 100 per cent target whereas PASSCO achieved only 25 per cent target by procuring 0.02 million tonnes against its target of 0.08 million tonnes for that province. In case of Balochistan, only a small quantity of 8.8 thousand tonnes was procured by PASSCO, while no procurements has been made in the NWFP.

139. During 2004-05 (April- June), prices in the main producing area markets averaged at Rs 417 per 40 kgs against the support price of Rs 400/-. Procurements in 2004-05 were slightly higher (0.47 million tonnes) than the last year, although production has improved by 1.69 million tonnes over the past year. Inspite of good crop of 21.19 million tonnes, the farmers have not faced any considerable marketing problems in disposal of their produce. The average prices received by farmers ranged from Rs 407 to Rs 436 per 40 kgs during April to June 2005 in Punjab and Rs 392 to Rs. 432 per 40 kgs in Sindh. Such a reasonable prices have been received by farmers because about 4 million tonnes of wheat has been procured by PASSCO and provincial Food Departments, and about 2 million tonnes by private sector.

**Table-21: Production, Procurement, Market Prices and Support Prices of Wheat: 1997-98 to 2004-05**

| Crop year (May-April) | Production | Procurement | 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 | 8.58 | 41.98 | 300 | 295 |
| 2000-01 | 19.02 | 4.08 | 21.45 | 300 | 275 |
| 2001-02 | 18.23 | 4.05 | 22.22 | 300 | 292 |
| 2002-03 | 19.18 | 3.51 | 18.30 | 300 | 311 |
| 2003-04 | 19.50 | 3.46 | 17.74 | 350 | 384 |
| 2004-05 | 21.19 | 3.93 | 18.55 | 400 | 417 ** |

Notes: * 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, Hyderabad, Mirpur khas, Sanghar and Nawabshah markets during post-harvest period (April to 10 June 2005).

Sources:

1. For production and procurement: MINFAL, Islamabad.

2. For market prices:

- ALMA, Karachi for Hyderabad,
- Nawab shah and Mirpur khas Market Committees of their respective Districts.
- Provincial Directorate of Agriculture (E&M), Punjab, Lahore.

140. The procurement of wheat in relation to the production from 1997-98 to 2004-05, alongwith respective support and average market prices in these years, is given in Table-21. During the period under review, wheat production has ranged from 17.86 to 21.19 million tonnes, and procurement between 3.46 and 8.58 million tonnes. The wheat procurements by the support price implementing agencies have varied from 17.74 to 41.98 per cent of the corresponding production.

### 12.2 Prices Received by Farmers

141. According to the APCom's field survey of Punjab and Sindh, the prices of wheat received by growers were quite satisfactory during the post harvest months of 2004-05 crop. The minimum guaranteed (or support) price of wheat was Rs 400 per 40 kgs at procurement centre whereas the growers received mostly wheat prices equal to or higher than the support price even at village level.

142. The survey revealed that in wheat producing areas of Sindh, the farm level prices ranged between Rs 395 to 407 per 40 kgs except in the districts of Mirpurkhas and Nawabshah where the farmers sold wheat in the range of Rs 380 – 385 per 40 kgs in April 2005. However, during May and June the prices showed considerable improvement and were recorded from Rs 390 to 415 per 40 kgs at farm/village level in these districts. As regard the wheat producing districts of upper Sindh, wheat prices received by farmers were never below the support prices throughout the post-harvest season. Resultantly, the growers sold 60 per cent of their marketable surplus just after harvesting the crop.

143. In case of Punjab, the prices of wheat received by growers were quite above the support price level and were recorded at Rs 407 to Rs 420 per 40 kgs at village level in the month of March 2005. During April due to abundant production, the farm/village level prices declined but hovered around or above the support price of Rs 400 per 40 kgs. Then there was a notable increase in the farm/village level prices during June 2005 and were recorded in the range of Rs 410 to 422 per 40 kgs in the districts of Gujranwala, Lahore, Multan, Vehari and Bahawalnagar.

## 13. MEASURES FOR IMPROVING WHEAT PRODUCTIVITY AND MARKETING

### 13.1 Improving Productivity

144. Average wheat yields in the country ranging from 2 to 2.5 tonnes per hectare are much below the potential as indicated by the yield obtained by the progressive farmers who are reported to harvest over 5 tonnes of wheat per hectare. As the land faces competition from non-farm uses, there is not much scope for expanding wheat area in the short run. To meet the ever-increasing requirements of domestic population, it is imperative to increase per hectare yield through measures discussed below:

#### 13.1.1 High Yielding Varieties (HYVs)

145. Some of the high yielding varieties of wheat recommended for early and late planting with yield potential ranging from 5 to 7 tonnes per hectares are presented in Table-22.

**Table-22: Recommended Varieties and their Yield Potentials**

| Variety | Yield Potential (Kg/hectare) | Suitability |
|---|---|---|
| Pasban 90 | 6500 | Early salin area |
| Inqlab 91 | 6800 | General cultiver |
| Kohistan 97 | 6100 | Barani areas |
| Chakwal 97 | 5500 | Barani areas |
| Auqab 2000 | 6900 | General cultiver |
| Iqbal 2000 | 5500 | Late sowing |
| A S 2002 | 7000 | Early sowing |
| S H 2002 | 6900 | Early sowing |

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

146. Of these, Inqlab-91 dominates in terms of area solely occupying over 60 per cent of the area cropped with wheat in the Punjab province. In other provinces also Inqlab-91 is grown extensively. Cultivation of a single variety on such a large scale may pose a

serious threat to food security in case of failure of the variety. Reports have been received about attack of rusts and aphids etc. on this variety incurring significant yield losses. The 2004-05 crop received heavy showers of rain during the months of March and April, 2005 which caused significant yield losses in some areas. Due to heavy rains, vegetative growth increased, later causing lodging of the plants is some areas due to wind and hail storms. The field survey conducted in May-June have also confirmed the yield losses due to lodging. The situation calls for concerted efforts for development of varieties resistant to rusts followed by seed multiplication for diversification.

### 13.1.2 Improved Seed

147. Quality seed of improved varieties is the key to enhance agricultural productivity. To maintain the vigour of improved seed of wheat at farmer's field, experts recommend a 5 years cycle for replacement i.e. 20 per cent of the total area under this crop should be sown with certified improved seed every year. To ascertain the situation data regarding seed requirements and supplies for the years 2000-01 to 2004-05 have been reviewed and discussed below. The details regarding actual requirement and availability of improved seed of wheat are given in Annex-XV.

148. The data provided in Annex-XV indicate that supply position of certified seed at country level and Punjab has been satisfactory. However, in other provinces the distribution of improved seed has been very much disappointing during the period under analysis.

### 13.1.3 Seed Bed Preparation and Timely Sowing

149. To minimize the yield losses caused by the above factors, the APCom in consultation with the experts has suggested several measures in its previous price policies for wheat crop which are being reiterated as follows:

a) Managing the last irrigation to kharif crops so that the soil moisture is at optimum condition at the time of harvesting those crops.

b) Planting wheat in standing cotton with last irrigation in such areas where this practice has been successful.

c) Drilling the seed and fertilizer so as to get maximum plant population as well as return to fertilizer use.

d) Increasing the seed rate in case of late sown crop so as to partially overcome the effect of late sowing.

e) Selecting medium and short duration varieties of wheat for planting after kharif crops. For this purpose, the supply of seed of varieties suitable for late planting should be increased.

f) Using recommended doses of N&P fertilizers.

### 13.1.4 Weed Control

150. Weeds infestation a serious threat to wheat yield in the country can be controlled through adoption of proper crop rotation, cultural and chemical control measures. However, results of the field surveys have revealed that use of bar harrows (cultural practices) and crop rotation are not widely practiced for weed control by growers who prefer to use chemicals. Farmers have frequently complained about the poor quality and low efficiency of the weedicides. In view of the above situation following measures are suggested.

a) Growers should be apprised of the benefits of weed control and the methods and materials in this context including cultural control through bar harrow and crop rotation where it is possible.

b) Efficiency of weedicides needs to be increased both through improving the quality of existing products as well as introduction of new chemicals which are cheap, effective and can be applied under varied soil moisture conditions.

### 13.1.5 Proper and Balanced Use of Fertilizer

151. The crop response to fertilizers has declined overtime due to imbalance in the use of nutrients i.e. higher doses of nitrogenous fertilizer with little or no application of P and other micro nutrients. According to statistical data on fertilizer use (Table-23) reveal that against recommended ratio of 2:1 the ratio between N and P applied during rabi 1994-95 was 3.2:1 which widened to 4.1:1 in 1998-99. The NP ratio improved to 2.8:1 in 2002-03 but it again rose to 3.2 in 2004-05.

**Table-23: Off-take of N & P Fertilizers During the Rabi Season in Pakistan: 1995-96 to 2004-05**

| Year | Nitrogen | Phosphorus | NP Ratio |
|---|---|---|---|
| | ----------------000 nt. Tonnes-------------- | | |
| 1995-96 | 1065 | 315 | 3.4 |
| 1996-97 | 941 | 233 | 4.0 |
| 1997-98 | 1089 | 359 | 3.0 |
| 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 | 3.0 |
| 2004-05 | 1432 | 453 | 3.16 |

Source:. 1. Fertilizer off-take 1995-96 to 2003-04: Agricultural Statistics of Pakistan 2003-04, MINFAL, Islamabad

2. For off-take 2004-05, NFDC, Islamabad

152. To improve the situation, the APCom recommends the following measures:

i) The provincial governments should ensure adequate supply of fertilizer particularly of P&K at sowing times of wheat.

ii) Provincial governments should take serious notice of the adulteration in phosphatic fertilizers being marketed.

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

iv) The growers should be persuaded to apply Farm Yard Manure (FYM) at regular intervals to help reduce/lower the rate of conversion of P fertilizer from available to unavailable form and prolong its retention in the available form in the soil to permit maximum absorption by plants.

v) Research should be undertaken to identify bacterial strains which help in converting fixed forms of P in the soil to available form and their inoculum should be prepared and introduced to growers for adoption.

vi) Feasibility of processing of city wastes and its utilization as source of nutrients, soil conditioners etc. be undertaken.

### 13.1.6 Farm Management

153. The management effects have been witnessed from a report of APCom entitled "Economics of Wheat production: Results from Field Surveys in Punjab and Sindh". This reveals that progressive growers have obtained a wheat yield of 3756 kgs per hectare in the Punjab and 3207 kgs in Sindh against an average farmers wheat yield of 2471 and 2310 kgs per hectare in Punjab and Sindh respectively. The traditional growers of these province obtained only 650 and 711 kgs per hectare. This indicates that on productivity front there is a considerable scope for enhancing wheat production without increasing its

acreage. Special educational programmes need to be launched for transforming average and traditional growers into progressive growers.

## 13.2 Improving Quality and Marketing

### - Threshing

154. Threshing plays an important role in improving the wheat quality. Almost all wheat is now threshed mechanically. The wheat quality threshed by mechanical threshers (including the combine harvesters) has deteriorated over time. The quantity of foreign matter and the broken percentage has increased in the threshed wheat. It has been reported that increasing number of wheat threshers and combine harvesters has created a negative competition in the field, thus lowering the quality of wheat threshed. The use of imported low quality and second hand machinery has also contributed in lowering the wheat quality. It is, therefore, necessary that wheat quality should be improved by making necessary improvements/adjustments in threshing techniques and the machinery used. The Farm Machinery Research Institute of PARC should take necessary steps in this respect. Further the import of second hand machinery may be regulated by the Ministry of Industries and Production by allowing the import of only standardized machinery.

## 14. ACKNOWLEDGEMENT

155. The assistance and co-operation of the following staff members is appreciated in the preparation of the Report on Support Price Policy for Wheat 2005-06 Crop.

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Chairman

ANNEX-I

## AREA,YIELD AND PRODUCTION OF WHEAT : 1994-95 TO 2004-05

| YEAR | PUNJAB | | | SINDH | | | NWFP | | | BALOCHISTAN | | | PAKISTAN | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Irri-gated | Unirri-gated | Total | Irri-gated | Unirri-gated | Total | Irri-gated | Unirri-gated | Total | Irri-gated | Unirri-gated | Total | Irri-gated | Unirri-gated | Total |
| **AREA** | | | | | | | ---------- Thousand hectares ---------- | | | | | | | | |
| 1994-95 | 5165.8 | 736.5 | 5902.3 | 992.4 | 70.6 | 1063.0 | 350.6 | 513.4 | 864.0 | 277.9 | 62.6 | 340.5 | 6786.7 | 1383.1 | 8169.8 |
| 1995-96 | 5265.3 | 708.2 | 5973.5 | 1035.2 | 71.2 | 1106.4 | 352.2 | 513.9 | 866.1 | 297.4 | 133.1 | 430.5 | 6950.1 | 1426.4 | 8376.5 |
| 1996-97 | 5084.4 | 755.5 | 5839.9 | 1036.5 | 70.3 | 1106.8 | 346.2 | 496.6 | 842.8 | 277.4 | 42.2 | 319.6 | 6744.5 | 1364.6 | 8109.1 |
| 1997-98 | 5205.8 | 728.8 | 5934.6 | 1050.1 | 70.1 | 1120.2 | 370.9 | 547.2 | 918.1 | 295.0 | 86.7 | 381.7 | 6921.8 | 1432.8 | 8354.6 |
| 1998-99 | 5226.0 | 708.6 | 5934.6 | 1052.6 | 71.1 | 1123.7 | 352.6 | 505.0 | 857.6 | 267.1 | 46.9 | 314.0 | 6898.3 | 1331.6 | 8229.9 |
| 1999-00 | 5464.0 | 716.3 | 6180.3 | 1104.5 | 39.7 | 1144.2 | 326.1 | 480.4 | 806.5 | 314.1 | 17.9 | 332.0 | 7208.7 | 1254.3 | 8463.0 |
| 2000-01 | 5625.8 | 629.7 | 6255.5 | 790.9 | 19.8 | 810.7 | 321.3 | 468.9 | 790.2 | 301.4 | 23.0 | 324.4 | 7039.4 | 1141.4 | 8180.8 |
| 2001-02 | 5538.9 | 562.9 | 6101.8 | 863.5 | 11.7 | 875.2 | 318.3 | 428.6 | 746.9 | 312.3 | 21.3 | 333.6 | 7033.0 | 1024.5 | 8057.5 |
| 2002-03 | 5520.6 | 576.7 | 6097.3 | 852.9 | 10.8 | 863.7 | 316.1 | 416.0 | 732.1 | 311.1 | 29.7 | 340.8 | 7000.7 | 1033.2 | 8033.9 |
| 2003-04 | 5645.3 | 610.2 | 6255.5 | 856.5 | 21.7 | 878.2 | 315.1 | 426.5 | 741.6 | 310.9 | 30.0 | 340.9 | 7127.8 | 1088.4 | 8216.2 |
| 2004-05 | 5719.3 | 629.3 | 6348.6 | 873.1 | 11.2 | 884.3 | 321.2 | 446.0 | 767.2 | 297.6 | 28.7 | 326.3 | 7211.2 | 1115.2 | 8326.4 |
| **YIELD** | | | | | | | ---------- kgs per hectare ---------- | | | | | | | | |
| 1994-95 | 2288 | 1214 | 2154 | 2247 | 1265 | 2182 | 1917 | 990 | 1366 | 2588 | 1133 | 2320 | 2275 | 1129 | 2081 |
| 1995-96 | 2183 | 1322 | 2081 | 2178 | 1263 | 2119 | 1929 | 1018 | 1388 | 2608 | 1162 | 2161 | 2188 | 1194 | 2018 |
| 1996-97 | 2275 | 1062 | 2118 | 2271 | 1276 | 2208 | 1790 | 895 | 1263 | 2606 | 1145 | 2413 | 2263 | 1015 | 2053 |
| 1997-98 | 2418 | 1670 | 2327 | 2451 | 1225 | 2374 | 2070 | 1075 | 1477 | 2606 | 1186 | 2283 | 2413 | 1392 | 2238 |
| 1998-99 | 2328 | 1477 | 2226 | 2461 | 1188 | 2381 | 2047 | 990 | 1425 | 2610 | 1100 | 2384 | 2345 | 1264 | 2170 |
| 1999-00 | 2843 | 1319 | 2667 | 2667 | 1398 | 2623 | 1948 | 900 | 1324 | 1686 | 0 | 1595 | 2725 | 1142 | 2491 |
| 2000-01 | 2681 | 534 | 2465 | 2782 | 1308 | 2746 | 1712 | 456 | 967 | 2038 | 0 | 1893 | 2621 | 505 | 2325 |
| 2001-02 | 2562 | 717 | 2392 | 2417 | 1197 | 2401 | 1809 | 734 | 1192 | 2031 | 291 | 1920 | 2487 | 721 | 2262 |
| 2002-03 | 2645 | 1310 | 2518 | 2458 | 1194 | 2442 | 2018 | 1025 | 1454 | 2035 | 724 | 1921 | 2566 | 1178 | 2388 |
| 2003-04 | 2628 | 1321 | 2500 | 2505 | 1230 | 2473 | 1906 | 996 | 1382 | 2040 | 977 | 1946 | 2555 | 1182 | 2373 |
| 2004-05 | 2846 | 1595 | 2722 | 2537 | 1205 | 2520 | 1930 | 990 | 1384 | 1981 | 948 | 1890 | 2732 | 1333 | 2545 |
| **PRODUCTION** | | | | | | | ---------- Thousand tonnes ---------- | | | | | | | | |
| 1994-95 | 11819.2 | 893.8 | 12713.0 | 2229.8 | 89.3 | 2319.1 | 672.1 | 508.1 | 1180.2 | 719.2 | 70.9 | 790.1 | 15440.3 | 1562.1 | 17002.4 |
| 1955-96 | 11493.9 | 936.1 | 12430.0 | 2254.9 | 89.9 | 2344.8 | 679.4 | 523.1 | 1202.5 | 775.5 | 154.6 | 930.1 | 15203.7 | 1703.7 | 16907.4 |
| 1996-97 | 11568.7 | 802.3 | 12371.0 | 2354.2 | 89.7 | 2443.9 | 619.7 | 444.7 | 1064.4 | 722.9 | 48.3 | 771.2 | 15265.5 | 1385.0 | 16650.5 |
| 1997-98 | 12589.7 | 1217.3 | 13807.0 | 2573.5 | 85.9 | 2659.4 | 767.6 | 588.4 | 1356.0 | 768.8 | 102.8 | 871.6 | 16699.6 | 1994.4 | 18694.0 |
| 1998-99 | 12165.1 | 1046.9 | 13212.0 | 2590.6 | 84.5 | 2675.1 | 721.6 | 500.2 | 1221.8 | 697.1 | 51.6 | 748.7 | 16174.4 | 1683.2 | 17857.6 |
| 1999-00 | 15535.4 | 944.6 | 16480.0 | 2945.8 | 55.5 | 3001.3 | 635.4 | 432.4 | 1067.8 | 529.5 | 0.0 | 529.5 | 19646.1 | 1432.5 | 21078.6 |
| 2000-01 | 15082.5 | 336.5 | 15419.0 | 2200.6 | 25.9 | 2226.5 | 550.0 | 214.0 | 764.0 | 614.2 | 0.0 | 614.2 | 18447.3 | 576.4 | 19023.7 |
| 2001-02 | 14191.0 | 403.4 | 14594.4 | 2087.0 | 14.0 | 2101.0 | 575.9 | 314.6 | 890.5 | 634.4 | 6.2 | 640.6 | 17488.3 | 738.2 | 18226.5 |
| 2002-03 | 14599.4 | 755.6 | 15355.0 | 2096.3 | 12.9 | 2109.2 | 637.8 | 426.6 | 1064.4 | 633.2 | 21.5 | 654.7 | 17966.7 | 1216.6 | 19183.3 |
| 2003-04 | 14833.2 | 805.8 | 15639.0 | 2145.5 | 26.7 | 2172.2 | 600.6 | 424.6 | 1025.2 | 634.1 | 29.3 | 663.4 | 18213.4 | 1286.4 | 19499.8 |
| 2004-05 | 16276.0 | 1004.0 | 17280.0 | 2215.2 | 13.5 | 2228.7 | 620.0 | 441.7 | 1061.7 | 589.5 | 27.2 | 616.7 | 19700.7 | 1486.4 | 21187.1 |

Sources 1. For 1994-95 to 2003-04: Agricultural Statistics of Pakistan, 2003-04 MINFAL, Islamabad.
2. For 2004-05: Second estimates of Punjab, Sindh and NWFP and Balochistan provided by respective provincial Agriculture Departments.

ANNEX-II

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

| Country/ Province | Area | | | Yield per hectare | | | Production | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2003-04 | 2004-05 | Change Per cent | 2003-04 | 2004-05 | Change Per cent | 2003-04 | 2004-05 | Change Per cent |
| | 000 ha | | | Kgs | | | 000 tonnes | | |
| | | | | IRRIGATED | | | | | |
| PAKISTAN | 7127.8 | 7211.2 | 1.17 | 2555 | 2732 | 6.91 | 18213.4 | 19700.7 | 8.17 |
| PUNJAB | 5645.3 | 5719.3 | 1.31 | 2628 | 2846 | 8.31 | 14833.2 | 16276.0 | 9.73 |
| SINDH | 856.5 | 873.1 | 1.94 | 2505 | 2537 | 1.29 | 2145.5 | 2215.2 | 3.25 |
| NWFP | 315.1 | 321.2 | 1.94 | 1906 | 1930 | 1.27 | 600.6 | 620.0 | 3.23 |
| BALOCHISTAN | 310.9 | 297.6 | -4.28 | 2040 | 1981 | -2.88 | 634.1 | 589.5 | -7.03 |
| | | | | UNIRRIGATED | | | | | |
| PAKISTAN | 1088.4 | 1115.2 | 2.46 | 1182 | 1333 | 12.77 | 1286.4 | 1486.4 | 15.55 |
| PUNJAB | 610.2 | 629.3 | 3.13 | 1321 | 1595 | 20.82 | 805.8 | 1004.0 | 24.60 |
| SINDH | 21.7 | 11.2 | -48.39 | 1230 | 1205 | -2.04 | 26.7 | 13.5 | -49.44 |
| NWFP | 426.5 | 446.0 | 4.57 | 996 | 990 | -0.52 | 424.6 | 441.7 | 4.03 |
| BALOCHISTAN | 30.0 | 28.7 | -4.33 | 977 | 948 | -2.96 | 29.3 | 27.2 | -7.17 |
| | | | | TOTAL | | | | | |
| PAKISTAN | 8216.2 | 8326.4 | 1.34 | 2373 | 2545 | 7.21 | 19499.8 | 21187.1 | 8.65 |
| PUNJAB | 6255.5 | 6348.6 | 1.49 | 2500 | 2722 | 8.87 | 15639.0 | 17280.0 | 10.49 |
| SINDH | 878.2 | 884.3 | 0.69 | 2473 | 2520 | 1.89 | 2172.2 | 2228.7 | 2.60 |
| NWFP | 741.6 | 767.2 | 3.45 | 1382 | 1384 | 0.10 | 1025.2 | 1061.7 | 3.56 |
| BALOCHISTAN | 340.9 | 326.3 | -4.28 | 1946 | 1890 | -2.88 | 663.4 | 616.7 | -7.04 |

Source: Annex-I.

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 Totol*** | **6233.8** | **16091.3** | **80.6** | **2581.3** | | ***Sub Totol*** | **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 | 1381.7 |
| | | | | | | 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 Totol*** | **875.4** | **2170.0** | **10.9** | **2478.9** | | ***Sub Totol*** | **336.0** | **644.9** | **3.2** | **1919.5** |
| | | | | | | | ***Pak Totol*** | **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:1995-96 to 2004-05 (MAY-APRIL)

| S.No | Description | Production year | 1994-95 | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Consumption year | 1995-96 | 1996-97 | 1997-98 | 1998-99 | 1999-00 | 2000-01 | 2001-02 | 2002-03 | 2003-04 | 2004-05 |
| | | | Million | | | | | | | | | |
| 1 | Population as on 1st November (a) | | 128.41 | 131.49 | 134.80 | 138.65 | 141.57 | 144.98 | 148.71 | 150.88 | 154.91 | 157.75 |
| | | | 000 tonnes | | | | | | | | | |
| 2 | Opening stocks as on 1st May | | 385 | 453 | 327 | 842 | 1174 | 702 | 3552 | 3683 | 992 | 161 |
| 3 | Production of Pakistan | | 17002 | 16907 | 16651 | 18694 | 17854 | 21079 | 19024 | 18227 | 19183 | 19450 |
| 4 | Production of AJ&K and NAs (b) | | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 152 | 236 |
| 5 | Imports | | 1931 | 2383 | 4109 | 2334 | 2352 | -- | -- | 184 | 108 | 1368 |
| 6 | Exports | | -- | -- | -- | -- | -- | 172 | 1036 | 1704 | 192 | --- |
| 7 | Closing stocks as on 30th April | | 453 | 327 | 842 | 1174 | 702 | 3552 | 3683 | 992 | 161 | 358 |
| 8 | Total availability | | 19017 | 19568 | 20397 | 20848 | 20830 | 18209 | 18009 | 19550 | 20166 | 20857 |
| 9 | Deduction for seed,feed and wastage @ 10 per cent of production | | 1715 | 1706 | 1680 | 1885 | 1801 | 2123 | 1918 | 1838 | 1934 | 1969 |
| 10 | Available for human consumption (item 8 minus item 9 ) | | 17302 | 17862 | 18717 | 18963 | 19029 | 16086 | 16091 | 17712 | 18233 | 18888 |
| | | | Kgs/ annum | | | | | | | | | |
| 11 | Per capita availability (item 9 divided by item 1) | | 135 | 136 | 139 | 137 | 134 | 111 | 108 | 117 | 118 | 120 |
| 12 | Average per capita availability during | 2002-03 to 2004-05 | 118 Kgs. | | | | | | | | | |
| 13 | Average per capita availability during | 2000-01 to 2004-05 | 115 kgs | | | | | | | | | |

**Notes:** a). It includes the population of Pakistan, AJ&K, NAs and Afghan Refugees.

b). Due to non-availability of data, production of AJ&K and NAs in the past has been estimated on the basis ratio between the production of Pakistan and that of AJ&K and NAs during 1991-92.

**Sources:**
1. Ministry of Food, Agriculture and Livestock (MINFAL), Islamabad.
2. Population Census Organization, Islamabad.
3. Ministry of Kashmir Affairs and Northern Areas and States and Frontier Regions, Government of Pakistan, Islamabad.
4. National Institute of Populations Studies (NIPS), Islamabad.

ANNEX-V

## EXPORT PRICES (FOB PACIFIC) OF US WESTERN WHITE WHEAT 1992-93 TO 2004-05

| Year (July - June) | Month | Fob (Pacific) price US$ per tonne |
|---|---|---|
| 1992-93 | | 150 |
| 1993-94 | | 133 |
| 1994-95 | | 159 |
| 1995-96 | | 199 |
| 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 | | 145 |
| | July | 148 |
| | August | 145 |
| | September | 146 |
| | October | 146 |
| | November | 145 |
| | December | 146 |
| | January | 143 |
| | February | 145 |
| | March | 146 |
| | April | 145 |
| | May | 145 |
| | June | 137 |

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

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ANNEX-VI

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

| S.No | Item | 2004-05 If consumed at | | 2000-01 to 2004-05 If consumed at | |
|---|---|---|---|---|---|
| | | Karachi | Lahore | Karachi | Lahore |
| | | US $ per tonne | | | |
| 1. | Average fob (Pacific) price | 145.00 | 145.00 | 137.00 | 137.00 |
| 2. | Freight charges from Pacific port to Karachi | 50.00 | 50.00 | 50.00 | 50.00 |
| 3. | Average c&f (Karachi) price | 195.00 | 195.00 | 187.00 | 187.00 |
| | | OR Rupees per tonne | | | |
| | | **11671** | **11671** | **11005** | **11005** |
| | 440.20 | | | | |
| 4. | Marine insurance @0.32 of c&f cost. | 37 | 37 | 35 | 35 |
| 5. | Stevedoring, clearing, handling, wharfage, departmental mark up and weightment charges at port (b) | 398 | 398 | 398 | 398 |
| 6. | TCP commission @4% of c&f cost as per ECC decision of 1976 | 467 | 467 | 440 | 440 |
| 7. | Provision for shortage /unforseen losses@1% of c&f cost | 117 | 117 | 110 | 110 |
| 8. | Landed cost at Karachi (item 3+items 4 to 7) | 12690 | 12690 | 11988 | 11988 |
| 9. | Transport cost from Karachi to Lahore | 1080 | 1080 | 1080 | 1080 |
| 10. | Expenses from procurement centre to Lahore | 180 | 180 | 180 | 180 |
| 11. | Import parity price per tonne of wheat at procurement centre level (c) | **11430** | **13590** | **10728** | **12888** |
| 12. | Import parity price per 40 kgs at procurement centre level | **457** | **544** | **429** | **516** |

**Notes:**

(a) Selling exchange rate of one US $ = 59.85 Pak Rupees announced by State Bank of Pakistan on June 21, 2005.

(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 - V.

ii) For freight charges : International Grain Council.

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

iv) For transport charges from Karachi to Lahore: Punjab Food Department, Lahore.

v) For incidental charges : Trading Corporation of Pakistan.

ANNEX-VII

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

| S.No | Item | 2004-05 | 2000-01 to 2004-05 |
|---|---|---|---|
| | | US $ Per Tonne | |
| 1. | Actual average fob (Pacific) price | 145 | 137 |
| | OR | Rs per tonne (a) | |
| 2. | Average fob ( Karachi ) Price assuming equivalent to fob (Pacific price | 8649 | 8172 |
| 3. | **Incidental charges: (items i to xiii)** | 1868 | 1855 |
| | i) Expenses from procurement centre to Multan | 167 | 167 |
| | ii). Transport cost from surplus producer area (Multan) to Karachi | 600 | 600 |
| | 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 | 43 | 41 |
| | ix). Export development surcharges @0.25% of fob price | 22 | 20 |
| | x). Insurance charges at port | 7 | 7 |
| | xi). Bank commission & charges | 10 | 10 |
| | xii). Mark up for one month | 7 | 7 |
| | xiii). Miscellaneous charges @ 2% of fob price | 173 | 163 |
| 4. | Export parity price of FAQ. wheat at procurement centre level( item 2- items 3 ) | 6781 | 6317 |
| 5. | Export parity price per 40 kgs at procurement centre level | 271 | 253 |

Notes: (a) Pakistan has advantage in freight charges for exporting countries to nearby regions which has been accounted for the calculation of export parity prices.

(b) Buying exchange rate of one US $ = 59.65 Pak Rupees announced by State Bank of Pakistan as on June 21, 2005.

Sources:

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

ANNEX-VIII

## DESIGN OF SAMPLE SURVEY

For up-dating input-output parameters, APCom conducted large field survey of wheat in the Punjab and Sindh during June 2004 for 2003-04 crop.

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

In the Punjab, 27 districts namely: Sheikhupura, Gugranwala, Hafizabad, Sialkot, Norowal, Gujrat, M.B.Din, Jhang, Faisalabad, T.T.Singh, Sargodha, khanewal, Lahore, Kasur, Rahim Yar Khan, Vehari, Okara, Sahiwal, Muzaffargarh, Layyah, Pakpattan, Bahawalnagar, Bahwalpur, D.G. Khan, Rajan Pur, Multan and Lodhran were chosen. From Sindh, 12 districts namely: Khairpur, Sukkur, Ghotki, Shikarpur, Nawabshah, Noushero Feroze, Larkana, Sanghar, Mirpurkhas, Tharparkar, Hyderabad and Dadu were randomly picked from various agro-climatic zones. From the sample districts, 80 villages from the Punjab and 35 dehs from Sindh were randomly selected. Overall, 1254 wheat growers (871 wheat growers from the Punjab and 383 from Sindh) were interviewed.

## *CRITERIA FOR CATEGORIZATION OF FARMERS FOR MANAG4MENT CATEGORIES*

At the data analysis stage, sample farmers were classified into one of the three managerial categories i.e. "Progressive", Traditional" and "Average". For the categorization of wheat farmers, following criteria have been adopted. It may be mentioned that no hard and fast rules can be laid down to classify the farmers into specific management/group.

**"Progressive Farmers"**

a) Practise improved farm practices;
b) Adopt recommended seed rate and use treated seed or treat its own seed before sowing;
c) Use method of sowing which gives optimum plant population;
d) In case, under ground water is fit for irrigation, supplement canal irrigation with tube-well water;
e) Adopt judicious and balanced use of chemical fertilizers;
f) Perform weeding and interculture practices as and when required, including the use of weedicides;
g) Clean water channels for efficient use of irrigation water;
h) Adopt technical innovations that provide optimum quality produce per unit of land.

**"TRADITIANAL FARMERS"**

a) Stick to traditional methods of farming;
b) Pay little attention to the seed rate and quality of seed being used;
c) Do not care to plant population and method of sowing;
d) Mostly depend upon canal irrigation;
e) Make inadequate or erratic use of fertilizer;
f) Inadequate weeding, interculture and use of weedicides;
g) Inadequate cleaning of water channels;
h) Not particular about the adoption of improved crop husbandry practices.

III) **"AVERAGE FARMERS"**

Average farmers are those who have crossed the barriers of traditional farming and are in a transitory stage to catch up the available improved technological practices that the progressive farmers are following. Being in the middle, they reflect the features of both.

The Cost of production (COP) of the "Average Farmers" which generally exceeds that of the "Progressive Farmers" but is less than that of the "Traditional Farmers" has been taken as a reference point for pricing policy analysis on the following grounds:

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

**3.2** The use of COP of the "Traditional growers" which is relatively high, if adopted in price setting, would encourage inefficient crop production and adversely impact the other aspects of the economy.

ANNEX-IX

## AVERAGE FARMERS' COST OF PRODUCTION OF WHEAT IN THE PUNJAB: 2005-06 CROP

| Sr. No. | Operations/Inputs | Avg.No. of oprs/ units/per acre | 2005-06 crop Rate per unit | Cost per acre |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5=3*4 |
| | | | ---- Rupees --- | |
| 1. | Land preparation: | | | |
| | 1.1 Deep ploughing | 0.598 | 500.00 | 299.00 |
| | 1.2 Ploughing | 2.137 | 200.00 | 427.40 |
| | 1.3 Ploughing & planking | 0.714 | 250.00 | 178.50 |
| | 1.4 Planking | 0.649 | 100.00 | 64.90 |
| | 1.5 Levelling | 0.498 | 250.00 | 124.50 |
| 2. | Seed and sowing operations: | | | |
| | 2.1 Seed used (kgs) | 52.577 | 20.00 | 1051.54 |
| | 2.2 Tractor drilling | 0.166 | 200.00 | 33.20 |
| | 2.3 Labour for seed broadcasting (m.hrs) | 0.858 | 15.00 | 12.87 |
| | 2.4 Ploughing in case of broadcasting | 1.390 | 200.00 | 278.00 |
| | 2.5 Planking in case of broadcasting | 0.321 | 100.00 | 32.10 |
| 3 | Bund making: | | | |
| | 3.1 Manual (m. hrs) | 1.033 | 15.00 | 15.50 |
| | 3.2 Tractor (hrs) | 0.203 | 250.00 | 50.75 |
| 4 | Weedicides | 0.787 | 400.00 | 314.80 |
| 5. | Irrigation *: No | | | |
| | 5.1 Canal alone | 0.507 | - | 50.00 |
| | 5.2 Private tubewell | 3.002 | 420.00 | 1260.84 |
| | 5.3 Mixed | 0.230 | 280.00 | 64.40 |
| 6. | Labour for irrigation and water-course cleaning (m.days) | | | |
| | 6.1 For irrigation | 1.225 | 120.00 | 147.00 |
| | 6.2 For water-course cleaning | 0.329 | 120.00 | 39.48 |
| 7. | Farm yard manure (50 %) | - | - | 75.00 |
| 8 | Chemical fertilizers (bags) | | | |
| | 8.1 DAP | 1.090 | 1037.00 | 1130.33 |
| | 8.2 Urea | 1.747 | 490.00 | 856.03 |
| | 8.3 SSP | 0.132 | 349.00 | 46.07 |
| | 8.4 NP | 0.079 | 707.00 | 55.85 |
| | 8.5 CAN | 0.039 | 397.00 | 15.48 |
| | 8.6 SOP | 0.024 | 1139.00 | 27.34 |
| | 8.7 Gypsum | 0.024 | 60.00 | 1.44 |
| | 8.8 Transport and application | 3.135 | 17.00 | 53.30 |
| 9. | Mark- up on investment on item 1 to 8 excluding item 5 (1) @ 8 % per annum for 6 months | - | - | 264.09 |
| 10. | Harvesting charges (40 kgs/acre) | 2.997 | 408.00 | 1222.78 |
| 11. | Threshing: | | | |
| | 11.1 Threshing @ 3.23 kgs/40 kgs (40 kgs/acre) | 2.237 | 408.00 | 912.70 |
| | 11.2 M. days | 1.810 | 120.00 | 217.20 |
| 12. | Land rent per acre for 6 months | - | 5500.00 | 2750.00 |
| 13. | Average weighted land tax @ 131/acre/annum for 6 months | - | 131.00 | 65.50 |
| 14. | Management charges for 6 months | - | - | 304.00 |
| 15 | Total cost per acre | - | - | 12441.87 |
| 16. | Value of wheat bhoosa | - | - | 1000.00 |
| 17 | Net cost per acre (item 15 - item 16) | - | - | 11441.87 |
| 18. | Yield per acre (kgs) | - | - | 1108.00 |
| 19 | Cost of production at farm level (Rs/ 40 kgs) | - | - | 413.06 |
| 20. | Marketing cost (Rs/ 40kgs) | - | - | 15.00 |
| 21. | Cost of production at market/procurement centre (Rs/ 40 kgs) | | | |
| | 21.1 With land rent | - | - | 428.06 |
| | 21.2 Without land rent | - | - | 328.79 |

ANNEX-X

**AVERAGE FARMERS' COST OF PRODUCTION OF WHEAT IN SINDH: 2005-06 CROP**

| Sr. No. | Operations/Inputs | Avg.No. of oprs/ units/per acre | 2005-06 crop Rate per unit | Cost per acre |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5=3*4 |
| | | | ---Rupees--- | |
| 1. | Preparatory tillage: | | | |
| | 1.1 Deep ploughing | 0.349 | 500.00 | 174.50 |
| | 1.2 Ploughing | 3.034 | 250.00 | 758.50 |
| | 1.3 Ploughing and planking | 0.070 | 300.00 | 21.00 |
| | 1.4 Planking | 0.081 | 125.00 | 10.13 |
| | 1.5 Levelling (hrs) | 1.010 | 300.00 | 303.00 |
| 2. | Seed and sowing operations: | | | |
| | 2.1 Seed used (kgs) | 55.817 | 20.00 | 1116.34 |
| | 2.2 Tractor drilling | 0.037 | 250.00 | 9.25 |
| | 2.3 Labour for seed broadcasting (m.hr) | 1.127 | 15.00 | 16.91 |
| | 2.4 Ploughing in case of broadcasting | 0.275 | 250.00 | 68.75 |
| | 2.5 Planking in case of broadcasting | 0.162 | 120.00 | 19.44 |
| 3. | Bund making: | | | |
| | 3.1 Manual (m.hrs) | 1.611 | 15.00 | 24.17 |
| | 3.2 Tractor (hrs) | 0.091 | 300.00 | 27.30 |
| 4. | Interculture/weeding | | | |
| | 4.1 Interculture | 0.037 | 300.00 | 11.10 |
| | 4.2 Weedicides | 0.529 | 400.00 | 211.60 |
| 5. | Irrigation *: No | | | |
| | 5.1 Canal alone | 1.763 | - | 53.30 |
| | 5.2 Lift pump | 0.551 | 217.00 | 119.57 |
| | 5.3 Private tubewell | 1.046 | 326.00 | 341.00 |
| | 5.4 Mixed | 0.449 | 235.00 | 105.52 |
| 6. | Labour for irrigation and water course cleaning (m.days) | | | |
| | 6.1 For irrigation | 1.022 | 120.00 | 122.64 |
| | 6.2 For water course cleaning | 0.349 | 120.00 | 41.88 |
| 7. | Farm Yard Manure (50 %) | | | 70.00 |
| 8. | Chemical fertilizers (bags) | | | |
| | 8.1 DAP | 1.013 | 1010.00 | 1023.13 |
| | 8.2 Urea | 1.950 | 488.00 | 951.60 |
| | 8.3 NP | 0.186 | 733.00 | 136.34 |
| | 8.4 CAN | 0.020 | 389.00 | 7.78 |
| | 8.5 Transport + application | 3.169 | 20.00 | 63.38 |
| 9. | Mark- up on investment on item 1 to 8 excluding item 5 (1) @ 8 % per annum for 6 months | - | - | 230.19 |
| 10. | Harvesting charges (40 kgs/acre) | 2.876 | 393.00 | 1130.27 |
| 11. | Threshing: | | | |
| | 11.1 Tresher @ 2.95 kgs/40 kgs (40 kgs) | 1.784 | 393.00 | 701.11 |
| | 11.2 Labour (m.days) | 1.415 | 120.00 | 169.80 |
| 12. | Land rent for 6 months | - | 4000.00 | 2000.00 |
| 13. | Land tax @ 200/acre/annum for 6 months | - | 200.00 | 100.00 |
| 14. | Drainage cess | - | - | 24.00 |
| 15. | Management charges for 6 months | - | - | 304.00 |
| 16. | Total cost per acre | - | - | 10467.47 |
| 17. | Value of wheat bhoosa | - | - | 1000.00 |
| 18. | Net cost per acre (Item 16 - item 17) | - | - | 9467.47 |
| 19. | Yield per acre (kgs) | - | - | 967.81 |
| 20. | Cost of production at farm level (Rs/40 kgs) | - | - | 391.29 |
| 21. | Marketing cost (Rs/40 kgs) | - | - | 15.00 |
| 22. | Cost of production at market/procurement centre (Rs/40 kgs) | | | |
| | 22.1 With land rent | - | - | 406.29 |
| | 22.2 Without land rent | - | - | 323.63 |

**Notes for Annex-IX and X**

1. The input-output parameters for estimating cost of production of wheat, 2005-06 Crop have been adopted from the Large Sample Survey of wheat conducted during June 2004 in the Punjab and Sindh for 2003-04 crop.

2. The sale prices of wheat seed for 2005-06 crop are not yet fixed as reported by the Director of the Punjab Seed Corporation in the meeting of the Standing Committee on wheat. These have been revised in the light of increase in support price of wheat for 2004-05 crop over 2003-04 crop.

3. The cost of supplementary irrigation has been revised in view of rise @ 30 per cent in the prices of diesel during June 2004 and July 2005. Based on ratios of electric and diesel tube-wells at 9:91 per cent in the Punjab and 31:69 in Sindh, as reported in the Agricultural Statistics of Pakistan, 2003-04, MINFAL, (Economic Wing), Islamabad. The weighted average increases in energy charges have been worked out 28 per cent in the Punjab and 21 per cent in Sindh.

4. The prices of chemical fertilizers have been revised in the light of fertilizer prices published by the Federal Bureau of Statistics, Islamabad for the week ending on 23rd June 2005 and supplemented with the information provided by the farmers in the meeting of the Standing Committee on wheat.

5. The value of kind payments for harvesting and threshing are the average market prices of wheat @ Rs 423 per 40 kgs in the Punjab and Rs 408 in Sindh, reported by the Directorate of Agriculture (E & M) Punjab and ALMA, Karachi. Marketing charges of Rs 15 per 40 Kgs have been deducted from the market prices to bring these at the farm level.

6. 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 at Rs 5087 per month salary for a Field Assistant at the 10th Stages of 2005 revised scales in BPS-6, including special additional allowance @ 25 per cent and 15 per cent ad-hoc relief each announced in the 2003-04 and 2004-05 budgets.

7. Land rent is the major item of the cost of cultivation. There is no precise measure for updating the land rentals. However, keeping in view the observations obtained during field survey and discussion made in the meeting of APCom's Standing Committee, land rentals have been adjusted accordingly.

## ECONOMICS OF WHEAT AND COMPETING CROPS AT PRICES REALIZED BY GROWERS: 2004-05 CROPS

| Province/crops/ crop combinations | Crop duration | Water used | Gross cost | Cost of purchased inputs | Gross revenue | Gross margin | Net income | Output-input ratio | Gross Revenue per Rupee of Purchased Inputs cost | Gross Revenue per Crop day | Gross Revenue per Acre inch of water used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7=6-5 | 8=6-4 | 9=6/4 | 10 = 6/5 | 11=6/2 | 12 = 6/3 |
| | Days | Acre inches | ---- Rupees per acre ------ | | | | | | ------- Rupees ---------- | | |
| Punjab | | | | | | | | | | | |
| 1. Wheat | 180 | 17 | 11228 | 5040 | 11282 | 6242 | 54 | 1.00 | 2.24 | 62.68 | 663.65 |
| 2. Basmati paddy | 180 | 58 | 11289 | 6280 | 12760 | 6480 | 1471 | 1.13 | 2.03 | 70.89 | 220.00 |
| 3. IRRI paddy | 180 | 62 | 9544 | 5295 | 9199 | 3904 | -345 | 0.96 | 1.74 | 51.11 | 148.37 |
| 4. Cotton | 240 | 22 | 14917 | 6680 | 15549 | 8869 | 632 | 1.04 | 2.33 | 64.79 | 706.77 |
| 5. Sunflower (spring) | 144 | 22 | 8313 | 2828 | 10260 | 7432 | 1947 | 1.23 | 3.63 | 71.25 | 466.36 |
| 6. Canola | 210 | 13 | 6836 | 2093 | 10085 | 7992 | 3249 | 1.48 | 4.82 | 48.02 | 775.77 |
| 7. Cotton+Wheat | 420 | 39 | 26145 | 11720 | 26831 | 15111 | 686 | 1.03 | 2.29 | 63.88 | 687.97 |
| 8. Cotton+Sunflower | 384 | 44 | 23230 | 9508 | 25809 | 16301 | 2579 | 1.11 | 2.71 | 67.21 | 586.57 |
| 9. Basmati paddy + wheat | 360 | 75 | 22517 | 11320 | 24042 | 12722 | 1525 | 1.07 | 2.12 | 66.78 | 320.56 |
| 10. Basmati paddy+Sunflower | 324 | 80 | 19602 | 9108 | 23020 | 13912 | 3418 | 1.17 | 2.53 | 71.05 | 287.75 |
| 11. IRRI paddy + wheat | 360 | 79 | 20772 | 10335 | 20481 | 10146 | -291 | 0.99 | 1.98 | 56.89 | 259.25 |
| 12. IRRI paddy+Sunflower | 324 | 84 | 17857 | 8123 | 19459 | 11336 | 1602 | 1.09 | 2.40 | 60.06 | 231.65 |
| 13 Sugarcane | 394 | 48 | 19748 | 6778 | 19639 | 12861 | -109 | 0.99 | 2.90 | 49.85 | 409.15 |
| Sindh | | | | | | | | | | | |
| 1. Wheat | 180 | 15 | 9375 | 3912 | 10021 | 6109 | 646 | 1.07 | 2.56 | 55.67 | 668.07 |
| 2. IRRI paddy | 180 | 56 | 8237 | 3702 | 12554 | 8852 | 4317 | 1.52 | 3.39 | 69.74 | 224.18 |
| 3. Cotton | 240 | 18 | 12328 | 5205 | 13698 | 8493 | 1370 | 1.11 | 2.63 | 57.08 | 761.00 |
| 4. Sunflower (Spring) | 144 | 22 | 8313 | 2828 | 10770 | 7942 | 2457 | 1.30 | 3.81 | 74.79 | 489.55 |
| 5. Canola | 210 | 13 | 6836 | 2093 | 8877 | 6784 | 2041 | 1.30 | 4.24 | 42.27 | 682.85 |
| 6. Cotton+Wheat | 420 | 33 | 21703 | 9117 | 23719 | 14602 | 2016 | 1.09 | 2.60 | 56.47 | 718.76 |
| 7. Cotton+Sunflower | 384 | 40 | 20641 | 8033 | 24468 | 16435 | 3827 | 1.19 | 3.05 | 63.72 | 611.70 |
| 8. IRRI paddy+Wheat | 360 | 71 | 17612 | 7614 | 22575 | 14961 | 4963 | 1.28 | 2.96 | 62.71 | 317.96 |
| 9. IRRI paddy+Sunflower | 324 | 78 | 16550 | 6530 | 23324 | 16794 | 6774 | 1.41 | 3.57 | 71.99 | 299.03 |
| 10. Suagarcane | 488 | 71 | 22870 | 8800 | 24120 | 15320 | 7570 | 1.05 | 2.74 | 49.43 | 339.72 |

**Notes for Annexes - XI**

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2004-05 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, 2004-05 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 2004-05 crops. To incorporate the escalations in input prices which occurred during the growing period of 2004-05 crops, some marginal revisions have been made as under:

   2.1 There has been no considerable change in the price of diesel and power tariff over the period. Therefore, the cost of supplementary irrigation was expected to remain at the same level.

   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 2004-05 season.

   2.3 The value of kind payments has been revised in view of the prices applicable during the post-harvest for the respective crops.

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 2005 in the major producer area markets at Rs 423 per 40 kgs in the Punjab and Rs 408 in Sindh have been dopted in this analysis.

   4.2 It is reported by the Crop Reporting Service, Department of Agriculture, Lahore that the super basmati accounts for 70 per cent and basmati -385 for 13 per cent of total rice area in the Punjab. Accordingly, the weighted average wholesale prices of basmati paddy during the post-harvest in major producer area markets calculate to Rs 543 per 40 kgs. The corresponding prices of Irri paddy averaged at Rs 272 per 40 kgs in the Punjab. In Sindh, the wholesale market prices of Irri paddy are reported at Rs 338 per 40 kgs by the District Market Committees.

   4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug-Nov 2004-05 in the main producer area markets have averaged at Rs 901 per 40 kgs in the Punjab as reported by the Directorate of Agriculture (E&M), Lahore. In Sindh, the corresponding prices are reported at Rs 903 per 40 kgs by the PCCC, Karachi.

4.4 As reported by the PODB, the wholesale market prices of sunflower oilseed have averaged at Rs 699 and Rs 733 per 40 kgs in the Punjab and Sindh, respectively. The corresponding prices for canola oilseed are Rs 825 and Rs 728 per 40 kgs.

4.5 The market prices of sugarcane are not available from any agency. However, the mill-gate prices in the major cane producing areas are reported to hover around Rs 40 per 40 kgs in the Punjab and Rs 41 in Sindh in the APCom's field survey and the Standing Committee meeting.

5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 5.25 per 40 kgs in Punjab and Rs 5.32 in Sindh for sugarcane, Rs 18 in Punjab and Rs 20 in Sindh for seed cotton, Rs 14 for rice paddy and Rs 15 for wheat and oilseeds.

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

## ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT IN PUNJAB
## POLICY ANALYSIS MATRIX (PAM) for Average Farmers
## (BASED ON IMPORT PARITY PRICES)

| Description | Revenues | Traded cost | Domestic Factors Cost | Profits |
|---|---|---|---|---|
| | --------- Rupees per acre --------- | | | |
| 1999-2000 | | | | |
| Private Prices | 8310 | 4544 | 3765 | 1 |
| Social Prices | 10092 | 4343 | 3525 | 2224 |
| Transfers | -1782 | 201 | 240 | -2223 |
| 2000-01 | | | | |
| Private Prices | 7705 | 4331 | 3891 | -517 |
| Social Prices | 10725 | 4218 | 3633 | 2874 |
| Transfers | -3020 | 114 | 257 | -3391 |
| 2001-02 | | | | |
| Private Prices | 7931 | 4917 | 3931 | -917 |
| Social Prices | 11361 | 4357 | 3627 | 3377 |
| Transfers | -3430 | 559 | 304 | -4294 |
| 2002-03 | | | | |
| Private Prices | 8384 | 5266 | 4005 | -888 |
| Social Prices | 12330 | 4676 | 3711 | 3943 |
| Transfers | -3946 | 590 | 294 | -4831 |
| 2003-04 | | | | |
| Private Prices | 10274 | 5769 | 4268 | 237 |
| Social Prices | 12617 | 5010 | 3961 | 3646 |
| Transfers | -2344 | 759 | 307 | -3409 |
| 2004-05 | | | | |
| Private Prices | 11332 | 6443 | 4712 | 178 |
| Social Prices | 14961 | 5670 | 4365 | 4926 |
| Transfers | -3629 | 773 | 347 | -4749 |
| Average(1999-00 to 2004-05) | | | | |
| Private Prices | 8989 | 5212 | 4095 | -318 |
| Social Prices | 12014 | 4062 | 3804 | 4149 |
| Transfers | -3025 | 1150 | 291 | -4467 |

ANNEX-XIII

## ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT IN SINDH
## POLICY ANALYSIS MATRIX (PAM) for Average Farmers
## (BASED ON IMPORT PARITY PRICES)

| Description | Revenues | Traded cost | Domestic Factors Cost | Profits |
|---|---|---|---|---|
| | --------- Rupees per acre --------- | | | |
| 1999-2000 | | | | |
| Private Prices | 7820 | 3578 | 3481 | 761 |
| Social Prices | 9002 | 3370 | 3350 | 2282 |
| Transfers | -1182 | 209 | 130 | -1521 |
| 2000-01 | | | | |
| Private Prices | 7112 | 3607 | 3613 | -108 |
| Social Prices | 9443 | 3449 | 3482 | 2513 |
| Transfers | -2332 | 158 | 131 | -2621 |
| 2001-02 | | | | |
| Private Prices | 7275 | 4010 | 3668 | -403 |
| Social Prices | 9988 | 3510 | 3518 | 2959 |
| 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 | 4847 |
| Transfers | -3767 | 617 | 224 | -4608 |
| Average(1999-00 to 2004-05) | | | | |
| Private Prices | 8336 | 3942 | 3926 | 468 |
| Social Prices | 10830 | 3406 | 3769 | 3656 |
| Transfers | -2494 | 536 | 158 | -3187 |

ANNEX-XIV

## 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---- | | | |
| 400 (Existing for 2004-05 crop) | 1180 | 8213 | | |
| 404 | 1192 | 8296 | 12 | 84 |
| 408 | 1204 | 8380 | 24 | 167 |
| 412 | 1215 | 8456 | 35 | 243 |
| 416 | 1227 | 8540 | 47 | 327 |
| 420 | 1239 | 8623 | 59 | 411 |
| 424 | 1251 | 8707 | 71 | 494 |
| 428 | 1263 | 8790 | 83 | 578 |
| 432 | 1274 | 8867 | 94 | 654 |

Sources: i) Household Integrated Economic Survey (HIES) 2001-02, Federal Bureau of Statistics (FBS), Islamabad.

ii) Annex-IV.

Note: Average size of Household Comprises 6.96 members

ANNEX-XV

## REQUIREMENT AND AVAILABILITY OF CERTIFIED SEED OF WHEAT 2000-01 TO 2004-05

| 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 |
| | 000/ha | ---- 000 tonnes ---- | | | | | | |
| **Punjab** | | | | | | | | |
| 2000-01 | 6255.5 | 569.3 | 113.9 | 64.4 | 75.5 | 139.9 | 122.9 | 24.6 |
| 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 |
| **Sindh** | | | | | | | | |
| 2000-01 | 810.7 | 73.8 | 14.8 | 3.4 | 4.4 | 7.8 | 52.9 | 10.6 |
| 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 |
| **NWFP** | | | | | | | | |
| 2000-01 | 790.3 | 71.9 | 14.4 | 4.4 | 2.5 | 6.9 | 48.0 | 9.6 |
| 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 |
| **Balochistan** | | | | | | | | |
| 2000-01 | 324.4 | 29.5 | 5.9 | 4.4 | 0.1 | 4.5 | 76.2 | 15.2 |
| 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 |
| **Pakistan** | | | | | | | | |
| 2000-01 | 8180.9 | 744.5 | 148.9 | 76.6 | 82.5 | 159.1 | 106.9 | 21.4 |
| 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 |

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.

Sources: 1.For certified seed sold: i) Working paper and minutes of various meetings of FCA
ii) FSC&RD, Islamabad

2.For area under wheat: Annex-I