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WHEAT POLICY ANALYSIS FOR 2013-14 CROP

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

AARI	Ayub Agriculture Research Institute
AJ&K	Azad Jammu and Kashmir
API	Agriculture Policy Institute
APW	Australian Premium White
C&F	Cost and Freight
COP	Cost of Production
CPI	Consumer Price Index
CWRS	Canada Western Red Spring
DAP	Di Ammonium Phosphate
DRC	Domestic Resource Cost
ECC	Economic Coordination Committee (of the Cabinet)
E&M	Economics and Marketing
EPC	Effective Protection Coefficient
EU	European Union
FAO	Food and Agriculture Organization
PBS	Pakistan Bureau of Statistics
FOB	Free on Board
FYM	Farm Yard Manure
GDP	Gross Domestic Product
GMR	Grain Market Report
GST	General Sales Tax
HIES	Household Integrated Economic Survey
HRW	Hard Red Winter
HSD	High Speed Diesel
HYVs	High Yielding Varieties
IRRI	International Rice Research Institute
KPK	Khyber Pakhtunkhwa
N	Nitrogen
NAs	Northern Areas
NFDC	National Fertilizer Development Centre
NPC	Nominal Protection Coefficient
P	Phosphatic
PAM	Policy Analysis Matrix
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Agricultural Storage and Services Corporation
USA	United States of America
USDA	United States Department of Agriculture

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Findings

Area and Production

- Punjab and Sindh contribute about 76 and 16 per cent in wheat production while the share of KPK and Balochistan is 5 and 3 per cent, respectively.
- During the last decade, wheat production has risen @ 2.4 per cent per annum due to 1.5 per cent improvement in yield and 0.9 per cent expansion in area.
- Wheat production from 2012-13 crop is estimated at 24.17 million tonnes, a rise of 3 per cent over the last year's production of 23.47 million tonnes in 2011-12.
- Since 2002, 18 high yielding wheat varieties have been developed by Research Institutes in Punjab, while 4 varieties of wheat are released by Research Institutes in Sindh.

Domestic Requirements

- Assuming the per capita consumption at 120 kgs per annum, the domestic requirement comes to 25.78 million tonnes including allownace for seed, feed and wastage.
- Based on 3-year average per capita availability of 118 kgs per annum, the domestic requirement comes to 24.41 million tonnes including allownace for seed, feed and wastage.
- Including one million tonnes as food security reserve, total domestic requirement will range between 25.41 and 26.78 million tonnes.

Domestic Prices

- Monthly average market prices of wheat for 2012-13 crop have remained close to the support price in the Punjab and Sindh.
- The wholesale prices of wheat averaged at Rs 1192 per 40 kgs in the Punjab and Rs 1138 in Sindh during the post harvest season in major producing areas according to the provincial estimates.

- The wholesale prices of wheat collected through the API's Committee Meeting on wheat were reported around Rs 1200 per 40 kgs in the Punjab and Sindh during the post harvest period of 2012-13 crop.

Cost of Production

- In the Punjab, the cost of wheat cultivation during 2013-14 season is estimated at Rs 30,570 per acre including land rent.
- The cost of production at market/procurement centre level would be Rs 1134 per 40 kgs, reflecting a rise of 8 per cent over the last year due to rising cost of farm operations, tubewell, irrigation and harvesting/threshing charges.
- In Sindh, the cost of wheat cultivation for 2013-14 crop is expected at Rs 29,759 per acre including land rent.
- The cost of production at market/procurement centre level would come to Rs 1100 per 40 kgs, showing increase of 6 per cent over the last year.

Economics of Wheat and Competing Crops

- Wheat farming has performed better than oilseeds like sunflower and canola during 2012-13 in terms of the most of economic criteria adopted in the analysis in the Punjab.
- In Sindh, the wheat cultivation has lagged behind the oilseeds like sunflower and canola in the most of economic indicators adopted in this analysis.
- In case of indirect competition, sugarcane has performed better than all the crop combinations in the most of economic indicators except returns to irrigation water in both the provinces.
- Cotton+wheat rotation out performed rice combinations in all respects except revenue per crop day of basmati and wheat combination in the Punjab. However, the IRRI+sunflower combination out perfomed other combinations in terms of returns to overall investment and crop duration.

Economics of Fertilizer Use

- The quantity of wheat needed to buy one nutrient tonne of N fertilizer has fluctuated from 1.29 to 2.90 tonnes during 2003-13.
- During 2012-13, the parity ratio between market prices of N and wheat was not in favour of wheat due to high prices of N fertilizer.

- The quantity of wheat needed to buy one nutrient tonne of P fertilizer has fluctuated from 2.79 to 6.26 tonnes during 2003-13.

- During 2012-13, the parity ratio between market prices of P and wheat was not in favour of wheat due to high prices of P fertilizers.

Nominal and Real Support Prices

- The nominal support prices of wheat during 2007-08 to 2012-13 have experienced overall rise of 92 per cent, while the real support prices have increased by 10 per cent.

- During 2012-13, the nominal support price has risen by 14 per cent over the last year, while the real price has increased by 6 per cent only.

Nominal and Real Market Prices

- The nominal market prices of wheat have shown an overall surge of 76 per cent, while the real market prices have only gained by 1 per cent during the period.

- During 2012-13, the nominal market price has risen by 20 per cent, while the real market price has deteriorated by 12 per cent in the wake of inflationary trend.

World Production and Prices

- World wheat production estimated at 695 million tonnes in 2012-13 is less by 41 million than the last year while it is forecast to rise to 691 million tonnes in 2013-14.

- The closing stocks at 194 million tonnes in 2011-12 are estimated to fall to 174 million tonnes in 2012-13 but are forecast to marginally improve to 176 million in 2013-14.

- The average Fob (gulf) prices of US Hard Red Winter (HRW) wheat fluctuated widely dipping as low as US $ 154 per tonne in 2004-05 and rising as high as $ 361 per tonne in 2007-08.

- During the first three months of 2013-14, international prices of US HRW wheat have averaged at US $ 312 per tonne.

Export/Import Parity Prices

- Based on the average Fob (gulf) price of US HRW wheat during 2012-13, the export parity price works to Rs 1249 per 40 kgs. The export parity price calculates to Rs 1144 per 40 kgs on the basis of average fob price during 2010-11 to 2012-13.

- Based on the average Fob (gulf) price of 2013-14 (July-August), the export parity price of wheat works back to Rs 1112 per 40 kgs.

- Based on average Fob (gulf) prices during 2012-13 and 2010-11 to 2012-13, the import parity prices work to Rs 1813 and Rs 1701 per 40 kgs at Multan, while Rs 1733 and Rs 1621 per 40 kgs at Karachi.

- Based on the Fob price during 2012-13 (July-August), the import parity prices calculate to Rs 1667 per 40 kgs at Multan and Rs 1587 per 40 kgs at Karachi.

Economic Efficiency

- Economic efficiency of resource use in wheat production has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC).

- The NPCs have been below one under the importing scenario for 2007-08 to 2011-12 in both provinces.

- The EPCs below one during 2007-08 to 2011-12 except 2009-10 imply that wheat remained implicitly taxed. However, the EPC values above one in 2009-10 in both the provinces show higher prices of wheat during this particular year.

- Under export scenario, the NPC values are either greater than or close to one. This means that the export purpose wheat production is not a viable option for Pakistan. Rather the resources may be allocated to some other crop where exportable surplus may be produced and exported more profitably or may be a valuable import substitution..

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

- The DRCs are substantially below one during the period, indicating a Comparative Advantage in domestic wheat production for import substitution.

World Comparison

- Pakistan is the 8th largest wheat producer in terms of area and production but ranks at 59th position in terms of yield.
- Among the major wheat producing countries, Pakistan lies at the bottom in the context of yield.
- India announced lower support price for 2008-09 to 2012-13 as compared to Pakistan in view of huge subsidies paid on farm inputs in India.

Impact of Support Price on CPI and Household Expenditure

- In case the support price of wheat is enhanced by Rs 100 per 40 kgs over the existing level of Rs 1200 per 40 kgs, the CPI is likely to rise by 0.48 per cent.
- Like wise, the increases of Rs 100 per 40 kgs over the existing support price would bring additional expenditure of Rs 300 per capita per year or Rs 1914 per household, respectively.

Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for wheat 2013-14 crop would be as under:

Base	Likely price of domestic wheat at procurement center
	Rs per 40 kgs
1. Export parity price on the basis of:	
a) Fob (gulf) price of US Hard Red Winter (HRW) wheat during 2012-13, if exported from Multan	1249
b) Fob (gulf) average price of US HRW wheat during 2010-11 to 2012-13, if exported from Multan	1144
c) Fob (gulf) price of US HRW wheat during 2013-14 (Jul-Aug), if exported from Multan	1112
2. Import parity price on the basis of:	
a) Fob (gulf) price of US Hard Red Winter (HRW) wheat during 2012-13, if consumed at:	
- Karachi	1733
- Multan	1813
b) Fob (gulf) price of US HRW wheat during 2010-11 to 2012-13, if consumed at:	
- Karachi	1621
- Multan	1701
c) Fob (gulf) price of US HRW wheat during 2013-14 (July-Aug), if consumed at:	
- Karachi	1587
- Multan	1667
3. Monthly average wholesale market prices of wheat in major producing areas during the post-harvest period of 2012-13 crop:	
- Punjab	1192
- Sindh	1138
4. Cost of production at market/procurement centre level for 2013-14 crop:	
- Punjab	1134
- Sindh	1100

- Recommendations

In view of the field information, consultation with the stakeholders in the API's Standing Committee meeting on wheat and analysis of relevant factors, following recommendations are made regarding the support price, improving productivity and marketing of 2013-14 wheat crop:

Support Price

- The API strongly feels that the country should emphasize on sustainable wheat production as the crop is not only a staple food but also a major food security concern in the economy.
- In view of the existing incentive price of wheat, food inflation and other food security concerns, the Ministry of Natinal Food Security and Research may like to consider the support price of wheat and retain at the last year level of Rs 1200 per 40 kgs for 2013-14 crop.
- It provides a reference point for procurement by the public sector agency to meet the food security requirements of the country.
- In view of free market and active role of private sector, the actual incentive to wheat growers should come through the market forces.
- The government policy of encouraging the role of private sector in wheat marketing may be continued.
- It should provide some profit margin over the cost of production for improving productivity through balanced input use, better management and optimal technology adoption.
- The PASSCO and Provincial Food Departments may be designated as the implementing agency for the procurement of wheat at the support price announced by the government.
- The PASSCO and Provincial Food Departments should make prior arrangements for wheat prourement and enter in the field well in time especially in Sindh province where the harvesting starts early.

Improving Poductivity

- Agriculture Extension Departments should have close coordination with the Research Institutes and annually publicise the seed availability of new high yielding varieties well before the sowing season.

- There is a dire need to study the impact of climate change on land use, crop maturity and cropping pattern to ensure food security in the future.
- The coordinated efforts should be made for fast tracking the national wheat breeding programme for resistant varieties to UG 99 Stem Rust, drought, salinity, heat and frost.
- Molecular breeding for development of low input but high responsive varieties of wheat should be strengthened.
- Awareness campaign should be conducted by the provincial governments for rational use of chemical inputs through regular soil and water testing in coordination with the private sector.
- The technologies like laser levelling, zero tillage and high efficiency irrigation systems should be promoted.
- There should be a national programme for multiplication and dissemination of seed - fertilizer drills, on subsidized rate to improve the fertilizer use efficiency in case of phosphate.
- To overcome the energy crisis, the Solar Tubewell Technology may be promoted through providing subsidy by the government.
- The Government should emnphasize on availability of certified seed and grading of farm seed for wheat cultivation.
- Measures should be taken for strict quality control to check adulteration of weedicides, herbicides, pesticides and fertilizer to enhance their efficiency.
- For the efficient use of fertiizer, the Government should control the black marketing of DAP and Urea to keep the prices at optimal level to maintain certain level of ratio in prices of fertilizer and wheat.
- The Seed Act may be approved and the private seed companies selling spurious and fake seeds may be strictly penalized.

Improving Statistics and Marketing

- The Provincial Governments should emphasize more on crop cutting experiments being conducted in the Punjab and Sindh. The KPK and Balochistan Governments should also adopt the crop cutting experiments in line with the Punjab and Sindh.
- A committee of experts should be constituted to examine the current system of crop estimation and suggest ways and means to improve the provincial estimates.

- To check and control the input prices and other related matters, the Government should establish Input Price Regulatory Authority.
- To encourage mechanical harvesting, import of second hand machinery should be regulated under the optimal quality standards.
- The Government should give more attention to enhance storage capacity both in public and private sectors particularly at grassroots level.
- A strategic reserve of 1-2 million tonnes needs to be maintained for the sake of food security.
- The Government should stress on value addition in wheat produce to improve its export competitiveness in the world market.
- There is a need to tap the potential of organic wheat production in the province of Balochistan. The demand for organic wheat in the world market should be acquired through Pak Missions abroad.

WHEAT POLICY ANALYSIS FOR 2013-14 CROP

INTRODUCTION

Wheat is the main staple food as well as the largest grain source of the country. Wheat is also the largest crop of the country in terms of area. On the average, it contributes by 10 per cent to the value added in agriculture and 2 per cent to the GDP. Wheat crop occupies around 39 per cent of total cropped area. It is generally cultivated over 9 million hectares with an annual average production of 24 million tonnes. During the decade ending 2012-13, wheat production has increased @ 2.8 per cent per annum. About 87 per cent of wheat area is irrigated which accounts for about 94 per cent of the annual production. The record wheat production during 2008-09 and 2010-11 has turned the economy into exporter from importer of wheat. During 2012-13, wheat production of 24.14 million tonnes is about 3 per cent higher than 23.47 million during the last year. This rise in production was due to extension of 0.1 per cent in area and 2.9 per cent improvement in yield of wheat.

2. Among the world wheat producing countries, Pakistan ranks 7th in terms of both area and production of wheat but lies behind at 59th in terms of yield per hectare (FAO). The yield potential of high yielding wheat varieties is 6 tonnes per hectare at Research Farms in Pakistan, while the national average yield is only 2.8 tonnes per hectare. This huge gap in per hectare yield can be narrowed through adoption of optimal technology and better management on general field conditions. The productivity gap between the progressive and resource poor farmers in Pakistan is almost 40 per cent. The resource poor farmers cannot use quality seed, fertilizer, herbicide and other inputs to the optimum level for want of funds. This would require timely supply of inputs and production technology at the grassroots level alongwith incentive prices for their produce.

3. The Government of Pakistan annually reviews the support price of wheat in order to reduce the uncertainty and price risk in wheat farming and ensure food security in the country. The ECC of the Cabinet considered the Summary of the M/o National Food Security and Research on the Support Price Policy of Wheat for 2012-13 crop dated 22-11-

2012 and announced to increase the support price for wheat 2012-13 crop to Rs 1200 per 40kgs.

4. The PASSCO and the Provincial Food Departments are reported to have procured 5.941 million tonnes of wheat during 2012-13. Adding the carryover stocks of 1.618 million tonnes, the government has sufficient stocks of 7.559 million tonnes to meet the domestic requirements during the consumption year of 2013-14.

5. In formulating the price policy recommendations for 2013-14 wheat crop, following steps were undertaken by the API:

i) To update the data on prices of inputs, hiring rates of farm operations and marketing costs, annual field survey in important wheat growing areas of Sindh was carried out during June-July, 2013, while in the Punjab the field information was collected on telephone due to non-availability of official transport for the field survey.

ii) The data on area and production, stocks, trade and prices; both domestic and global, and Consumer Price Index were collected from various agencies and published material in producer prices of wheat in selected countries were collected from various national and international agencies and through internet. These data have been analyzed to reflect the domestic and international position on various aspects of wheat production and marketing.

iii) Annual meeting of the API's Standing Committee on wheat was held on 4th July 2013 at Islamabad. The meeting was attended by the wheat growers, crop experts, policy makers and representatives of the provincial chambers of agriculture, growers' associations and officials from the Federal and Provincial governments. Issues relating to the production and marketing of wheat including prices of inputs and cost of production were discussed at length. A number of constraints impacting on farm production in general and wheat in particular were also highlighted which helped in suggesting certain measures to improve the efficiency of wheat farming and marketing. The views expressed in the meeting have been duly considered in formulating the policy recommendations for 2013-14 crop.

6. As wheat is not only the staple food but also a major food security crop of the country, its pricing is a complex phenomenon. It involves harmony of conflicting interests of various stakeholders like growers, consumers, millers, etc. In view of hike in input

prices and cost of production, the farmers argue for higher output prices otherwise wheat farming may not be a viable proposition. High producer prices of wheat in turn escalate the consumer prices, leading to food inflation in the economy in view of its high weight in the average household budget. Accordingly, the governments hesitate to enhance consumer prices of wheat to their economic levels and subsidize the issue prices at considerable cost to the public exchequer.

7. As a very sensitive commodity, a slight change in its price and availability does have a positive or negative impact on consumers, especially on the poor sections of the community. Hence, the government has planned to develop a Safety Net for food assistance to the poor to save them from the adverse effects of hike in prices of staple food like wheat and other essential food items. In this regard, the Federal Government has agreed to not only continue Income Support Programme but also increase the monthly stipend from Rs 1000/- to Rs 1200/- per household for the food assistance of the poorest section of the society.

2. SOWING AND HARESTING TIMES OF WHEAT

8. A wide-ranging schedule of wheat sowing for various ecological zones in the country, as recommended by the Pakistan Agricultural Research Council, is presented in Table-1.

Table-1: Recommended Sowing and Harvesting Times of Wheat

Provinces		Times
Punjab		
i)	Southern	1st November to 30th December
ii)	Central	1st November to 15th December
iii)	Northern:	
a)	Irrigated	1st November to 15th December
b)	Un-irrigated	20th October to 15th November
Sindh		
i)	Southern	1st November to 25th December
ii)	Northern	1st November to 31st December
Khyber Pakhtunkhwa		
i)	Plain area	25th October to 15th December
ii)	Hilly area	1st November to 15th December
Balochistan		
i)	Upper	1st October to 20th February
ii)	Plain	1st November to 15th December

Source: PARC, Islamabad.

9. In the Punjab, wheat sowing in the irrigated areas generally starts from 1st November and extends upto end of December while in barani areas it begins from 20th October and continues upto 15th November.

10. In Sindh, wheat sowing commences from 1st November and goes upto the end of December.

11. In the Khyber pakhtunkhwa, wheat is sown from 25th October to 15th December in plain areas and 1st November to 15th December in hilly areas.

12. In Balochistan, wheat sowing starts in advance than other provinces. It begins from 1st October in upper part of the province and goes upto 20th February while in plain areas, sowing times of wheat ranges from 1st November to 15th December.

13. Harvesting of wheat depends on the climatic conditions and maturing time of varieties sown. By and large it starts in March/April and continues upto May, depending upon the sowing time, management practices, climatic conditions and varieties.

3. REVIEW OF 2012-13 CROP

3.1 Provincial Shares in Area and Production

14. Based on 3-year average ending 2012-13, the Punjab and Sindh contribute about 76 and 16 per cent in total wheat production while the shares of the KPK and Balochistan are around 5 and 3 per cent, respectively. The provincial shares of area and production are presented in Table-2 and depicted in Figures 1 & 2, respectively.

15. Around 87 per cent of wheat acreage is cultivated under the irrigated conditions which contribute 94 per cent of wheat production in the country.

Table-2: Provincial Shares in Area and Production of Wheat (Average of 2010-11 to 2012-13)

Item/Country/ Province	Total	Pakistan	Punjab	Sindh	KPK	Balochistan
	000 hact.	---------- Per cent ----------				
A. Area						
Total	8736.9 (21589.7)	100.0	75.1	12.4	8.4	4.2
Irrigated	7555.5 (18670.4)	86.5	67.3	11.8	3.7	3.7
Un-irrigated	1181.4 (2919.3)	13.5	7.8	0.6	4.7	0.5
B. Production	000 tonnes	---------- Per cent ----------				
Total	24287.3	100.0	76.0	16.0	4.8	3.2
Irrigated	22873.5	94.2	72.6	15.8	2.8	3.0
Un-irrigated	1413.8	5.8	3.4	0.2	2.0	0.2

Note: Figures in parentheses are thousand acres.
Source: Worked out from Annex-I.

Provincial shares in Area of Wheat: (Avearge of 2010-11 to 2012-13)

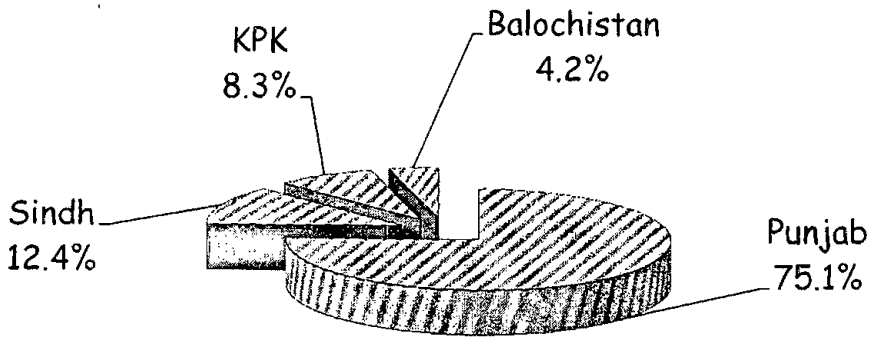


Figure-1: Shares in Area

Provincial Shares in Production of Wheat: (Average of 2010-11 to 2012-13)

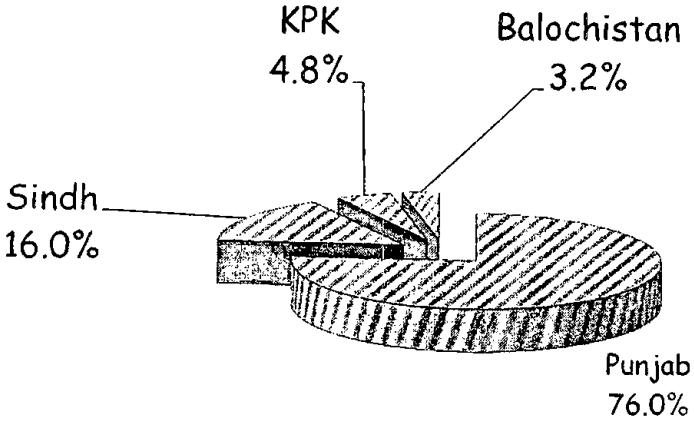


Figure-2: Shares in Production

3.2 Long-term Changes: 2002-03 to 2012-13

16. During the decade ending 2012-13, wheat production at country level has surged @ 2.4 per cent per annum owing to 1.5 per cent improvement in yield and 0.9 per cent expansion in area. In the Punjab, wheat production has increased @ 1.7 per cent annually due to 1.0 per cent improvement in yield and 0.7 per cent acreage expansion. In Sindh, wheat production has also risen @ 6.7 per cent per annum mainly due to improvement of yield by 3.9 per cent as the area expanded only by 2.6 per cent. Details of wheat area, yield and production by province are presented in Table-3.

Table-3: Average Annual Growth Rates of Area, Yield and Production of Wheat: 2002-03 to 2012-13

Country/ Province	Area	Yield	Production
	---------- Per cent per annum ----------		
Pakistan	**0.9**	**1.5**	**2.4**
Punjab	0.7	1.0	1.7
Sindh	2.6	3.9	6.7
KPK	-0.1	1.3	1.3
Balochistan	1.2	0.4	1.6

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.

3.3 Medium Term Changes: 2007-08 to 2012-13

17. The annual growth rates for the period 2007-08 to 2012-13 show that the wheat production has increased @ 2.1 per cent solely due to 2.3 per cent improvement in yield as the acreage marginally decline at the country level. Provincial growth rates are presented in Table-4.

Table-4: Average Annual Growth Rates of Area, Yield and Production of Wheat: 2007-08 to 2012-13

Country/Province	Area	Yield	Production
	--------- Per cent per annum ---------		
Pakistan	**-0.3**	**2.3**	**2.1**
Punjab	-0.3	2.7	2.4
Sindh	1.2	0.5	1.7
KPK	-1.0	2.3	1.3
Balochistan	-2.1	1.0	-1.1

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

3.4 Short-term Changes: 2011-12 Vs 2012-13

18. Wheat production from 2012-13 crop is reported at 24.174 million tonnes at country level, showing 3.0 per cent increase over 23.473 million tonnes in 2011-12. Higher production is mainly attributed to rise in yield by 2.9 percent and in area by 0.1 per cent. The provincial area, yield and production of wheat are presented in Table-5 and also depicted in Figures 3 and 4.

Table-5: Area, Yield and Production of Wheat: 2011-12 and 2012-13 Crops

Country/ Province	Area		Changes	Yield per hectare		Changes	Production		Changes
	2011-12	2012-13		2011-12	2012-13		2011-12	2012-13	
	-- 000 hectares --		Per cent	-----Kgs ----		Per cent	-- 000 tonnes --		Per cent
Pakistan	**8649.8**	**8660.2**	**0.1**	**2714**	**2791**	**2.9**	**23473.3**	**24174.7**	**3.0**
Punjab	6482.9	6511.3	0.4	2736	2855	4.3	17738.9	18587.0	4.8
Sindh	1049.2	1058.4	0.9	3585	3400	-5.2	3761.4	3598.7	-4.3
KPK	729.3	727.3	-0.3	1550	1679	8.3	1130.3	1221.0	8.0
Balochistan	388.4	363.2	-6.5	2170	2115	-2.5	842.7	768.0	-8.9

Source: Annex-I.

3.5 Factors Responsible for Changes in Area and Production: 2012-13 Crop

19. The Provincial Agriculture Departments of the Punjab and Sindh have reported following factors responsible for changes in area and production during 2012-13.

Punjab

Area

20. There is an increase of about 1.1% in irrigated area and a decline of about 5.1% in un-irrigated tract. However, there is an overall increase of about 0.4% over the previous year, which is attributed to the following factors:

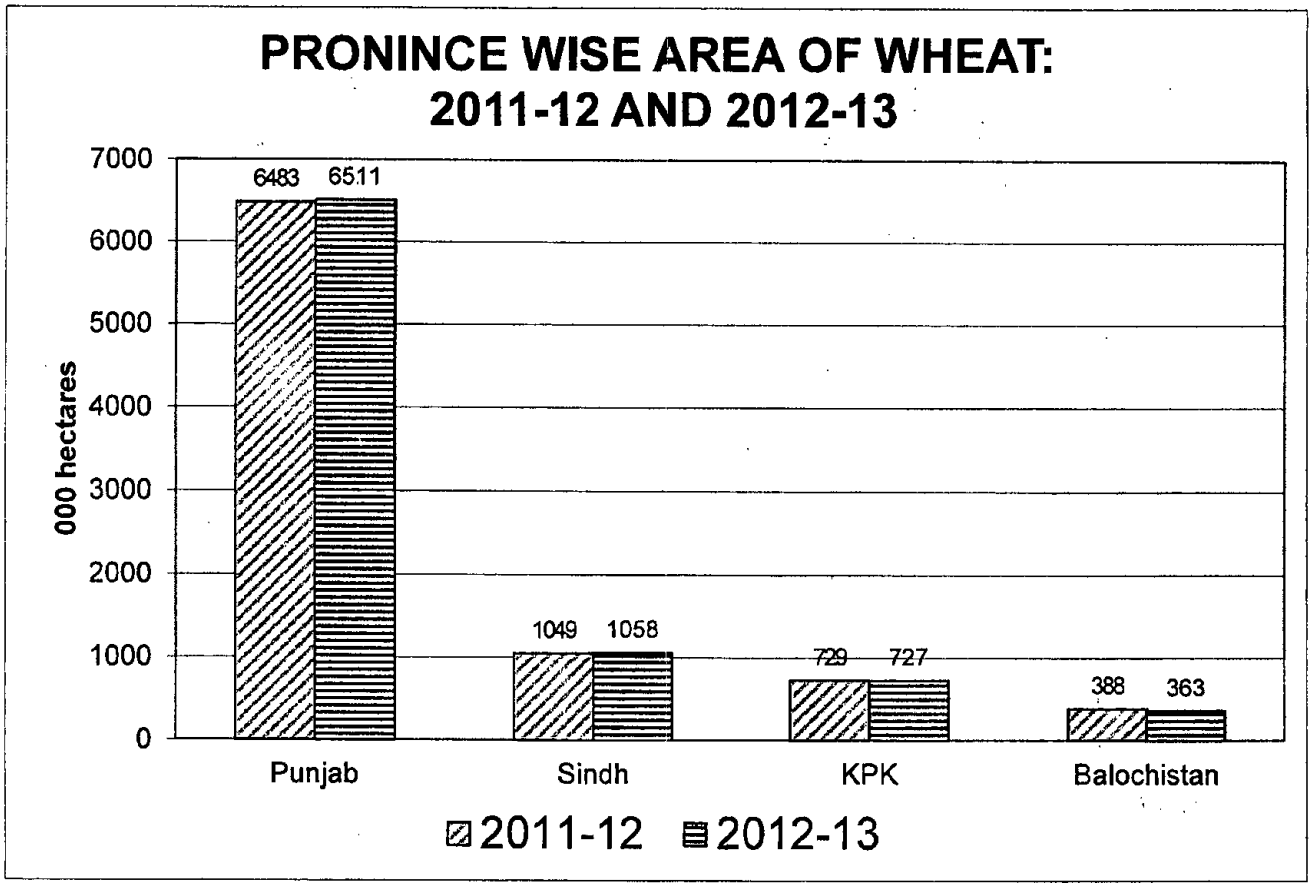


Figure-3

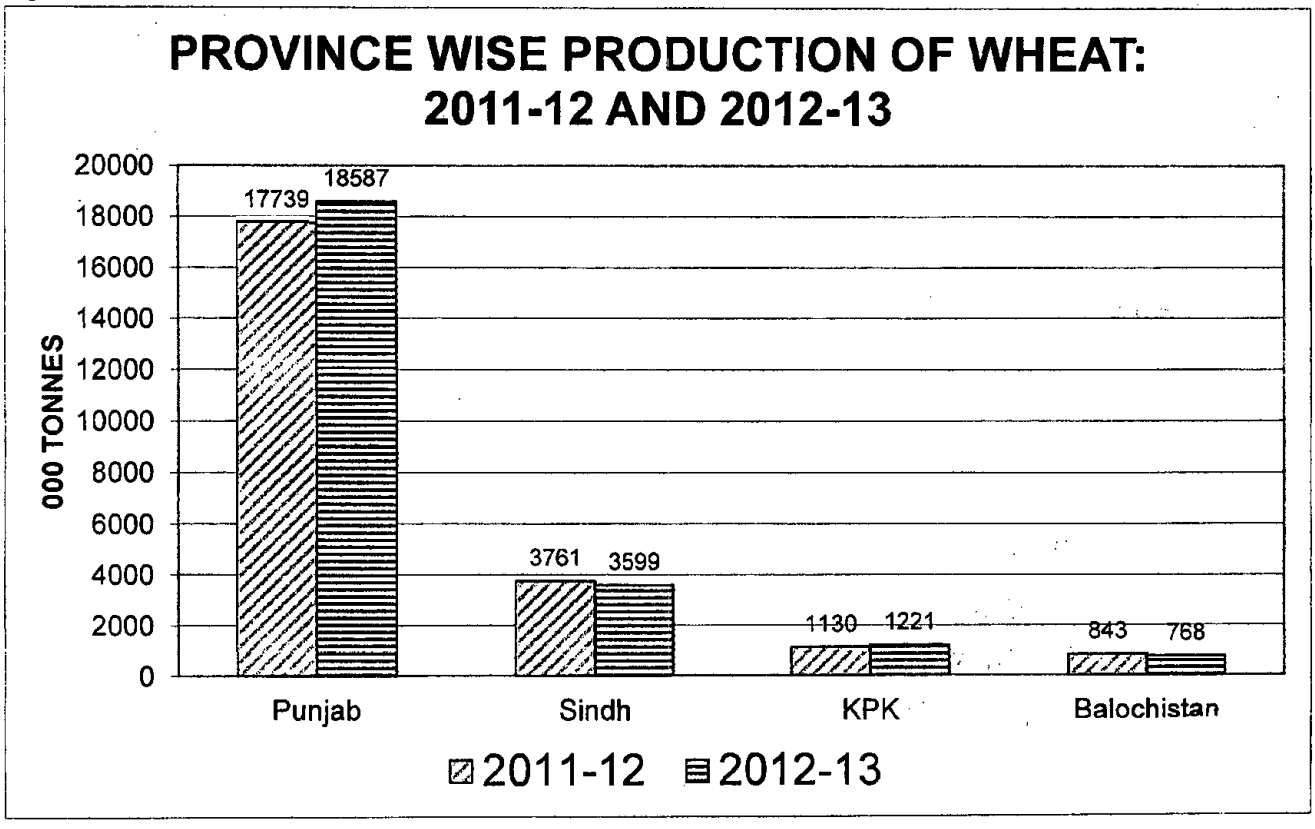


Figure-4

1) Enhancement in support price.
2) In cotton zone, growers shifted early sown BT Cotton area to wheat crop due to its less economic return.

Production

21. The production shows an increase of about 5% in the Punjab over the previous year which is attributed to:-

1. Corresponding increase in area under the crop.
2. Optimal temperature produced wholesome effect on germination, growth and healthy grain formation.
3. Intermittent rains and adequate supply of inputs also pooled their share to enhance the yield.

Sindh

Area

1. The area increased in response to better support price of wheat announced by the government.
2. Due to late monsoon rains, sowing of sunflower crop suffered and the growers switched over to wheat crop.

Production

1) Due to canal closure and non-availability of irrigation water, late sowing of wheat crop was reported. Sowing of wheat continued for full month of January.
2) Due to late release of water after warabandi, irrigation water could not be applied at milky stage of the crop.
3) This year due to comparatively less cold weather, grain could not gain proper size, therefore less yield per acre is being reported.

3.6 Important Wheat Producing Districts

22. The district of Jhang is on the top in wheat production followed by Bahawalnagar and Sheikhupura producing more than one million tonnes of wheat each per annum. The districts producing more than 500 thousand tonnes per annum are Jhang, Bahawalnagar, Sheikhupura, R.Y.Khan, Faisalabad, Muzaffargarh, Bahawalpur, Vehari, Gujranwala, Okara, Khanewal, Sialkot,Sargodha, Lodhran, Kasur,Pakpattan, T.T.Singh and Layyah These 18 districts produce 55 per cent of total wheat production in Pakistan while their share in area is estimated at 50 per cent. The districts of Multan, Hafizabad, D.G Khan, Sahiwal, Rajanpur, Bhakkar and Mianwali from the Punjab, Sanghar, Khairpur, Naushero Feroz and Ghotki from Sindh, Swat and Swabi from KPK and Nasirabad and Jaffarabad from Balochistan are other important wheat producing districts in the country. The districts have been arranged in descending order of wheat production in Annex-III.

3.7 Targets Vs Achievements: 2012-13 Crop

23. Wheat production target for 2012-13 crop was at 24.731 million tonnes from an area of 8.933 million hectares by the provincial governments. However, the production of wheat is reported at 24.174 million tonnes, short by 2.2 per cent against the target. The production target could not be achieved due to under achievement of area by 3.0 per cent inspite of 0.8 per cent improvement in yield. Provincial details on area, yield and production may be seen in Table-6 and also depicted in Figures 5 and 6.

Table-6: Targets Vs Achievements in Area, Yield and Production of Wheat: 2012-13 Crop

Country/ Province	Area		Deviation from target	Yield per hectare		Deviation from target	Production		Deviation from target
	Targets	Achieve-ments		Targets	Achieve-Ments		Targets	Achieve-ments	
	000 ha		Per cent	Kgs		Per cent	000 tonnes		Per cent
Pakistan	**8932.5**	**8660.2**	**-3.0**	**2769**	**2791**	**0.8**	**24731.0**	**24174.7**	**-2.2**
Punjab	6798.6	6511.3	-4.2	2824	2855	1.1	19200.0	18587.0	-3.2
Sindh	1031.0	1058.4	2.7	3571	3400	-4.8	3682.0	3598.7	-2.3
KPK	737.4	727.3	-1.4	1554	1679	8.0	1146.0	1221.0	6.5
Balochistan	365.6	363.2	-0.6	1923	2115	10.0	703.0	768.0	9.2

Sources: 1. For Targets:
(a) Provincial Agriculture Departments of Punjab and Sindh
(b) Average estimates of area & production of last three years for KPK and Balochistan
2. For Achievements: Annex-I.

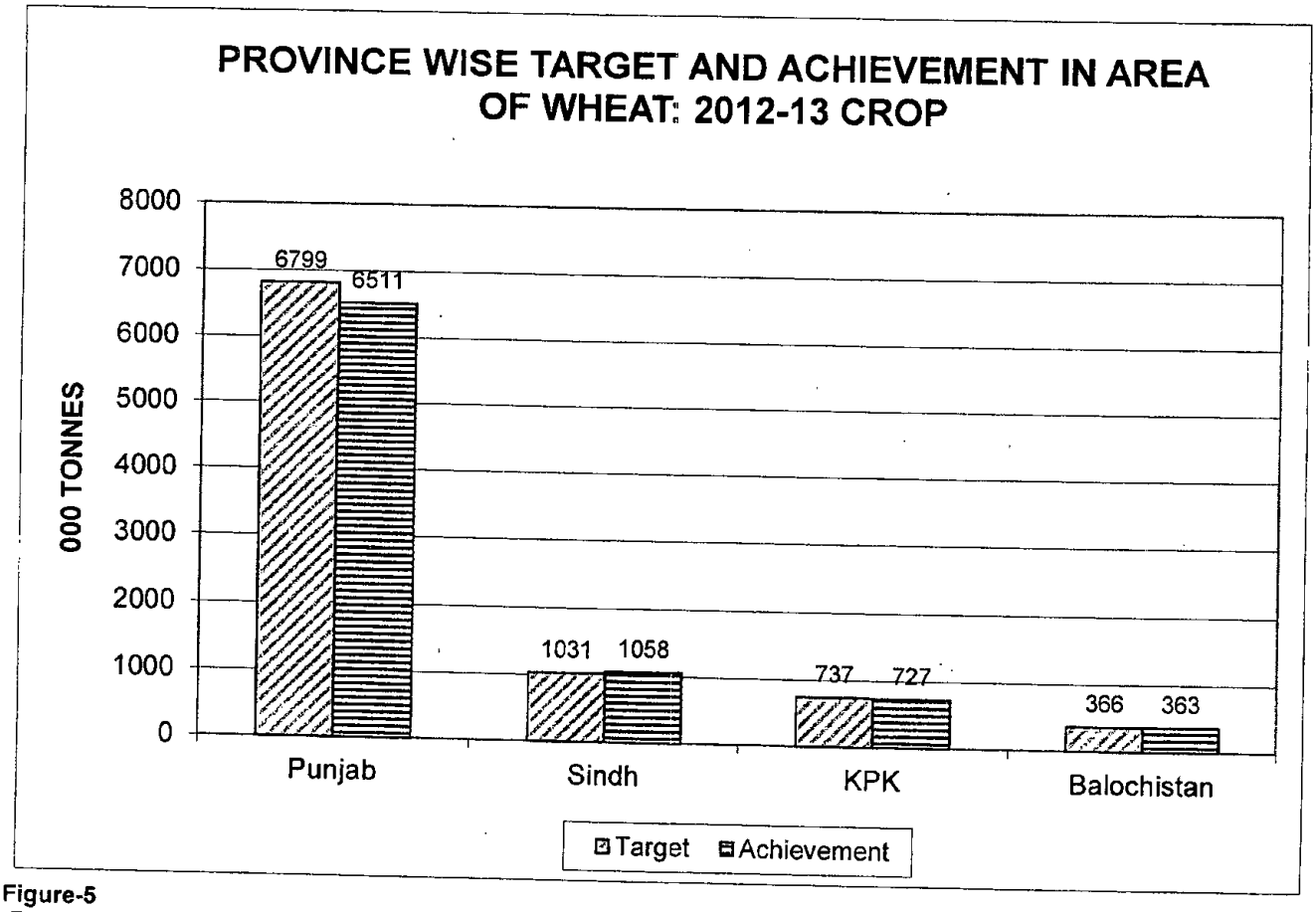


Figure-5

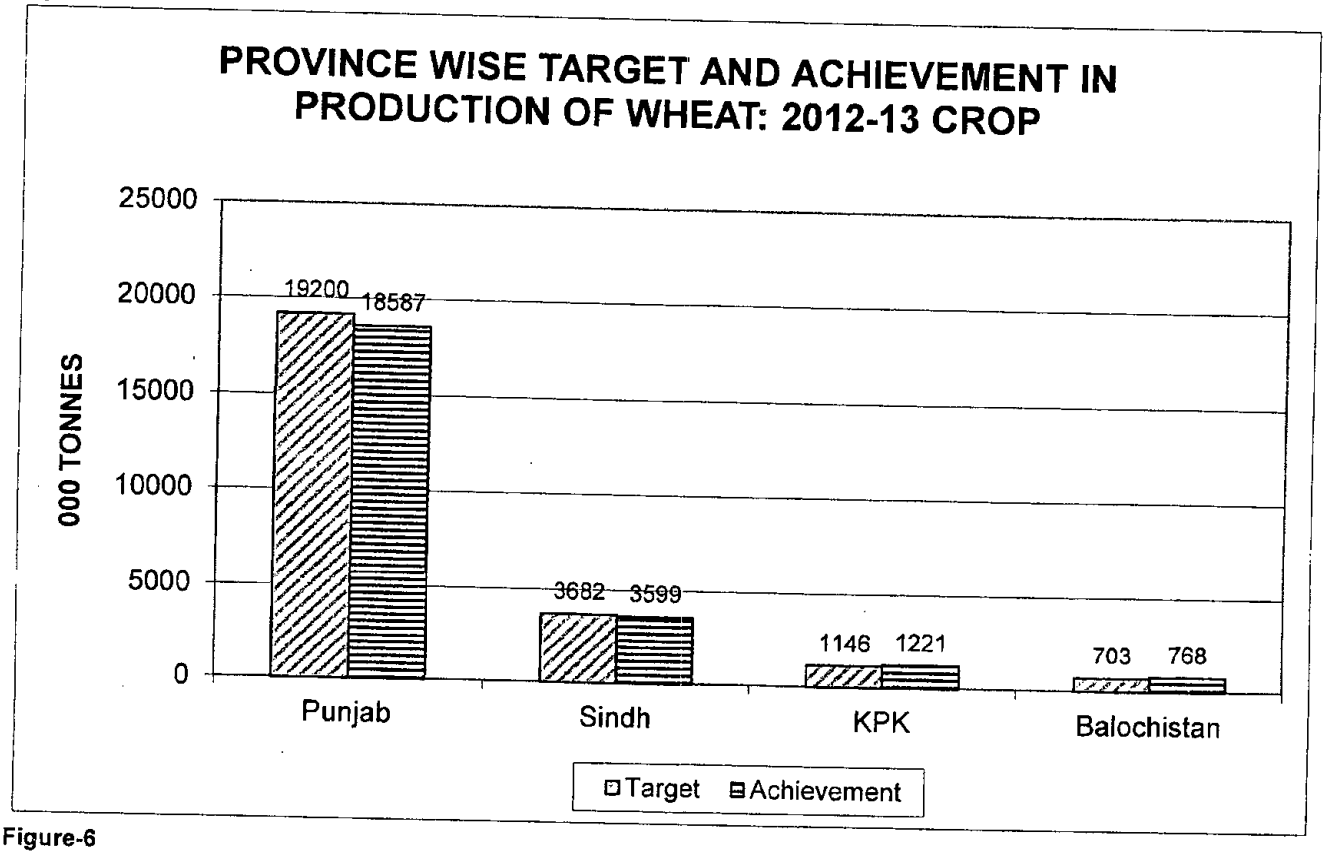


Figure-6

4. DOMESTIC DEMAND, SUPPLY, STOCKS AND PRICE SITUATION

4.1 Domestic Demand, Supply and Stocks

24. With the domestic production of 24.17 million tonnes from 2012-13 crop and carryover stocks of 1.62 million tonnes, total wheat supply in the country for 2013-14 consumption year becomes 25.65 million tonnes. This supply may slightly increase if production of wheat in Azad Kashmir and Gilgit-Baltistan estimated at 0.24 million tonnes is added. Thus total availability of wheat in the country would be 25.89 million tonnes.

25. The estimation of consumption requirement of wheat for 2013-14 is based on its actual average per capita availability of 113 kgs per annum as worked by API through balance sheet method and 120 kgs per annum as per Planning Commission. Using total population of 194.55 million and 120 kgs per annum, human consumption requirement for 2013-14 is estimated at 23.35 million tonnes. Adding allowance for seed, feed and wastage @ 10 per cent of production and strategic reserve of one million, the gross domestic requirements for 2013-14 wheat year works to 26.78 million tonnes. However, this requirement would be 25.41 million tonnes if estimated at per capita availability of 113 Kgs per annum as per API analysis. The calculations are presented in Table -7.

Table-7: Domestic Requirements of Wheat for 2013-14 Wheat Year: (May-April)

S.No.	Item	Based on annual per capita	
		Consumption	Availability
		120 Kgs	113 Kgs
1.	Population	194.55	194.55
2.	Human consumption requirement	23.35	21.98
3.	Allowance for seed, feed and wastage @ 10 per cent of total production	2.43	2.43
4.	Food Security reserves	1.00	1.00
5.	Total requirements	26.78	25.41

Source: Annex-IV.

4.2 Post harvest prices

26. Monthly wholesale prices of wheat during the post-harvest months of 2012-13 crop in the major producing area markets of the Punjab and Sindh are presented in Table-8.

Table-8: Monthly Average Wholesale Prices of Wheat in Main Producing Area Markets of Punjab and Sindh during Post-harvest Season of 2012-13 Crop

Markets	April	May	June	Average
Punjab	----------Rs per 40 kgs----------			
Lahore	1175	1156	1238	**1190**
Faisalabad	1263	1187	1220	**1223**
Sargodha	1147	1153	1231	**1177**
Multan	1137	1197	1258	**1197**
Gujaranwala	1230	1189	1236	**1218**
Okara	1191	1161	1206	**1186**
R.Y. Khan	1086	1169	1240	**1165**
Bahawalpur	1157	1160	1253	**1190**
D.G.Khan	1122	1183	1228	**1178**
Average	**1168**	**1173**	**1234**	**1192**
Sindh				
Sanghar	1110	1165	1155	**1130**
Nawabshah	1050	1150	1195	**1111**
Matyari	1100	1140	1180	**1130**
Mirpurkhas	1100	1120	1178	**1119**
Sukkur	1125	1200	1215	**1153**
Larkana	1200	1200	1200	**1188**
Average	**1114**	**1163**	**1187**	**1138**

Sources:

i) Directorate of Agriculture (E&M), Lahore, Punjab.
ii) DG Agriculture Extension Hyderabad, Sindh.

27. The perusal of the market-wise data reveals that the monthly average wholesale prices of wheat in main producing areas of Punjab were below the support price of Rs 1200 per 40 Kgs during the month of April and May 2013 except Faislabad and Gujranwala

market in April 2013. However, in the month of June 2013 these prices surpassed the support price and ranged between Rs 1206 per 40 kgs to Rs 1258 per 40 kgs. The monthly average ranged between Rs 1168 to 1234 per 40 kgs.

28. In Sindh, the post-harvest price was below the support price of Rs 1200 except Larkana and Sukkur where these prices touched the support price during April to June 2013. The monthly average prices ranged between Rs 1114 to 1187 per 40 kgs during March-June 2013 in Sindh.

5. WORLD PRODUCTION, CONSUMPTION, STOCKS AND TRADE SITUATION

29. The data on world production, consumption, stocks and trade situation from 2011-12 to 2013-14 are presented in Table-9.

Table-9: World Wheat Situation: 2011-12 to 2013-14

Items	2011-12	2012-13 (Estimated)	2013-14 (Forecast)
	.....Million tonnes.....		
Opening stocks	194	194	174
Production	695	654	691
Total Supply	889	848	865
Consumption	696	673	688
Closing stocks	194	174	176
Trade	145	140	141

Source: Grain Market Report, International Grains Council, London, August 30, 2013 GMR No 436.

30. The world wheat production in 2012-13 is estimated at 654 million tonnes, 41 million tonnes lower than that of last year. After adding the opening stocks of 194 million tonnes, the world supply of wheat in 2012-13 is estimated at 848 million tonnes, 41 million

tonnes lower than the last year. Due to lower production against the requirement of 673 million tonnes, the closing stocks are estimated to decline to 174 million tonnes in 2012-13.

31. According to the International Grains Council London, the global wheat production in 2013-14 is forecast to increase to 691 million tonnes. Accounting for the opening stocks of 174 million tonnes, total supply is anticipated at 865 million tonnes against the consumption forecast of 688 million in 2013-14.

6. INTERNATIONAL PRICES OF WHEAT

32. Average Fob (Gulf) prices of US Hard Red Winter (HRW) wheat from 2004-05 to 2012-13 are presented in Annex-V. The prices of US HRW showed a volatile pattern during the period under review. The prices averaged at US $ 154 per tonne during 2004-05. The world prices of wheat followed a rising trend and averaged at US $ 361 per tonne in 2007-08, the highest level of price during the period under review. However, the prices fell to US $ 270 per tonne in 2008-09 and $ 209 per tonne in 2009-10. The prices again trended upward to $ 316 in 2011-12 and slightly declined to $ 301 per tonne in 2011-12 but again increase to $ 347 by next year. In current season 2013-14 (July-August), the price is showing a downward trend averaging at $ 312 per tonne.

7. IMPORT AND EXPORT PARITY PRICES

33. The import and export parity prices have been calculated on the basis of Fob (Gulf) prices of US HRW wheat while the export parity price on the basis of both the Fob and average price of actual export price of Pakistani wheat. The results of the calculations have been summarized in Table-10 and 11, while the detail of these calculations may be seen at Annexes- VI and VII.

Table -10 Import Parity Price of Wheat on the Basis of US Hard Red Winter Fob (Gulf) Price

Item	Jul-Aug 2013-14	During 2012-13	During 2010-11 to 2012-13
Fob (Gulf) price (US $ per tonne)	313	347	321
Import parity price per 40 kgs of wheat:			
i) If consumed at Multan	1667	1813	1701
ii) If consumed at Karachi	1587	1733	1621

Table-11: Export Parity Prices of Wheat on the Basis of Hard Red Winter Fob (Gulf) Price

Item	Jul-Aug 2013-14	During 2012-13	During 2010-11 to 2012-13
Fob (Gulf) price assuming for Karachi (US $ per tonne)	313	347	321
Export parity price per 40 kgs at procurement centre	1112	1249	1144
Export parity on the basis of actual average Fob (Karachi) Price	**Jul 2013-14**	**During 2012-13**	**During 2010-11 to 2012-13**
Average Fob (Karachi) Price (US $ per tonne)	368	333	325
Export parity price per 40 kgs at procurement centre	1334	1193	1160

Source Annex-VI to VII.

8. COST OF PRODUCTION OF WHEAT

34. The cost of production (COP) is one of the imperative considerations in devising price proposals for farm produce. However, the empirical estimation of a typical COP involves a number of conceptual and practical difficulties. These difficulties by and large arise from the larger 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, cultural practices etc, resulting in varying crop yields and unit cost of production.

35. The cost of production of wheat for 2013-14 crop in the Punjab and Sindh has been estimated by adopting the input-output parameters used in the 2012-13 Wheat Policy Analysis Report alongwith the latest input prices and hiring rates of cultural operations, collected through a field survey conducted by the API during June-July 2013 in the major wheat growing areas of Sindh while in the Punjab the field information was obtained on

telephone due to non-availability of official transport for the field survey. The input prices and hiring rates were also supplemented with the information provided by the representatives of the Provincial Governments and Farmers' Associations in the meeting of the API's Committee on wheat, held on July 4, 2013 at Islamabad. The details of the COP estimates for the Punjab and Sindh for 2012-13 and 2013-14 crops are presented at Annexes-IX and X, respectively while the summary is presented in Table-12.

Average Farmers' Cost of Production of Wheat: 2012-13 and 2013-14 Crops

36. The cost of production estimates of wheat in the Punjab and Sindh for 2012-13 and 2013-14 crops are presented in Table-12.

Table-12: Average Farmers' Cost of Production of Wheat: 2012-13 and 2013-14 Crops

Items	Units	2012-13 Crop	2013-14 crop	Increase in 2013-14 over 2012-13
Punjab				
1. Cost of cultivation	Rs/acre	28118	30570	2452
2. Yield				
a) Yield in kgs	Kgs/acre	1108	1108	-
b) Yield in maunds	40 kgs/acre	28	28	-
3. Cost of production at farm level	Rs/40 kgs	1015	1104	89
4. Marketing cost	Rs/40 kgs	30	30	-
5. Cost of production at market/ procurement centre				
a) With land rent	Rs/40 kgs	1045	1134	89
b) Without land rent	Rs/40 kgs	774	827	53
Sindh				
1. Cost of cultivation	Rs/acre	28120	29759	1639
2. Yield				
a) Yield in kgs	Kgs/acre	1113	1113	-
b) Yield in maunds	40 kgs/acre	28	28	-
3. Cost of production at farm level	Rs/40 kgs	1011	1070	59
4. Marketing cost	Rs/40 kgs	30	30	-
5. Cost of production at market/ procurement centre				
a) With land rent	Rs/40 kgs	1041	1100	59
b) Without land rent	Rs/40 kgs	771	830	59

Source: Annex-IX and X.

Punjab

37. It may be seen from the above Table-12 that the likely cost of cultivation of one acre of wheat in the Punjab during 2013-14 crop year is expected at Rs 30570, including land rent. The cost of producing wheat at farm gate works to Rs 1104 per 40 kgs, at the average yield of 1108 kgs per acre. Accounting for the marketing charges @ Rs 30 per 40 kgs, the market/procurement centre level cost of production comes to Rs 1134, higher by Rs 89 (8 %) than the corresponding cost of Rs 1045 in 2012-13.

Sindh

38. The cost of growing one acre of wheat in Sindh during 2013-14 crop is likely to be Rs 29759, inclusive of land rent. Distributing this cost over the average yield of 1113 kgs per acre, the farm level cost of production comes to Rs 1070 per 40 kgs. Adding marketing cost @ Rs 30 per 40 kgs, the cost of producing and delivering 40 kgs wheat at market/procurement centre level would be Rs 1100, reflecting a rise of Rs 59 (6 %) over the last year.

39. The increases in the cost of production of wheat for the 2013-14 crop in the Punjab and Sindh over the last year are mainly attributed to higher cost of ploughing, irrigation, harvesting & threshing operations. In the Punjab, the rise in land rent has also added substantially to the increase in cost of production, while the increased value of wheat bhoosa has partially offset the impact of rise in the cost of production of wheat for 2013-14 crop.

Cost of Major Farm Inputs and Operations

40. A comparison of the cost of major operations and farm inputs in the gross cost of cultivation of wheat in the Punjab and Sindh during 2012-13 and 2013-14 crops alongwith percent changes therein is presented in Table-13.

Table-13 : Cost of Major Operations/Inputs of Wheat: 2012-13 and 2013-14 Crops

Operations/inputs	2012-13 crop	2013-14 crop	Share in increased cost
	---Rs/acre---		Per cent
Punjab			
1. Land preparation	3043 (9)	3286 (9)	8
2. Seed and sowing operations	3347 (10)	3443 (10)	3
3. Weedicides	512 (2)	551 (2)	1
4. Irrigation	2721 (8)	2928 (8)	7
5. Fertilizer including FYM	8280 (25)	8545 (24)	9
6. Harvesting and threshing etc	5607 (17)	6599 (18)	34
7. Land rent	7500 (23)	8500 (24)	34
8. Others	2114 (6)	2218 (6)	4
9. Total cost	33118 (100)	36070 (100)	**100**
Sindh			
1. Land preparation	4263 (13)	4713 (14)	27
2. Seed and sowing operations	2772 (9)	2821 (8)	3
3. Interculture/weedicides	404 (1)	434 (1)	2
4. Irrigation	1829 (6)	1955 (6)	8
5. Fertilizer including FYM	8360 (26)	8537 (25)	11
6. Harvesting and threshing etc	4842 (15)	4541 (16)	43
7. Land rent	7500 (23)	7500 (23)	-
8. Others	2150 (7)	2258 (7)	7
9. Total cost	32120(100)	33759(100)	**100**

Notes:

1. Rounding of figures may result in slight deviation;
2. Others include mark-up, management charges, land tax and drainage cess;
3. Figures in parenthesis are percent shares in total cost of cultivation.

Source: Annex-IX & X.

Punjab

41. In overall cost of cultivation of wheat in the Punjab for the 2013-14 crop, the fertilizer and land rent are the major components, accounting for 24 per cent each. Other components are harvesting & threshing (18 %), Seed & sowing operations (10 %), Land preparation (9 %), Irrigation (8 %), others (6 %) and interculture/weedicides (2 %).

Sindh

42. In Sindh, fertilizer is the major constituent in the total cost of cultivation during 2013-14 crop season, accounting for 25 per cent. Other ingredients of the cost of cultivation are: Land rent (23 %), Harvesting & threshing operations (16 %), Land preparation (14 %), Seed & sowing operations (8 %), Others (7 %), Irrigation (6 %) and Interculture/weedicides (1 %).

9. NOMINAL AND REAL PRICES OF WHEAT

43. The purchasing power of a certain commodity is influenced by the fluctuations in its price in relation to general price level in the economy. Such variations in the price also affect the welfare and real income of its producers. To ascertain overtime changes in the purchasing power of wheat, the nominal support and market prices of the crop during 2007-08 to 2012-13 have been deflated by the corresponding Consumer Price Index (CPI), the most common measure of inflation in the economy.

9.1 At Support Prices of Wheat

44. The analysis in terms of nominal and real support prices for the period 2007-08 to 2012-13 is provided in the Table-14:

Table-14: Nominal and Real Support Prices of Wheat: 2007-08 to 2012-13

Year	Consumer Price Index (CPI)	Support Prices	
		Nominal	Real
	2007-08=100	Rs/40 Kgs	
1	2	3	4=(3/2)x100
2007-08	100.00	625	625.00
2008-09	117.03	950	811.76
2009-10	128.85	950	737.29
2010-11	146.45	950	648.68
2011-12	162.57	1050	645.88
2012-13	175.17	1200	685.05

Sources: Economic Survey of Pakistan: 2012-13.

45. The nominal support price of wheat was Rs 625 per 40 kgs in 2007-08. It was enhanced to Rs 950 per 40 kgs in 2008-09 and remained constant in the following two years. During 2011-12 the support price of wheat was fixed at Rs 1050 per 40 kgs which was further increased to Rs 1200 for 2012-13 crop. During the same period, the CPI has spiraled by 75 per cent. Consequently, the real support price of wheat for 2012-13 crop estimated at Rs 685 per 40 kgs in terms of 2007-08 rupee, showing an improvement of around 10 per cent over the real price of Rs 625 for 2007-08 crop. However, the real support price of wheat has experienced ups and downs during the period under review and remained in the domain of Rs 625 in 2007-08 to Rs 812 in 2008-09.

46. As illustrated in Fig-7, the absolute gap in the nominal and real support prices of wheat has been expanding mildly from 2007-08 to 2008-09 but a sharp expansion is evidenced afterwards.

9.2 Average Market Prices of Wheat

47. The analysis in terms of real and nominal average market prices for the period of 2007-08 to 2012-13 is set out in the Table-15:

48. The market prices have evidenced a constant change during the whole period under review. These prices remained lower than the support price throughout the period under review except 2007-08. After 2007-08, the market price could not gain an identical value as of support price and remained below at Rs 924 per 40 kgs in 2008-09. It further declined to Rs 894 in 2009-10 while it improved to Rs 919 per 40 kgs in 2010-11. However, in 2011-12, the market price of wheat evidenced a sharp decline of 6.3% compared with the fixed support price of Rs 1050 per 40 kgs. During the current wheat season, the market price improved by 20 per cent from 2011-12 crop season but remained 3 per cent lower than the fixed support price of Rs 1200 per 40 kgs.

Table-15: Nominal and Real Market Prices of Wheat: 2007-08 to 2012-13

Crop year	Consumer Price Index (CPI)	Market Prices	
		Nominal	Real
	2007-08=100	Rs/ per 40 Kgs	
1	2	3	4=(3/2)x100
2007-08	100.00	671	671.00
2008-09	117.03	924	789.54
2009-10	128.85	894	693.83
2010-11	146.45	919	627.52
2011-12	162.57	984	605.28
2012-13	175.17	1183	675.34

Sources: i) For CPI, Economic Survey of Pakistan: 2012-13.
ii) For Market prices, Directorates of Agriculture, Government of the Punjab and Sindh (weighted average).

49. The real market value of wheat remained below the nominal value during the whole period under review, rather the absolute gap between both the prices widened with increasing rate as the years passed over as depicted in Fig-8.

10. COMPARATIVE ECONOMICS OF WHEAT AND COMPETING CROPS

50. Resource allocation among the competing farm enterprises is primarily governed by the economic indicators like output-input ratio, gross cost, gross income, gross margin, net income, returns to purchased inputs, revenue per acre- inch of irrigation water and revenue per day of crop duration, etc. Estimation of such indicators provides useful insights about the allocation of land and other resources at farm level. These indicators are derived from the farm management data and output-input prices which are subject to change over time and space, necessitating due care in empirical estimation of these indicators.

51. Wheat is grown under both the irrigated and rainfed conditions throughout the country. Over 90 per cent of the production at the country level however comes from the irrigated regions where it competes with oilseed crops like canola and spring sunflower. It also faces indirect competition from sugarcane, an annual crop competing against both 'rabi' and 'kharif' crops. In such a situation, wheat combination with 'kharif' crops would need to be considered. The likely combinations in this context could be basmati + wheat,

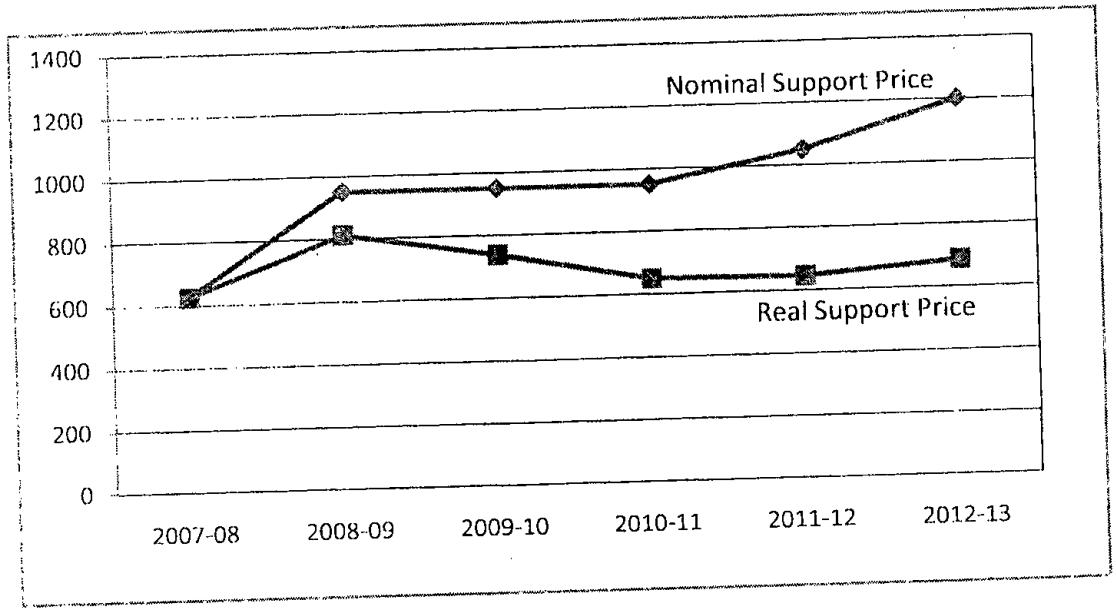


Fig- 7 Nominal and Real Support Price of Wheat

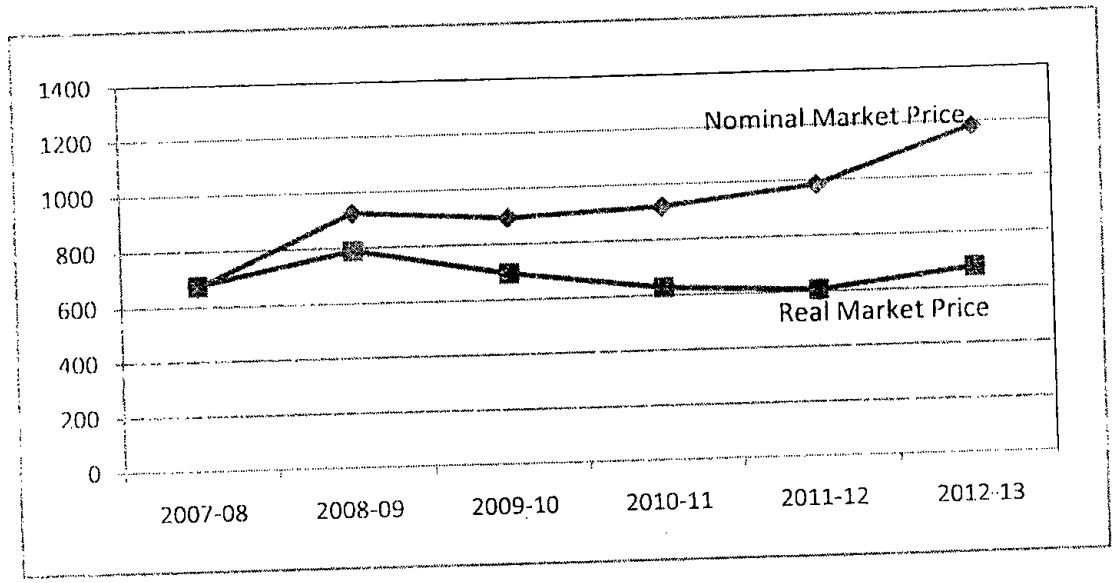


Fig- 8 Nominal and Real Market Price of Wheat

IRRI + wheat, cotton + wheat, cotton + sunflower and IRRI + sunflower. The economics of wheat and competing crops has been analyzed in terms of output and input prices received and paid by the growers during 2012-13 at farm level. The details of the analysis are provided in Annex-XI, while a summary of various economic indicators like output-input ratio and revenue per rupee of purchased inputs cost, day of crop duration and unit of irrigation water for the Punjab and Sindh is presented in Table-16.

Table-16: Economics of Wheat and Competing Crops at Prices Realized by the Growers: 2012-13 Crops

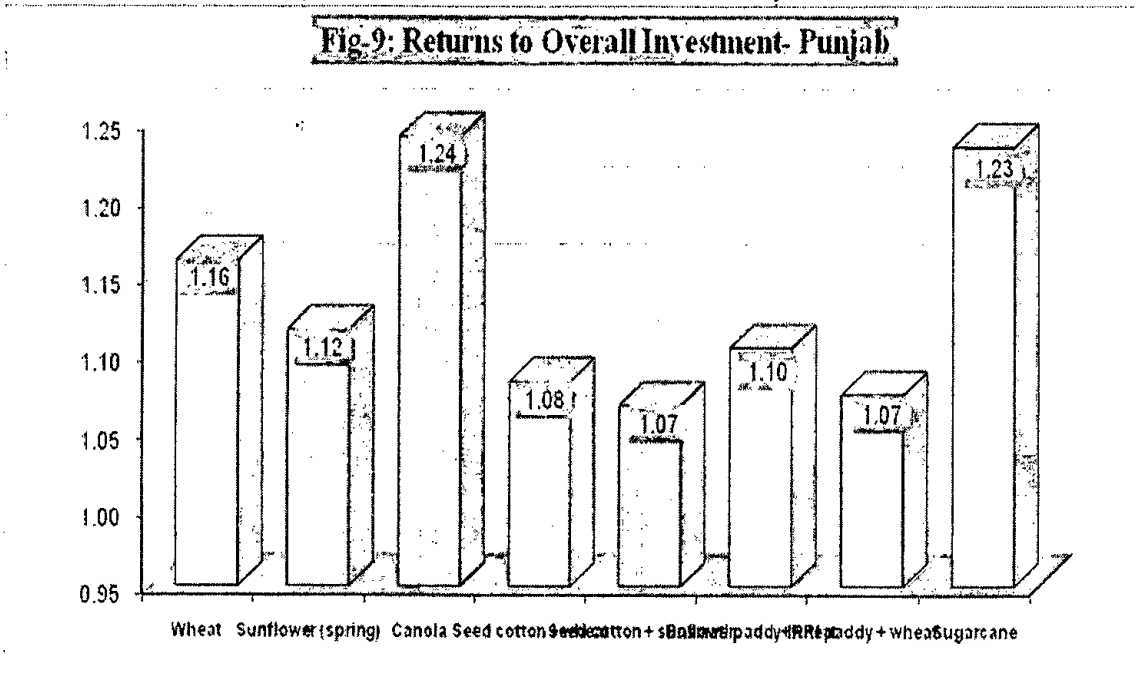
Province / crops /crop combination	Output-input ratio	Revenue per		
		Rupee of purchased inputs cost	Crop day	Acre-inch of water used
		.....Rupees.....		
Punjab				
Wheat	1.16	2.8	206	3085
Sunflower (spring)	1.12	2.6	224	1836
Canola	1.24	3.4	161	2231
Cotton + wheat	1.08	2.8	202	2497
Cotton + sunflower	1.07	2.7	210	2006
Basmati + wheat	1.10	2.4	218	1123
Basmati + sunflower	1.09	2.4	228	1025
IRRI + wheat	1.07	2.4	204	991
IRRI + sunflower	1.06	2.4	213	913
Sugarcane	1.23	3.8	225	1846
Sindh				
Wheat	1.10	2.7	175	2628
Sunflower (spring)	1.24	2.9	249	2041
Canola	1.22	3.4	161	2231
Cotton + wheat	1.13	3.0	191	2679
Cotton + sunflower	1.19	3.5	223	2344
IRRI + wheat	1.18	3.0	202	1070
IRRI + sunflower	1.24	3.1	239	1104
Sugarcane	1.28	3.8	223	1530

Source: Annex-XI.

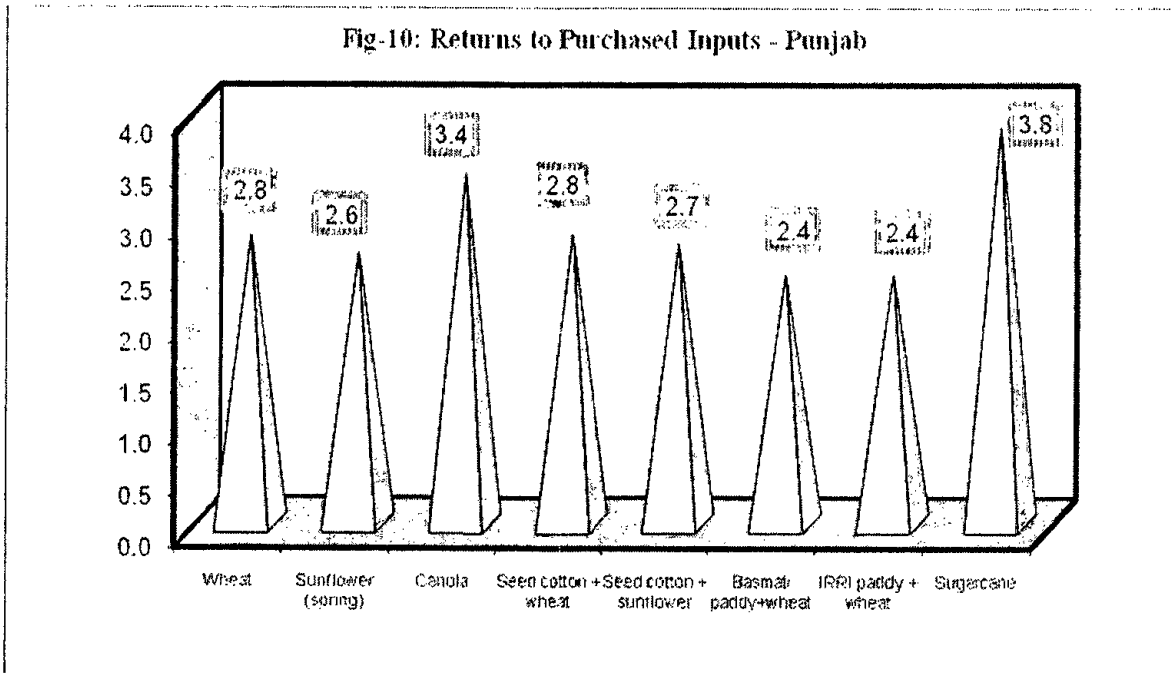
Punjab

52. Wheat crop has shown better performance during 2012-13 and farmers received reasonable margin over cost of wheat production. Wheat crop performed better than

sunflower in terms of all economic criteria adopted in this analysis except revenue per crop day primarily because of the remunerative prices of wheat realized by the growers (Fig-9



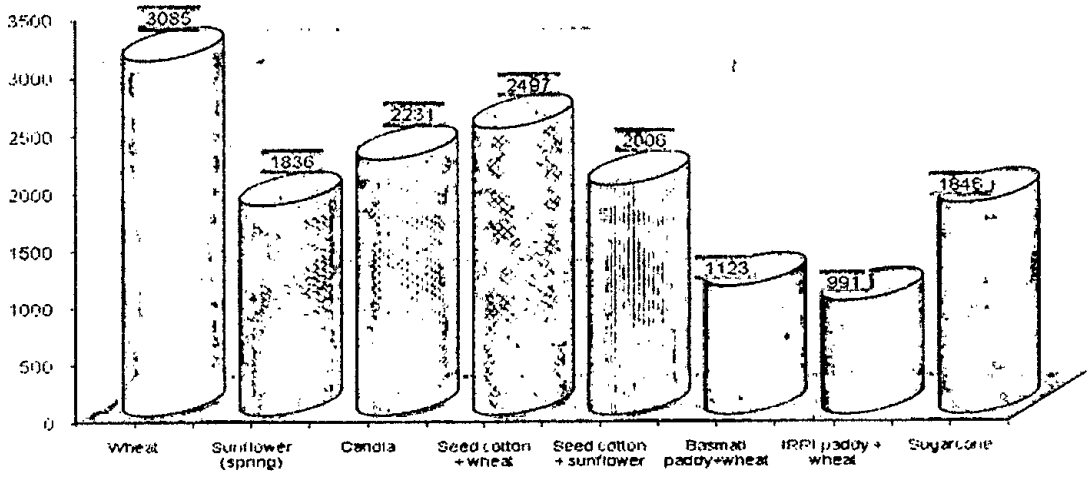
and 10). Canola farming outcompete wheat crop in terms of overall investment and returns to purchased inputs. Wheat has also performed better than canola in terms of revenue per



crop day and irrigation water.

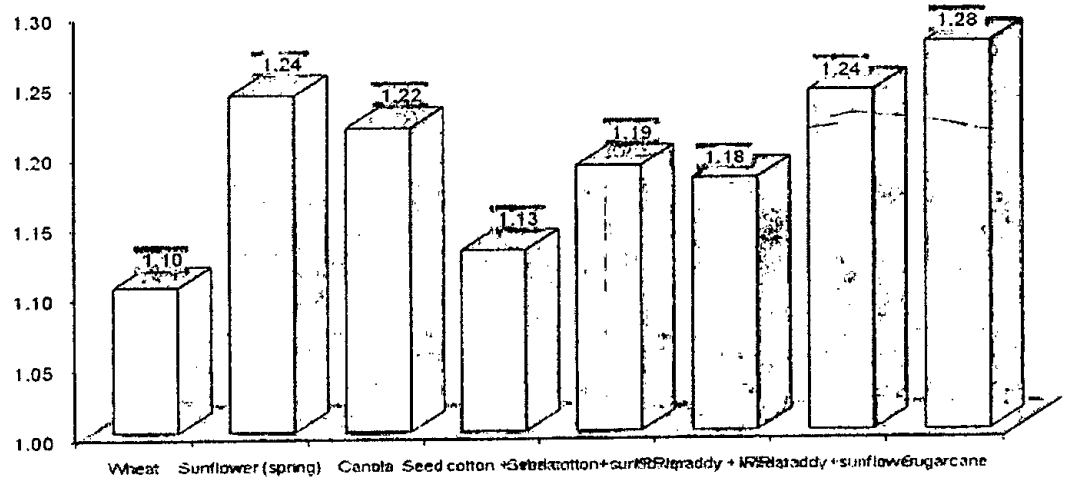
53. In view of indirect competition, sugarcane has performed better than all crop combinations in terms of all the economic indicators except irrigation water, where cotton

Fig-11: Returns to Irrigation Water-Punjab



+ wheat and cotton + sunflower rotations have edge over sugarcane (Fig-11). This is due to lucrative prices of sugarcane realized by the growers during 2012-13. Amongst the crop combinations, the economic position of cotton+wheat rotation is better in terms of returns

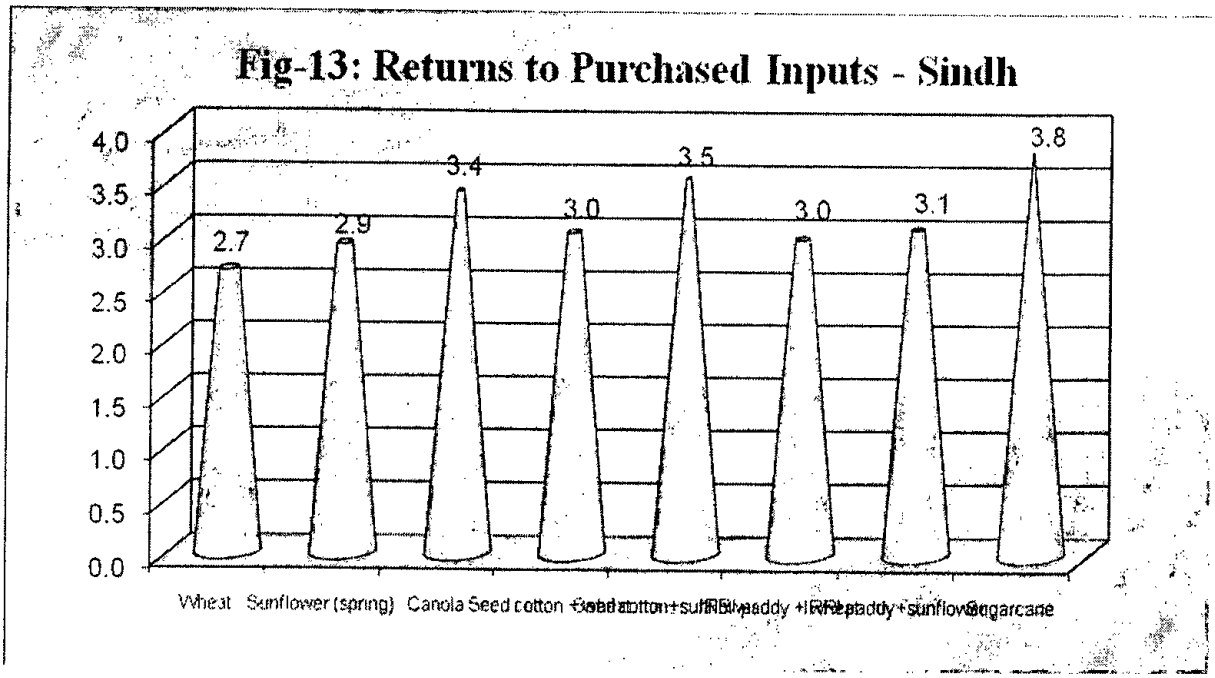
Fig-12: Returns to Overall Investment-Sindh



to purchased inputs and irrigation water, while the combinations of basmati with wheat and sunflower perform better in returns to overall investment and crop duration, respectively.

Sindh

54. In Sindh, the overall economic returns to wheat cultivation during 2012-13 remained lower than rabi oilseed crops (Fig-12). In respect of all economic indicators except irrigation water, sunflower performed much better than wheat (Fig-13). However, wheat performed better than canola in terms of returns to crop duration and irrigation water.



55. In case of indirect competition, sugarcane due to its better prices during 2012-13 performed much better than all other combinations in respect of all economic indicators except the gross returns to irrigation water where cotton + wheat rotation out-competed sugarcane (Table-16). The economic position of IRRI + sunflower and cotton + sunflower rotations has been stronger than those of IRRI + wheat and cotton + wheat.

11. ECONOMIC EFFICIENCY OF WHEAT PRODUCTION IN PAKISTAN

56. In Pakistan wheat is important from both the farmers and consumers point of view. A vast majority of farmers cultivate wheat throughout the country and crop occupies a

significant proportion of the cropped area in the country. Being major staple food of the country, it has vital importance for food security purposes.

57. The crop involves use of considerable economic resources. Some of these are purchased from the market on cash prices while others are not cash purchased inputs. Rather these are in the farm-owned resources like, farm yard manure, canal irrigation and family labour used in the performance of different wheat production operations.

58. To assess the usefulness of different resources used for producing wheat, economic efficiency is generally studied in terms of three well established economic parameters. These are Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost Coefficient (DRC). The following analysis is done in both the import and export scenario. The analysis is based on cost of production of wheat 2011-12 crop in main producing provinces of Punjab and Sindh. The analysis highlights impact of changes in domestic and international prices of wheat and prices of agricultural inputs in the country. The analysis is carried through 2007-08 to 2011-12. The coefficients are produced in Table-17 while the absolute values of gross revenue of the crop, traded inputs costs, domestic factor costs and resource transfers estimated at private and social prices are annexed as Annex-XII.

11.1 Economic Efficiency Under Wheat Importing Scenario

11.1.1 Nominal Protection Coefficient (NPC)

59. Nominal Protection Coefficient is used to measure the impact of changes in the domestic and international prices of the crop. It does not study impact of over time changes in the domestic or international prices of inputs. For NPC crop revenue is evaluated at two different prices. First, at private price prevailing in the domestic market and second at the international market price i.e the import/export parity price. Resultantly, NPC is obtained by dividing the revenue earned at the private price prevailing at home by the crop revenue that could be earned at the international price. As a principle if NPC is less than one, it is implied that the crop does not receive policy protection in the country rather it is implicitly

taxed and vice versa. The former situation discourages domestic production of the crop and signals fears for food insecurity in the country.

11.1.2 Effective Protection Coefficient (EPC)

60. Unlike NPC, EPC measures impact of both input and output pricing policies on a particular crop. It indicates policy protection/ taxation to a commodity. EPC is obtained by dividing the difference of crop revenue and the traded inputs' cost at market prices by the difference of crop revenue and the traded inputs' cost at social prices. Thus it is a measure of the net impact of all policies to induce or discourage production of a commodity. If the value of EPC is greater than one, it means that the crop has policy protection in the country and situation promotes the crop.

61. It may be seen from the following Table that under importing scenario, the value of NPC both in Punjab and Sindh remained less than one throughout the period under analysis. Similarly the EPC also remained less than one in the reference period except 2009-10 when for Punjab it is 1.23 and for Sindh 1.07. It means domestic wheat producers are implicitly taxed because they are getting less than the import parity price of the crop. More striking feature of the analysis is that most of the time the coefficient values have been significantly less than one which recalls for review of the domestic wheat pricing policy.

Table -17: Nominal and Effective Protection Coefficients for Wheat in Pakistan Under Import Scenario

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2007-08	0.46	0.38	0.46	0.44
2008-09	0.75	0.94	0.84	0.90
2009-10	0.89	1.23	0.99	1.07
2010-11	0.66	0.79	0.67	0.70
2011-12	0.65	0.74	0.69	0.72

Source: Annex-XII.

Table -18: Nominal and Effective Protection Coefficients for Wheat in Pakistan Under Export Scenario

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2007-08	0.83	0.78	0.78	0.77
2008-09	1.15	2.01	1.20	1.33
2009-10	1.52	3.59	1.55	1.79
2010-11	0.98	1.51	0.94	1.02
2011-12	0.99	1.79	0.99	1.07

Source: Annex-XII.

62. Under export scenario, the NPC values are either greater than or close to one. This means that export purpose production of wheat for Pakistan is not a viable option. Rather the resources may be allocated to some other crop where exportable surplus may be produced and exported more profitably.

11.1.3 Domestic Resource Cost (DRC) Coefficient

63. There are generally alternate options for using domestic resources and thus require justification for putting them in a particular enterprise. A common measure of their effectiveness is DRC. It is a ratio of cost of non-tradable domestic resources at social prices to the difference of the revenue and the traded inputs' costs at social prices. As a rule of thumb, if the DRC coefficient is less than one, it means the crop has comparative advantage and vice versa.

64. It may be seen from Table–19 that the value of DRCs in both major wheat producing provinces of the country under import scenario are less than one. It indicates that overtime changes in input/ output policies have improved wheat crop in the country. The values of the DRC coefficient range between 0.12 and 0.57 during the period under study. The drastic fluctuation in the DRC values may be ascribed to sensitivity of the DRC to the changes in the opportunity cost of non-traded inputs and social value of output.

65. It may be concluded from the analysis that domestic wheat production is a better proposition than to import. Pakistan may increase investment in marketing processes to improve the economics of crop for the benefit of wheat growers and the consumers in Pakistan.

Table -19: Domestic Resource Cost (DRC) Coefficients for Wheat in Pakistan

Year	Under Import Scenario		Under Export Scenario	
	Punjab	Sindh	Punjab	Sindh
2007-08	0.12	0.17	0.24	0.29
2008-09	0.33	0.33	0.69	0.48
2009-10	0.52	0.57	1.52	0.95
2010-11	0.38	0.41	0.73	0.59
2011-12	0.46	0.48	1.12	0.72

Source: Annex-XII.

12. PRODUCER PRICES OF WHEAT IN SELECTED COUNTRIES

66. 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 internet.

67. The data on the minimum guaranteed producer prices of wheat for 2010-11 to 2012-13 crops in major wheat producing countries are presented in Table-20.

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

i) Quality of the produce;
ii) Structure of input prices;
iii) Policy objectives;
iv) Fluctuations in exchange rates
v) Stage of agriculture development;
vi) Adjustment payments
vii) Country-specific commodity programmes;
viii) Counter-cyclical payments

Table-20: Minimum Guaranteed Producer Prices of Wheat in Selected Countries: 2010-11 to 2012-13 Crops

Country	2010-11		2011-12		2012-13		Remarks
	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	
Australia	251.00	858	272.00	970	331.00	1281	Australian premium white (PW) wheat net Pool Return
Brazil	295.00	1009	238.50	851	245.50	950	Minimum support price
China	265.88	909	294.12	1050	356.00	1378	Minimum support price for white wheat
India	267.68	915	268.14	957	246.57	954	Minimum support price
USA	238.17	815	254.26	908	288.80	1118	Average Farm Price of US Hard Red Winter Wheat
Pakistan	277.78	950	294.15	1050	310.08	1200	Support price

Note: Exchange rates are one US$ =Pak Rs. 85.50 for 2010-11, Rs. 89.24 for 2011-12 and Rs. 96.75 for 2012-13.

13. PARITY BETWEEN PRICES OF FERTILIZERS AND WHEAT

69. The parity ratio indicates the quantity of wheat required to buy one nutrient unit of fertilizer. Higher the ratio, lower the purchasing power of wheat as more units of the commodity are needed to buy a given quantity of fertilizer and vice versa. A favourable parity will be required to stimulate fertilizer application towards optimal level. As the prices of inputs and outputs do not change proportionately, the parity ratios may favour or go against the output level. Hence, it is important to monitor and analyse the parity ratios between prices of wheat and fertilizer.

70. In order to study the overtime changes in the purchasing power of wheat in terms of nitrogen and phosphatic fertilizers, the parity ratios between fertilizer nutrients and wheat have been calculated for the period of 2003-04 to 2012-13 (Table-21).

Table-21: Parity Between Market Prices of Fertilizers and Wheat: 2003-04 to 2012-13

Year	Price of fertilizer		Market price of wheat	Units of wheat needed to buy one unit of fertilizer	
	N	P		N	P
	---------- Rupees per tonne----------			----- Units -----	
2003-04	18000	28740	9625	1.87	2.99
2004-05	19565	31474	10800	1.81	2.91
2005-06	21260	36180	10275	2.07	3.52
2006-07	22870	37220	11050	2.07	3.37
2007-08	23200	43750	15675	1.48	2.79
2008-09	30260	122290	23475	1.29	5.21
2009-10	34320	70240	22262	1.54	3.16
2010-11	37700	97987	22625	1.67	4.33
2011-12	68913	148600	23750	2.90	6.26
2012-13	74783	138324	29125	2.57	4.75

Sources: i) Directorates of Agriculture, Punjab and Sindh for market prices of wheat.
ii) Fertilizer prices have been worked out from the prices of Urea and DAP.

71. The parity ratios between market prices of fertilizer and wheat show that the quantity of wheat needed to buy one nutrient tonne of N fertilizer has fluctuated between 1.29 and 2.90 tonnes during the period under consideration. Similarly, the parity ratios between prices of wheat and those of phosphatic fertilizer have fluctuated from 2.79 to 6.26 units. The parity ratio for N-wheat prices generally hovered around 2 uptil 2006-07. It dipped to the lowest level of 1.29 in 2008-09 owing to hike in wheat prices as a result of global food crisis. However the parity ratio has jumped to the highest level of 2.90 in 2011-12 from 1.67 in 2010-11, a rise of 74 per cent. It implies that the purchasing power of wheat for N fertilizer has deteriorated by 74 per cent. However, due to appreciated market prices of wheat the position has improved in 2012-13 as compared with the previous year and 2.57 units of wheat were required to buy one unit of N fertilizer.

72. The parity ratio for P-wheat prices generally hovered around 3 uptil 2007-08. It jumped to 5.21 in 2008-09 due to hike in price of P fertilizer as a result of global energy crisis. In 2011-12, the parity ratio peaked at 6.26 owing to record high prices of P-fertilizer in the world. As compared to last year, the parity ratio for P-wheat prices was estimated to the record high level of 6.26, a rise of 45 per cent. In the current year, prices of P fertilizer and wheat moved in the opposite direction which again improved the purchasing power of wheat in terms of phosphatic fertilizer by 24 per cent.

14. IMPACT OF INCREASE IN SUPPORT PRICE OF WHEAT ON CONSUMER PRICE INDEX (CPI) AND AVERAGE HOUSEHOLD EXPENDITURE

73. Expenditure on wheat is an important item in average household budget. Accordingly, wheat and its products are included in the basket of goods used in estimating the Consumer Price Index (CPI). The support price of wheat affects both the household expenditure and CPI via consumer prices of wheat flour and its products. Any change in the price of wheat and general price level in the economy impacts on the household budget. The details of analysis are presented in Annex-XIII, while a summary of the results is provided in Table-20. The findings of the analysis are discussed as under:

14.1 Impact on CPI

74. The Pakistan Bureau of Statistics (PBS) has estimated the changes in CPI as a result of increase in support price of wheat over the existing level of Rs 1200 per 40 kgs in 2012-13. The analysis is based on the assumption that the market prices of wheat and wheat flour would increase in the same proportion as the support price. The impact of increases in the support price of wheat on CPI and average household expenditure are given in Table-22.

Table-22: Impact of Increase in Wheat Prices on CPI and Average Household Expenditure

Wheat price	Rise in CPI	Increase in annual expenses on the basis of average per capita wheat availability @ 120 kgs per year	
		Per person	Per household
Rs per kg	Per cent	---------- Rupees ----------	
1200 (Existing price)			
1225	0.23	75	479
1250	0.31	150	957
1275	0.40	225	1436
1300	0.48	300	1914
1385	0.57	375	2393
1350	0.65	450	2871

Sources: 1. Pakistan Bureau of Statistics (PBS), Karachi.
2. Annex-XIII.

75. It is evident from the above Table that every increase of Rs 25 per 40 kgs over the existing support price of wheat is expected to raise the CPI by 0.23 per cent, other things remaining the same. In case the support price of wheat is enhanced by Rs 50, Rs 100 and Rs 150 per 40 kgs, the CPI is likely to rise by 0.31, 0.48 and 0.65 per cent, respectively.

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

14.2 Impact on Household Expenditure

77. According to the Household Integrated Economic Survey (HIES) 2010-11 by the PBS, the average household in Pakistan consists of 6.38 members. Taking the annual per capita consumption of wheat at 120 kgs and average household size of 6.38 members, the impact of selected increases in the support price of wheat on the average household expenditure has been estimated in Annex-XIII and summarized in Table-22.

78. According to the above analysis, every increase of Rs 25 in the support price of wheat over the existing level of Rs 1200 per 40 kgs in 2012-13 would increase the annual expenditure by Rs 75 per person and Rs 479 per average household, other factors remaining constant. While the monthly expenses on wheat consumption due to every increase of Rs 25 per 40 kgs in the support price of wheat would rise by Rs 6.25 per person and Rs 39.88 per household. Likewise, the increase of Rs 100 per 40 kgs over the existing support price would bring additional expenditure of Rs 300 per capita per year and Rs 1914 per household. The above results are based on the assumption that increases in the support price of wheat are proportionately reflected in prices of wheat flour and other wheat products.

15. CONSULTATIVE MECHANISM IN PRICE FIXATION OF WHEAT

79. Annual meeting of the API's Committee on wheat was held on 4th July 2013 at Islamabad. The meeting was attended by the representatives of the wheat growers, growers' associations, chambers of agriculture, crop experts, policy makers and officials of the Federal and Provincial Governments concerned with wheat production and marketing. The meeting discussed the issues relating to food security, production and marketing of wheat including prices of inputs and cost of production at length. A number of constraints impacting on farm production in general and wheat in particular were also highlighted. Future prospects of wheat crop in the changing scenario also engaged the attention of the committee.

80. The farming community pointed out various constraints and problems faced in general and wheat cultivation in particular. The growers complained about the shortage of irrigation water, high costs of chemical fertilizer, electric and diesel inputs. Attention was drawn to curb the flawed distribution mechanism of canal water which was inequitable and exploits the small growers. Theft of canal water by influential growers deprived the small and tail ender of precious water. The growers demanded direct subsidy on retail price of fertilizer instead of subsidizing the fertilizer companies. The growers also suggested regular monitoring of the input prices and assured availability of quality inputs. It was informed that the growers were paid less price by Rs 100-150 per 40 kgs during the early

harvest season. Delay in procurement by the Government benefitted the traders, who stock wheat for 3-4 weeks and then sell at high price.

81. The committee members emphasized the need for development of suitable technology package for sustainable production of wheat. The growers complained about the procurement operation by PASSCO and Provincial Food Departments. The involvement of Revenue Department in procurement system had complicated the procedure. The system may be simplified. It was also suggested that the price incentive should be ensured to the farmers during the harvest season in general and in case of bumper harvest in particular. The meeting also suggested a number of measures to improve the productivity and marketing system.

16. MAJOR WHEAT VARIETIES AND THEIR YIELD POTENTIAL

82. The quality of seed play an important role in enhancing wheat productivity. Among all other inputs used in wheat production, seed is the most important input because the optimal returns to all other inputs including fertilizer, irrigation water, pesticides/weedicides, various cultural operations etc are influenced by the quality of seed. In this regard, over 50 wheat varieties have been evolved over the time by the wheat research institutes at country level. During the last decade, among 18 high yield in varieties 12 have been developed for irrigated area and 6 for rainfed area in the Punjab while 4 varieties of wheat are released in Sindh.

83. The high yielding varieties of wheat released by Research Institutes in the Punjab for commercial cultivation in specified areas are presented in Table-23.

Table-23: Commercial Wheat Varieties and Their Yield Potential in the Punjab

Sr. No.	Variety	Year of Release	Sowing time	Yield potential (Kgs/hectare)	Suitability/Recommended areas
	IRRIGATED AREAS				
1	Bhakhar-02	2002	1st Nov to 30 Dec	6000	Irrigated area of Punjab
2	Seher 2006	2006	15 Nov to 15 Dec	7000	Not recommended for rice zone and norther Punjab
3	Shafaq 2006	2006	15 Nov to 15 Dec	6000	Irrigated areas of Punjab
4	Freed 2006	2006	15 Nov to 15 Dec	6000	Cotton zone of Punjab
5	Fsd. 2008	2008	1st Nov to 10 Dec	6732	Irrigated, rainfed & saline areas of Punjab
6	Lasani 2008	2008	1st Nov to 10 Dec	6100	Irrigated areas of Punjab
7	Meraj 2008	2008	15 Nov to 15 Dec	6200	Cotton zone of Punjab
8	NARC 2011	2009	20 Oct to 15 Nov	5400	Rainfed areas of Punjab
9	AARI 2011	2011	1st Nov to 30 Nov	6563	Irrigated areas of Punjab except rice zone
10	Punjab 2011	2011	1st Nov to 30 Nov	6893	Irrigated areas of Punjab
11	Millat 2011	2011	1st Nov to 30 Nov	6358	Irrigated areas of Punjab except rice zone
12	AAS 2011	2011	10 Nov to 15 Dec	6500	Cotton zone of Punjab
	RAINFED AREAS				
13	Uqab 2000	2000	1st Nov to 25 Nov	6900	Rainfed area of Punjab
14	GA2002	2002	20 Oct to 15 Nov	5200	-do-
15	Chakwal 50	2008	15 Oct to 15 Nov	6000	-do-
16	BARS 2009	2009	20 Oct to 15 Nov	5800	-do-
17	Dharabi 2011	2011	20 Oct to 15 Nov	6000	-do-
18	NARC 2011	2011	1st Nov to 30 Nov	6200	-do-

Source: Wheat Research Institute, AARI,Faisalabad.

84. The yield potential of these varieties range between 5200 and 7000 kgs per hectare. The highest yield potential of Seher-06, Uqab-2000, and Punjab 2011 varieties is estimated at 7000 kgs, 6900 kgs, 6893 kgs per hectare followed by Fsd. 2008 at 6732 kgs, AARI 2011 at 6563 kgs, AAS 2011 at 6500 kgs and Millat 2011 at 6358 per hectare. If these varieties are adopted for vast cultivation in their specified areas with recommended production technology and timely supply of inputs and application, the yield per hectare would definitely improve at the country level.

85. High yielding wheat varieties evolved by Research Institute in Sindh alongwith their yield potential and other characteristics are presented in Table-24.

Table-24: Commercial Wheat Varieties and Their Yield Potential in Sindh.

Sr. No.	Variety	Year of Release	Sowing time	Maturity	Yield Potential	Average Farmer Yield	Protein
				Days	----- Kgs/hectare-----		Per cent
1	Moomal 2002	2002	1st Nov to 20th Nov. (South Sindh) 7st Nov to 30th Nov. (North Sindh)	136	6400	4400	15.50
2	TD-1	2004	1st Nov to 15th Dec. (South Sindh) 7st Nov to 21th Nov. (North Sindh)	118	6400	4800	13.46
3	Imdad-2005	2006	1st Nov to 20th Nov. (South Sindh) 7st Nov to 30th Nov. (North Sindh)	130	6400	4400	13.20
4	SKD-1	2006	1st Nov to 15th Dec. (South Sindh) 7st Nov to 21th Dec. (North Sindh)	118	6400	4650	14.20

Source: Wheat Research Institute, Sakrand, Sindh.

86. The yield potential of 4 varieties in Sindh is reported at 6400 kgs per hectare. The average farmer yield of these varieties ranged from 4400 to 4800 kgs per hectare. The average farmer yield of TD-1 variety was recorded at 4800 kgs per hectare which is the highest average yield among other varieties. Other high yield varieties are SKD-I with yielding potential of 4650 kgs, Moomal-2002 with yield potential of 4400 kgs and Imdad-2005 with 4400 kgs per hectare at the farmers' field.

17. WHEAT YIELD AMONG COMPETING COUNTRIES

87. Global wheat during 2012 occupied an area of around 216.64 million hectares with a total production of 674.88 million tonnes. The world top 15 producing countries contribute 67 per cent of total area and 63 per cent of total production as narrated in Table-25.

Table-25: Wheat Area in Major Wheat Producing Countries Of the World:2012 CROP

S.No.	Country	Area in million Hectares	per cent share in world area
1	India	29.900	13.80
2	China, mainland	24.139	11.14
3	Russian Federation	21.278	9.82
4	United States of America	19.826	9.15
5	Australia	13.902	6.42
6	Kazakhstan	13.464	6.21
7	Canada	9.353	4.32
8	**Pakistan**	**8.666**	**4.00**
9	Turkey	7.530	3.48
10	Iran (Islamic Republic of)	7.000	3.23
11	Ukraine	5.630	2.60
12	France	5.303	2.45
13	Argentina	3.700	1.71
14	Morocco	3.142	1.45
15	Germany	3.061	1.41
	Total	**175.89**	81.19
	Total World Area	**216.64**	100.00

Source: FAO Production Year Boo 2012.

88. In terms of wheat area India is on the top with 29.9 million hectares followed by China with 24.14 million hectares and Russian Federation with 21.28 million hectares Pakistan lies at 8th number in this regard with 4 per cent share.

89. In terms of wheat production, China, mainland is on the top with 120.58 million tonnes followed by India with 94.88 million tonnes and USA with 61.76 million tonnes. However, Pakistan retains 8th position in wheat production of the world (Table-26).

Table-26: Wheat Production in Major Wheat Producing Countries Of the World:2012 CROP

S.No.	Country	Production in million tonnes	per cent share in world Production
1	China	120.580	17.87
2	India	94.880	14.06
3	United States of America	61.755	9.15
4	France	40.301	5.97
5	Russian Federation	37.720	5.59
6	Australia	29.905	4.43
7	Canada	27.013	4.00
8	**Pakistan**	**23.517**	**3.48**
9	Germany	22.432	3.32
10	Turkey	20.100	2.98
11	Ukraine	15.763	2.34
12	Iran (Islamic Republic of)	13.800	2.04
13	Kazakhstan	13.307	1.97
14	United Kingdom	13.261	1.96
15	Argentina	**11.000**	1.63
	Total	**424.75**	62.94
	Total World Production	**674.88**	100.00

Source: FAO.

90. In terms of yield per hectare, New Zealand lies at the top with 8924 kgs per hectare followed by Netherlands with 8587 and Belgium with 8305 kgs per hectare. It is an alarming situation that Pakistan ranks at 59th in terms of yield at 2714 kgs per hectare while India lies at 46th position with 3173 kgs per hectare. However, the world average yield of wheat is 3115 kgs per hectare (Annex- XIV).

18. ISSUE PRICE OF WHEAT AND CONSUMER SUBSIDY

91. For the year of 2011-12, the Governments of the Punjab, Sindh and Khyber Pakhtunkhwa fixed the issue price of wheat supplied to flour mills at Rs 1050 per 40 kgs over the corresponding support price of Rs 950 per 40 kgs. However, the Balochistan province supplied wheat to flour mills at the issue price of Rs 1068 per 40 kgs. All the four

provinces released 5.82 million tonnes of wheat to flour mills during May 2011 to April 2012. Details of wheat releases are given in Table-27.

Table-27: Release of Wheat to Flour Mills during 2011-12

Million tonnes

Provinces	2011-12
Punjab	4.367
Sindh	1.058
KPK	0.365
Balochistan	0.030
Total	5.820

92. The issue price did not cover the full costs incurred on procurement, storage, marketing and unforeseen losses, shortage etc. Resultantly, the provincial governments had to bear huge amount of subsidy on procurement and supply of wheat to flour mills during the year. During 2011-12, the Provincial Governments subsidized wheat consumers over Rs 19.5 billion as under. The details may be seen in Annex-XV.

Federal/Provinces	Subsidy (Rs in billion)
Punjab	15.28
Sindh	2.54
KPK	1.64
Balochistan	0.07
Federal PASSCO	Nil
Total	19.53

Source: Annex-XV.

93. Inspite of repeated requests to the provinces for 2012-13, the Provincial Food Departments did not provide the requisite information like amount of releases and incidentals for the calculation of consumer subsidy on wheat borne by the public sector in the aftermonth of the devolution process. According to the M/o National Food Security and

Research, total releases of wheat to the flour mills by the provincial food departments amount to 6.363 million tonnes. Accordingly, the consumer subsidy would amount to Rs 21.35 billion for 2012-13 on the basis of subsidy rate paid during the last year by the provinces in the absence of current rate.

19. WHEAT PROCUREMENT TARGETS AND ACHIEVEMENTS

94. The Federal Government fixed the wheat procurement target at 7910 thousand tonnes for 2012-13 crop through Provincial Food Departments and PASSCO. Agency-wise targets with their achievements in provinces are shown in Table-28.

Table-28: Procurement Targets and Achievements: 2012-13 Wheat Crop

Province/agency	Target	Achievement	Achievement as per cent of target
	----- Thousand tonnes ------		Per cent
Pakistan	**7910.00**	**5942.09**	**75.12**
- Provincial Food Departments	6310.00	4803.00	76.12
- PASSCO	1600.00	1139.09	71.19
Punjab	**6033.00**	**4799.16**	**79.55**
- Food Department	4500.00	3675.00	81.67
- PASSCO	1533.00	1124.16	73.33
Sindh	**1360.00**	**1068.10**	**78.54**
- Food Department	1300.00	1054.00	81.08
- PASSCO	60.00	14.10	23.50
K.P.K	**403.50**	**24.30**	**60.2**
Food Department	400.00	24.00	6.00
PASSCO	3.50	0.30	8.57
Balochistan	**113.50**	**50.53**	**44.52**
Food Department	110.00	5.00	45.45
PASSCO	3.50	0.53	15.14

Source: PASSCO and respective provincial Food Departments.

95. It may be seen from Table-23 that the procurement agencies have achieved 75 percent of the targets. The Provincial Food Departments achieved 76 per cent of their targets while the PASSCO achieved 71 % of its target during 2012-13.

96. During the period under review, wheat production has ranged between 21.70 and 25.21 million tones. Procurement has been in the range of 3.92 to 9.23 million tones. The wheat procurement by the public sector has varied from 19 to 39 per cent of the respective production. The average market prices ranged between Rs 437 and Rs 1165 per 40 kgs during the period under review.

Table-29: Production, Procurement, Market and Support Prices of Wheat: 2007-08 to 2012-13

Crop year (May-April	Production	Procure-ment	Procurement as percent of production	Support price	Average market price (May-July)*
	------Million tonnes------		Per cent	----Rupees per 40 kgs----	
2007-08	21.70	3.92	18.06	625	659
2008-09	24.03	9.23	38.41	950	939
2009-10	23.31	6.71	28.00	950	902
2010-11	25.21	6.24	24.75	950	905
2011-12	23.34	9.07	38.86	1050	949
2012-13	24.30	5.94	24.44	1200	1165

- **Weighted Average of Punjab and Sindh**

Source: PASSCO and Provincial Food Departments.

20. ACKNOWLEDGEMENT

97. The assistance and cooperation of the following staff members is appreciated in preparation of the Report on Wheat Policy Analysis for 2013-14 Crop:

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16.	Mr. Muhammad Naeem	Machine Operator

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Chairman, API

Annex-I

AREA,YIELD AND PRODUCTION OF WHEAT : 2002-03 TO 2012-13

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA		---------- Thousand hectares ----------			
2002-03	6097.3	863.7	732.1	332.4	8025.5
2003-04	6255.5	878.2	741.6	340.6	8215.9
2004-05	6378.9	887.4	748.6	327.9	8342.8
2005-06	6483.4	933.2	721.3	330.7	8468.5
2006-07	6432.8	982.2	754.3	385.1	8554.4
2007-08	6402.0	989.9	747.4	402.5	8541.8
2008-09	6836.2	1031.4	769.5	408.9	9046.0
2009-10	6913.5	1092.3	758.3	367.5	9131.6
2010-11	6691.0	1144.4	724.5	340.8	8900.7
2011-12	6482.9	1049.2	729.3	388.4	8649.8
2012-13	6511.3	1058.4	727.3	363.2	8660.2
YIELD		---------- kgs per hectare ----------			
2002-03	2518	2442	1454	1970	2390
2003-04	2500	2473	1382	1948	2373
2004-05	2724	2827	1458	1944	2591
2005-06	2588	2947	1526	1965	2512
2006-07	2775	3471	1538	2264	2723
2007-08	2438	3446	1434	2158	2454
2008-09	2694	3432	1565	2123	2657
2009-10	2592	3390	1520	1459	2553
2010-11	2846	3747	1595	2139	2833
2011-12	2736	3585	1550	2170	2714
2012-13	2855	3400	1679	2115	2791
PRODUCTION		---------- Thousand tonnes ----------			
2002-03	15355.0	2109.2	1064.4	654.7	19183.3
2003-04	15639.0	2172.2	1025.2	663.4	19499.8
2004-05	17375.0	2508.6	1091.1	637.6	21612.3
2005-06	16776.0	2750.3	1100.6	649.9	21276.8
2006-07	17853.0	3409.2	1160.4	872.1	23294.7
2007-08	15607.0	3411.4	1071.8	868.6	20958.8
2008-09	18420.0	3540.2	1204.5	868.2	24032.9
2009-10	17919.0	3703.1	1152.5	536.2	23310.8
2010-11	19041.0	4287.9	1155.8	729.1	25213.8
2011-12	17738.9	3761.4	1130.3	842.7	23473.3
2012-13	18587.0	3598.7	1221.0	768.0	24174.7

Sources:

1. **For 2002-03 to 2011-12: Agricultural Statistics of Pakistan, 2011-12 MINFAL, Islamabad.**
2. **For 2012-13: Final estimate of Punjab, Sindh, KPK and Balochistan provided by concerned Provincial Agriculture Departments.**

Annex-I A

AREA,YIELD AND PRODUCTION OF WHEAT : 2002-03 TO 2012-13

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA		---------- Thousand acres ----------			
2002-03	15067.0	2134.3	1809.1	821.4	19831.8
2003-04	15458.0	2170.1	1832.6	841.7	20302.3
2004-05	15762.9	2192.9	1849.9	810.3	20615.9
2005-06	16021.0	2306.1	1782.4	817.1	20926.5
2006-07	15896.1	2427.1	1864.0	951.7	21138.9
2007-08	15820.0	2446.1	1846.9	994.6	21107.6
2008-09	16892.9	2548.7	1901.5	1010.4	22353.6
2009-10	17083.9	2699.2	1873.8	908.1	22565.1
2010-11	16534.1	2827.9	1790.3	842.2	21994.5
2011-12	16019.9	2592.7	1802.2	959.8	21374.5
2012-13	16090.1	2615.4	1797.1	897.5	21400.1
YIELD		---------- kgs per acre ----------			
2002-03	1019	988	588	797	967
2003-04	1012	1001	559	788	960
2004-05	1102	1144	590	787	1048
2005-06	1047	1193	617	795	1017
2006-07	1123	1405	623	916	1102
2007-08	987	1395	580	873	993
2008-09	1090	1389	633	859	1075
2009-10	1049	1372	615	590	1033
2010-11	1152	1516	646	866	1146
2011-12	1107	1451	627	878	1098
2012-13	1155	1376	679	856	1130
PRODUCTION		---------- Thousand tonnes ----------			
2002-03	15355.0	2109.2	1064.4	654.7	19183.3
2003-04	15639.0	2172.2	1025.2	663.4	19499.8
2004-05	17375.0	2508.6	1091.1	637.6	21612.3
2005-06	16776.0	2750.3	1100.6	649.9	21276.8
2006-07	17853.0	3409.2	1160.4	872.1	23294.7
2007-08	15607.0	3411.4	1071.8	868.6	20958.8
2008-09	18420.0	3540.2	1204.5	868.2	24032.9
2009-10	17919.0	3703.1	1152.5	536.2	23310.8
2010-11	19041.0	4287.9	1155.8	729.1	25213.8
2011-12	17738.9	3761.4	1130.3	842.7	23473.3
2012-13	18587.0	3598.7	1221.0	768.0	24174.7

Sources:
1. **For 2002-03 to 2011-12: Agricultural Statistics of Pakistan, 2011-12 MINFAL, Islamabad.**
2. **For 2012-13: Final estimate of Punjab, Sindh, KPK and Balochistan provided by concerned Provincial Agriculture Departments.**

ANNEX-II

AREA, YIELD AND PRODUCTION OF WHEAT BY PROVINCE AND BY IRRIGATION: 2011-12 AND 2012-13

Country/ Province	Area			Yield per hectare			Production		
	2011-12	2012-13	Change Per cent	2011-12	2012-13	Change Per cent	2011-12	2012-13	Change Per cent
	000 ha			Kgs			000 tonnes		
				IRRIGATED					
PAKISTAN	7449.4	7504.6	0.74	2982	3023	1.38	22211.6	22685.2	2.13
PUNJAB	5788.1	5852.1	1.11	2944	3025	2.76	17040.3	17704.9	3.90
SINDH	991.5	1011.1	1.98	3748	3523	-5.99	3716.2	3562.5	-4.14
KPK	319.2	324.0	1.50	2054	2166	5.46	655.7	701.9	7.05
BALOCHISTAN	350.6	317.4	-9.47	2280	2256	-1.08	799.4	715.9	-10.45
				UNIRRIGATED					
PAKISTAN	1200.4	1155.6	-3.74	1051	1289	22.64	1261.7	1489.5	18.05
PUNJAB	694.8	659.2	-5.12	1005	1338	33.09	698.6	882.1	26.27
SINDH	57.7	47.3	-18.02	783	765	-2.30	45.2	36.2	-19.91
KPK	410.1	403.3	-1.67	1157	1287	11.23	474.6	519.1	9.37
BALOCHISTAN	37.8	45.8	21.16	1146	1138	-0.69	43.3	52.1	20.32
				TOTAL					
PAKISTAN	8649.8	8660.2	0.12	2714	2791	2.86	23473.3	24174.7	2.99
PUNJAB	6482.9	6511.3	0.44	2736	2855	4.32	17738.9	18587.0	4.78
SINDH	1049.2	1058.4	0.88	3585	3400	-5.16	3761.4	3598.7	-4.33
KPK	729.3	727.3	-0.28	1550	1679	8.33	1130.3	1221.0	8.02
BALOCHISTAN	388.4	363.2	-6.49	2170	2115	-2.54	842.7	768.0	-8.86

Sources:
1. For 2002-03 to 2011-12: Agricultural Statistics of Pakistan, 2011-12 MINFAL, Islamabad.
2. For 2012-13: Final estimate of Punjab, Sindh, KPK and Balochistan provided by concerned Provincial Agriculture Departments.

DISTRICT- WISE AREA, YIELD AND PRODUCTION OF WHEAT
AVERAGE OF 2010-11 TO 2012-13

ANNEX-III

Area: 000 ha
Production: 000 tonnes
Yield: kgs/hectare

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						**KPK**				
1	Jhang	364.88	1081.56	4.45	2964.13	1	Swat	61.62	100.35	0.41	1628.65
2	Bahawalnagar	338.99	1022.65	4.21	3016.76	2	Swabi	46.26	90.81	0.37	1962.87
3	Sheikhupura	339.12	1022.56	4.21	3015.32	3	Mansehra	38.81	88.65	0.37	2284.00
4	R.Y.Khan	288.94	919.68	3.79	3182.96	4	Mardan	43.45	88.34	0.36	2032.92
5	Faisalabad	280.71	872.72	3.59	3108.98	5	Peshawar	36.29	80.05	0.33	2205.91
6	Muzaffargarh	299.59	843.88	3.47	2816.75	6	Charsadda	28.64	74.26	0.31	2593.33
7	Bahawalpur	269.38	838.28	3.45	3111.91	7	Bunir	55.09	72.71	0.30	1319.85
8	Vehari	243.21	781.54	3.22	3213.44	8	D.I.Khan	38.93	68.82	0.28	1767.69
9	Gujranwala	234.04	764.08	3.15	3264.78	9	Haripur	37.62	65.88	0.27	1751.22
10	Okara	212.59	758.30	3.12	3567.00	10	Nowshera	23.03	57.56	0.24	2499.22
11	Khanewal	200.45	610.28	2.51	3044.56	11	Kohat	26.70	42.36	0.17	1586.39
12	Sialkot	208.27	592.25	2.44	2843.59	12	Malakand	27.12	32.24	0.13	1188.49
13	Sargodha	213.53	568.23	2.34	2661.10	13	Dir Lower	26.25	31.29	0.13	1191.95
14	Lodhran	181.43	563.51	2.32	3105.97	14	Bajour AG.	34.33	28.04	0.12	816.84
15	Kasur	183.46	561.73	2.31	3061.93	15	Dir Uper	20.87	23.02	0.09	1103.28
16	Pakpattan	146.76	520.09	2.14	3543.73	16	Shanlapar	23.29	22.51	0.09	966.63
17	T.T.Singh	154.32	506.82	2.09	3284.19	17	Abbottabad	14.46	22.50	0.09	1556.21
18	Layyah	192.90	502.84	2.07	2606.79	18	Bannu	10.98	19.71	0.08	1795.30
19	Multan	175.23	486.28	2.00	2775.13	19	Khyber AG.	13.01	19.46	0.08	1495.67
20	Hafizabad	154.05	478.19	1.97	3104.16	20	Tank	8.78	17.24	0.07	1963.29
21	D.G.Khan	169.70	461.05	1.90	2716.93	21	Kurram AG.	9.50	16.82	0.07	1770.68
22	Sahiwal	136.11	430.15	1.77	3160.38	22	Chitral	8.14	16.19	0.07	1988.66
23	Rajanpur	166.73	428.46	1.76	2569.81	23	Lakki Marwat	20.77	13.65	0.06	657.03
24	Bhakkar	174.42	413.84	1.70	2372.73	24	Battagram	7.40	12.16	0.05	1644.00
25	Mianwali	173.48	410.77	1.69	2367.90	25	Hangu	11.58	10.72	0.04	925.76
26	Narowal	164.84	383.62	1.58	2328.46	26	Mohmand AG.	7.51	10.58	0.04	1408.28
27	M.B.Din	137.32	374.21	1.54	2725.12	27	S.Waziristan	7.28	7.52	0.03	1032.77
28	Gujrat	151.08	281.94	1.16	1866.18	28	Karak	19.25	7.49	0.03	389.05
29	Attock	155.66	194.74	0.80	1251.05	29	F.R.Peshawar	3.71	5.86	0.02	1581.96
30	Lahore	62.05	184.97	0.76	2981.01	30	N.Waziristan	3.94	5.36	0.02	1359.11
31	Rawalpindi	115.74	171.04	0.70	1477.77	31	Orakzai AG	3.55	4.70	0.02	1324.69
32	Khushab	88.49	165.99	0.68	1875.83	32	F.R.D.I.Khan	4.25	4.39	0.02	1031.82
33	Chakwal	121.94	156.76	0.65	1285.54	33	F.R.Bannu	1.77	3.37	0.01	1900.19
34	Jhelum	49.37	83.53	0.34	1691.78	34	Kohistan	1.38	2.52	0.01	1823.61
35	Islamabad	12.95	18.86	0.08	1456.38	35	F.R.Kohat	1.45	1.91	0.01	1320.14
	Sub Total	**6561.72**	**18455.62**	**75.99**	**2812.62**		**Sub Total**	**727.01**	**1169.02**	**4.81**	**1608.00**
	SINDH						**BOLUCHISTAN**				
1	Sanghar	106.13	403.95	1.66	3806.21	1	Nasirabad	63.14	160.38	0.66	2540.00
2	Khairpur	103.31	403.47	1.66	3905.30	2	Jaffarabad	49.61	125.79	0.52	2535.55
3	N.Feroze	104.81	388.65	1.60	3707.95	3	Jhal Magsi	39.03	87.74	0.36	2248.27
4	Ghotki	100.30	384.14	1.58	3829.79	4	Khuzdar	41.01	83.82	0.35	2043.65
5	Sh. Benazirabad	81.63	336.05	1.38	4116.89	5	Killa Saifullah	18.78	33.06	0.14	1760.96
6	Dadu	69.89	254.79	1.05	3645.45	6	Sibi	15.12	30.96	0.13	2048.11
7	Mirpurkhas	61.57	216.02	0.89	3508.43	7	Loralai	12.92	27.46	0.11	2125.74
8	Sukkur	47.59	175.94	0.72	3696.71	8	Dera Bughti	15.78	26.89	0.11	1704.17
9	Matiari	40.80	166.10	0.68	4071.35	9	Barkhan	11.92	23.98	0.10	2010.96
10	Larkana	46.39	146.11	0.60	3149.66	10	Bolan	10.22	22.89	0.09	2240.19
11	Jamshoro	40.49	134.01	0.55	3309.27	11	Awaran	12.66	20.86	0.09	1647.79
12	Tando Allahyar	32.48	128.07	0.53	3943.20	12	Lasbela	10.73	20.43	0.08	1904.46
13	Shadadkot	41.28	125.38	0.52	3037.37	13	Chaghi	7.67	16.58	0.07	2163.04
14	Umerkot	36.79	123.10	0.51	3345.98	14	Kharan	7.83	14.28	0.06	1823.05
15	Shikarpur	35.88	100.93	0.42	2812.68	15	Pishin	8.24	13.86	0.06	1682.33
16	Badin	34.09	97.63	0.40	2863.77	16	Turbat	6.37	13.01	0.05	2042.45
17	Kashmore	34.77	97.45	0.40	2802.37	17	Kalat	6.39	12.39	0.05	1936.87
18	Hyderabad	15.46	58.89	0.24	3809.23	18	Mastung	4.83	9.17	0.04	1899.97
19	Thatta	18.28	50.73	0.21	2775.83	19	K.Abdullah	5.34	8.83	0.04	1653.17
20	Tando Muhammad	13.47	39.06	0.16	2899.04	20	Zhob	5.16	7.71	0.03	1494.64
21	Jacobabad	13.96	38.81	0.16	2780.99	21	Quetta	3.37	6.45	0.03	1917.03
22	Tharparkar	2.97	8.80	0.04	2968.26	22	Panjgoor	2.99	6.15	0.03	2056.43
23	Karachi	1.62	4.59	0.02	2829.83	23	Kohlu	2.05	3.26	0.01	1588.46
						24	Musa Khel	2.40	3.15	0.01	1314.10
						25	Ziarat	0.57	0.88	0.00	1535.55
	Sub Total	**1083.98**	**3882.68**	**15.99**	**3581.87**		**Sub Total**	**364.12**	**779.98**	**3.21**	**2142.11**
							Pak Total	**8736.82**	**24287.30**	**100.00**	**2779.88**

Notes:

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

ANNEX - IV

PER CAPITA AVAILABILITY OF WHEAT:2010-11 to 2012-13 (MAY-APRIL)

S.No	Description	Production year / Consumption year	2009-10 / 2010-11	2010-11 / 2011-12	2011-12 / 2012-13
1	Total Population (a)		183.87	187.58	191.31
			----------000 tonnes----------		
2	Opening stocks as on 1st May		4220	3109	3806
3	Production of Pakistan		23311	25214	24030
4	Production of AJ&K and GB (b)		233	252	240
5	Imports		23	0	21
6	Exports (wheat and wheat preparation)		2690	1301	1034
7	Closing stocks as on 30th April		3109	3506	1618
8	Total availability		21988	23768	25445
9	Deduction for seed,feed and wastage @ 10 per cent of production		2354	2547	2427
10	Available for human consumption (item 8 minus item 9)		19634	21222	23018
			----------Kgs/ annum----------		
11	Per capita availability (item 10 divided by item 1)		107	113	120
12	Average per capita availability during 2010-11 to 2012-13			113 Kgs	

Notes:
a). It includes the population of Pakistan, AJ&K, GB and Afghan Refugees.
b). Due to non-availability of data, production of AJ&K and GB in the past has been estimated on the basis ratio between the production of Pakistan and that of AJ&K and GB during 1987-88.

Sources:
1. PASSCO and Provincial Food Departments.
2. Population Census Organization, Islamabad.
3. Ministry of Kashmir Affairs and Northern Areas and States and Frontier Regions, Government of Pakistan, Islamabad.

ANNEX-V

INTERNATIONAL PRICES (FOB GULF) OF US NO.2 HARD RED WINTER WHEAT 2004-05 TO 2013-14

Year (July-June)	Month	US $ per tonne
2004-05		154
2005-06		175
2006-07		212
2007-08		361
2008-09		270
2009-10		209
2010-11		316
2011-12		301
2012-13		347
2013-14 (Jul-Sep)		312
	July	310
	August	315
	September	312

Source: International Grains Council, London.

Annex-VI

IMPORT PARITY PRICES OF WHEAT ON THE BASIS OF US NO 2 HRW (FOB GULF)QUOTED PRICE

S. No	Item	2013-14 Jul-Aug	2012-13	2010-11 to 2012-13
		----------US $ per tonne----------		
1	Average Fob(Gulf) price	313.00	347.00	321.00
2	Freight charges from Gulf port to Karachi	50.00	50.00	50.00
3	Average c&f (Karachi) price	363.00	397.00	371.00
		OR Rs per tonne @ Rs 103.64/US$		
		37621	41145	38450
4	Marine insurance charges @0.23% of c & F cost	87	95	88
5	Lc opening charges @0.2% of c&f cost.	75	82	77
6	Stevedoring, clearing, handling, wharfage, weightment, inland insurance, survey & pre-shipment charges and provision for unforeseen losses	651	651	651
7	TCP commission @ 2 % of c&f cost as per ECC	752	823	769
8	Bank markup @ 15.5 % per annum for 30 days	486	531	497
9	**Landed cost (item 3 to 8) at Karachi**	39672	43327	40532
13	Transport cost from Karachi to Multan	2200	2200	2200
14	Expences from procurement center to Multan	200	200	200
15	Import parity price at procurement center level	**41672**	**45327**	**42532**
16	Import parity prices of wheat	----------Rs per 40 kgs----------		
	i) If consumed at Multan	**1667**	**1813**	**1701**
	ii) If consumed at Karachi	**1587**	**1733**	**1621**

Sources:

i) For fob (Gulf) prices: Annex - V.

ii) For, incidential and transport charges from Karachi to Multan, Universal Cargo (private) Limited, Karachi.

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

Annex-VII

EXPORT PARITY PRICES OF WHEAT ESTIMATED FROM US NO 2 HRW (FOB GULF) QUOTED PRICE

S.No	Item	2013-14 Jul-Aug	2012-13	2010-11 to 2012-13
		--------US $ Per Tonne -------		
1.	Fob(Gulf) price assuming Fob (Karachi) price	313.00	347.00	321.00
		OR Rs per tonne @ Rs 103.64/US$		
		32439	35963	33268
2.	Incidental charges: (items i to xi)	4639	4739	4663
	i) Expenses from procurement centre to Multan	200	200	200
	ii) Transport cost from Multan to Karachi	1500	1500	1500
	iii) Cleaning/grading	750	750	750
	iv) Bagging, spillage, loading, unloading & testing	850	850	850
	v) Wharfage, stevedoring, weightment and port charges	70	70	70
	vi) Pre shipment inspection charges	100	100	100
	vii) Export development surcharges @1.25% of fob price	405	450	416
	viii Insurance charges at port 1 % for one month	27	30	28
	ix) Bank commission & charges 0.25 %	81	90	83
	x) Mark up @ 1.5% per annum for one month	405	450	416
	xi) Miscellaneous charges (Ghati, Wastage, Godown rent)	250	250	250
3.	Export parity price of wheat at procurement centre level(item 1- items 2)	27800	31224	28606
		---------Rs per 40kgs----------		
4.	Export parity price at procurement center level	1112	1249	1144

Sources: i) For fob (Gulf) prices: Annex - V.
ii) Incidental charges: Garib and Sons (Pvt)Ltd
iii) For expenses from procurement centre and transport charges: PASSCO, Lahore.

Annex-VIII

EXPORT PARITY PRICES OF WHEAT ON THE BASIS OF ACTUAL AVERAGE FOB (KARACHI) PRICE

S.No	Item	2013-14 Jul	2012-13	2010-11 to 2012-13
		--------US $ Per Tonne -------		
1.	Actual average Fob(Karachi) price	368.00	333.00	325.00
		OR Rs per tonne @ Rs 103.64/US$		
		38140	34512	33683
2.	Incidental charges: (items i to xi)	4801	4698	4674
i)	Expenses from procurement centre to Multan	200	200	200
ii)	Transport cost from Multan to Karachi	1500	1500	1500
iii)	Cleaning/grading	750	750	750
iv)	Bagging, spillage, loading, unloading & testing	850	850	850
v)	Wharfage, stevedoring, weightment and port charges	70	70	70
vi)	Pre shipment inspection charges	100	100	100
vii)	Export development surcharges @1.25% of fob price	477	431	421
viii	Insurance charges at port 1 % for one month	32	29	28
ix)	Bank commission & charges 0.25 %	95	86	84
x)	Mark up @ 1.5% per annum for one month	477	431	421
xi)	Miscellaneous charges (Ghati, Wastage, Godown rent)	250	250	250
3.	Export parity price of wheat at procurement centre level(item 1- items 2)	33339	29814	29009
		---------Rs per 40kgs----------		
4.	Export parity price at procurement center level	1334	1193	1160

Sources:
i) For fob (Karachi) prices: PBS, Karachi
ii) Incidental charges: Garib and Sons (Pvt)Ltd
iii) For expenses from procurement centre and transport charges: PASSCO, Lahore.

Annex-IX

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF WHEAT IN THE PUNJAB: 2012-13 AND 2013-14 CROPS

S. No.	Operations / Inputs	Average No. of oprs/units/ acre	2012-13 crop		2013-14 crop		Change in 2013-14 over 2012-13
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5 = 3 * 4	6	7 = 3 * 6	8 =7-5
				-------Rupees------			
1	Land preparation:						
	1.1 Rotavator/disc plough	0.598	1200.00	717.60	1300.00	777.40	59.80
	1.2 Ploughing	2.137	600.00	1282.20	650.00	1389.05	106.85
	1.3 Ploughing & planking	0.714	700.00	499.80	750.00	535.50	35.70
	1.4 Planking	0.649	300.00	194.70	325.00	210.93	16.23
	1.5 Levelling (hrs)	0.498	700.00	348.60	750.00	373.50	24.90
2	Seed and sowing operations:						
	2.1 Seed used (kgs)	52.577	40.00	2103.08	40.00	2103.08	0.00
	2.2. Tractor drilling	0.166	600.00	99.60	650.00	107.90	8.30
	2.3 Labour for seed broadcasting (m.hrs)	0.858	38.00	32.60	38.00	32.60	0.00
	2.4 Ploughing in case of broadcasting	1.390	600.00	834.00	650.00	903.50	69.50
	2.5 Planking in case of broadcasting	0.321	300.00	96.30	325.00	104.33	8.03
3	Bund making:						
	3.1 Manual (m.hrs)	1.033	38.00	39.25	38.00	39.25	0.00
	3.2 tractor (hrs)	0.203	700.00	142.10	750.00	152.25	10.15
4	Weedicides	0.787	650.00	511.55	700.00	550.90	39.35
5	Irrigation: * (Nos)						
	5.1 Canal	0.507	-	50.00	-	50.00	0.00
	5.2 Private tubewell	3.002	700.00	2101.40	765.00	2296.53	195.13
	5.3 Mixed	0.230	450.00	103.50	500.00	115.00	11.50
6	Labour for irrigation and water course cleaning (m.days)						
	6.1 For irrigation	1.225	300.00	367.50	300.00	367.50	0.00
	6.2 For water course cleaning	0.329	300.00	98.70	300.00	98.70	0.00
7	Farm Yard Manure (50 %)	-	-	400.00	-	400.00	0.00
8	Fertilizers: (bags)						
	8.1 DAP	1.090	3882.00	4231.38	3917.00	4269.53	38.15
	8.2 Urea	1.747	1718.00	3001.35	1829.00	3195.26	193.92
	8.3 SSP	0.132	1168.00	154.18	1094.00	144.41	-9.77
	8.4 NP	0.079	2467.00	194.89	2667.00	210.69	15.80
	8.5 CAN	0.039	1458.00	56.86	1623.00	63.30	6.44
	8.6 SOP	0.024	3897.00	93.53	4075.00	97.80	4.27
	8.7 Gypsum	0.024	300.00	7.20	300.00	7.20	0.00
	8.8 Transport and application	3.135	45.00	141.08	50.00	156.75	15.68
9	Mark up on investment on item 1to 8 excluding item 5(1) @12 % per annum for 6 months	-	-	1071.18	-	1122.17	50.99
10	Harvesting charges (40 kgs/acre)	2.997	967.50	2899.60	1157.00	3467.53	567.93
11	Threshing:						
	11.1 Threshing @ 3.23 kgs/40 kgs (40 kgs)	2.237	967.50	2164.30	1157.00	2588.21	423.91
	11.2 M.days	1.810	300.00	543.00	300.00	543.00	0.00
12	Land rent for 6 months	-	15000.00	7500.00	17000.00	8500.00	1000.00
13	Average weighted land tax @ Rs 132/acre/annum for 8 months	-	132.00	66.00	132.00	66.00	0.00
14	Management charges for 6 months	-	-	971.00	-	1030.00	59.00
15	Total cost per acre			33118.02		36069.77	2951.75
16	Value of wheat bhoosa	-	-	5000.00	-	5500.00	500.00
17	Net cultivation cost (item 15-16)			28118.02		30569.77	2451.75
18	Yield per acre (kgs)			1108.00		1108.00	
19	Cost of production at farm level: (Rs/40 kgs)			1015.09		1103.60	88.51
20	Marketing cost (Rs/40 kgs)	-	-	30.00	-	30.00	0.00
21	Cost of production at market/procurement centre (Rs/40 kgs)						
	21.1 Including land rent			1045.09		1133.60	88.51
	21.2 Excluding land rent	-	-	774.33	-	826.74	52.41

Annex-X

AVERAGE FARMERS' COST OF PRODUCTION ESTIMATES OF WHEAT IN SINDH: 2012-13 AND 2013-14 CROPS

S. No.	Operations / Inputs	Average No. of oprs/units/ acre	2012-13 crop		2013-14 crop		Change in 2013-14 over 2012-13
			Cost per unit	Cost per acre	Cost per unit	Cost per acre	
1	2	3	4	5 = 3 * 4	6	7 = 3 * 6	8 =7-5
				-------Rupees------			
1	Land preparation:						
	1.1 Rotavator/disc plough	0.349	1500.00	523.50	1600.00	558.40	34.90
	1.2 Ploughing	3.034	900.00	2730.60	1000.00	3034.00	303.40
	1.3 Ploughing & planking	0.070	900.00	63.00	1000.00	70.00	7.00
	1.4 Planking	0.081	450.00	36.45	500.00	40.50	4.05
	1.5 Levelling (hrs)	1.010	900.00	909.00	1000.00	1010.00	101.00
2	Seed and sowing operations:						
	2.1 Seed used (kgs)	55.817	40.00	2232.68	40.00	2232.68	0.00
	2.2. Tractor drilling	0.037	900.00	33.30	1000.00	37.00	3.70
	2.3 Labour for seed broadcasting (m.hrs)	1.127	38.00	42.83	38.00	42.83	0.00
	2.4 Ploughing in case of broadcasting	0.275	900.00	247.50	1000.00	275.00	27.50
	2.5 Planking in case of broadcasting	0.162	450.00	72.90	500.00	81.00	8.10
3	Bund making:						
	3.1 Manual (m.hrs)	1.611	38.00	61.22	38.00	61.22	0.00
	3.2 tractor (hrs)	0.091	900.00	81.90	1000.00	91.00	9.10
4	Interculture/weeding						
	4.1 Interculture	0.037	900.00	33.30	1000.00	37.00	3.70
	4.2 Weedicides	0.529	700.00	370.30	750.00	396.75	26.45
5	Irrigation: * (Nos)						
	5.1 Canal	1.763	-	53.30	-	53.30	0.00
	5.2 Lift pump	0.551	700.00	385.70	745.00	410.50	24.80
	5.3 Private tubewell	1.046	700.00	732.20	775.00	810.65	78.45
	5.4 Mixed	0.449	550.00	246.95	600.00	269.40	22.45
6	Labour for irrigation and water course cleaning (m.days)						
	6.1 For irrigation	1.022	300.00	306.60	300.00	306.60	0.00
	6.2 For water course cleaning	0.349	300.00	104.70	300.00	104.70	0.00
7	Farm Yard Manure (50 %)	-	-	500.00	-	500.00	0.00
8	Fertilizers: (bags)						
	8.1 DAP	1.013	3827.00	3876.75	3817.00	3866.62	-10.13
	8.2 Urea	1.950	1722.00	3357.90	1790.00	3490.50	132.60
	8.3 NP	0.186	2450.00	455.70	2633.00	489.74	34.04
	8.4 CAN	0.020	1392.00	27.84	1600.00	32.00	4.16
	8.5 Transport and application	3.169	45.00	142.61	50.00	158.45	15.85
9	Mark up on investment on item 1to 8 excluding item 5(1) @12 % per annum for 6 months	-	-	1054.53	-	1104.39	49.87
10	Harvesting charges (40 kgs/acre)	2.876	948.00	2726.45	1098.00	3157.85	431.40
11	Threshing:						
	11.1 Threshing @ 2.95 kgs/40 kgs (40 kgs)	1.784	948.00	1691.23	1098.00	1958.83	267.60
	11.2 M.days	1.415	300.00	424.50	300.00	424.50	0.00
12	Land rent for 6 months	-	15000.00	7500.00	15000.00	7500.00	0.00
13	Land tax @ Rs 200/acre/annum for 6 months	-	200.00	100.00	200.00	100.00	0.00
14	Drainage cess	-	-	24.00	-	24.00	0.00
15	Management charges for 6 months	-	-	971.00	-	1030.00	59.00
16	Total cost per acre			32120.43		33759.40	1638.97
17	Value of wheat bhoosa	-	-	4000.00	-	4000.00	0.00
18	Net cultivation cost (item 15-16)	-	-	28120.43	-	29759.40	1638.97
19	Yield per acre (kgs)			1113.00		1113.00	0.00
20	Cost of production at farm level: (Rs/40 kgs)			1010.62		1069.52	58.90
21	Marketing cost (Rs/40 kgs)	-	-	30.00	-	30.00	0.00
22	Cost of production at market/procurement centre (Rs/40 kgs)						
	22.1 Including land rent			1040.62		1099.52	58.90
	22.2 Excluding land rent	-	-	771.08	-	829.98	58.90

Notes for Annex-IX and X

1. The input-output parameters for estimating cost of production of wheat 2013-14 crop have been adopted from the Wheat Policy Analysis Report for wheat 2012-13 Crop, API's Series No 244.

2. The inputs prices and hiring rates of field operations have been revised in the light of the information through a field survey and as provided by the Provincial Agriculture Departments, Farmers' Associations and discussion made in the meeting of the API's Committee on Wheat, held on July 4 , 2013 at Islamabad and other sources.

3. The prices of chemical fertilizers have been revised in the light of the fertilizer prices published by the Pakistan Bureau of Statistics, Islamabad for the week ending on 15th August, 2013.

4. The cost of supplementary irrigation has been revised in view of changes in the prices of diesel and power tariff during August, 2012 to August 2013 from Rs 103.26 to Rs 109.76/lt of diesel and power tariff from Rs 5.31 to 6.77/kwh and the ratios of electric and diesel tubewells of 13:87 in the Punjab and 23:77 in Sindh as reported in the Agriculture Statistics of Pakistan, 2011-12, Pakistan Bureau of Statistics Islamabad.

5. The management charges for a manager looking after a 25-acre farm and devoting one-fourth of his time to the managerial activities have been worked at Rs 17,189 per month for a Field Assistant at the 15th stage in BS-6 as per revised scale of July 2011, including 15 & 10 % Adhoc Relief in 2012 and 2013, respectively.

6. The value of kind payments for harvesting and threshing of wheat has been revised in the light of current average market prices of Rs 1187 per 40 kgs in the Punjab and Rs 1128 in Sindh. Marketing charges of Rs 30 per 40 Kgs have been deducted from the market prices to bring these costs at the farm level.

7. In both the Punjab and Sindh provinces, land rent is the most significant item of the cost of cultivation. There is no clear-cut measure for updating the land rentals. However, land lease has been adjusted keeping in view the observations obtained during field survey and discussion made in the meeting of the API's Committee on wheat.

ANNEX - XI

ECONOMICS OF WHEAT AND COMPETING CROPS AT PRICES REALIZED BY THE GROWERS: 2012-13 CROPS

S. No	Province/crops/crop combination	Crop duration	Water used	Gross cost	Cost of purchased inputs	Gross revenue	Gross margin	Net income	Output-input ratio	Revenue per		
										Rupee of purchased inputs	Crop day	Acre inch of water used
		Days	Acre inches	.....Rupees per acre.....					Ratio	.....Rupees.....		
	1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3
	Punjab											
1	Wheat	180	12	31898	13200	37018	23818	5120	1.16	2.8	206	3085
2	Seed Cotton	240	22	46506	16928	47868	30940	1362	1.03	2.8	199	2176
3	Basmati paddy	180	58	39279	19159	41565	22406	2287	1.06	2.2	231	717
4	IRRI paddy	180	62	36388	16874	36333	19460	-55	1.00	2.2	202	586
5	Sunflower (spring)	180	22	36204	15361	40400	25040	4196	1.12	2.6	224	1836
6	Canola	180	13	23379	8555	29000	20445	5621	1.24	3.4	161	2231
7	Seed cotton + wheat	420	34	78404	30128	84886	54758	6483	1.08	2.8	202	2497
8	Seed cotton + sunflower	420	44	82710	32288	88268	55980	5558	1.07	2.7	210	2006
9	Basmati paddy+wheat	360	70	71177	32360	78584	46224	7407	1.10	2.4	218	1123
10	Basmati paddy+sunflower	360	80	75483	34520	81965	47446	6483	1.09	2.4	228	1025
11	IRRI paddy + wheat	360	74	68286	30074	73352	43278	5065	1.07	2.4	204	991
12	IRRI paddy+sunflower	360	84	72592	32234	76733	44499	4141	1.06	2.4	213	913
13	Sugarcane	394	48	71821	23063	88587	65524	16766	1.23	3.8	225	1846
	Sindh											
1	Wheat	180	12	28569	11788	31534	19747	2965	1.10	2.7	175	2628
2	Seed cotton	240	18	42561	14686	48840	34154	6279	1.15	3.3	204	2713
3	IRRI paddy	180	56	33013	12616	41226	28610	8213	1.25	3.3	229	736
4	Sunflower (spring)	180	22	36191	15364	44900	29537	8709	1.24	2.9	249	2041
5	Canola	180	13	23824	8492	29000	20508	5176	1.22	3.4	161	2231
6	Seed cotton + wheat	420	30	71130	26473	80374	53901	9244	1.13	3.0	191	2679
7	Seed cotton+sunflower	420	40	78753	26473	93740	67267	14988	1.19	3.5	223	2344
8	IRRI paddy + wheat	360	68	61582	24404	72760	48356	11179	1.18	3.0	202	1070
9	IRRI paddy+sunflower	360	78	69204	27980	86126	58146	16922	1.24	3.1	239	1104
10	Sugarcane	488	71	84932	28582	108623	80041	23691	1.28	3.8	223	1530

Notes for Annex – XI

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2012-13 crops.

2. The data regarding input-output parameters have been adopted from the API's Policy Analysis Reports for sugarcane, seed cotton, rice paddy and wheat, 2012-13 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 2012-13 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2012-13 crops, some marginal revisions have been made as under:

   2.1 The cost of fertilizers has been revised in view of their prices prevailed at the time of application for the respective crops in 2012-13 season.

   2.2 Harvesting and threshing charges have been revised in view of post harvest market price of wheat during 2012-13.

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 wholesale market prices of wheat realized by the growers during the post harvest period of 2012-13 averaging at Rs 1192 per 40 kgs for Punjab and Rs 1138 per 40 kgs for Sindh have been adopted.

   4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post harvest period of 2012-13 in major producer area markets have averaged at Rs 1424 and Rs 918 per 40 kgs for the Punjab, while at Rs. 798 per 40 kgs for IRRI paddy in Sindh.

   4.3 The wholesale market prices of seed cotton during the post-harvest period of 2012-13 in the main producer area markets have averaged at Rs 2552 per 40 kgs in the Punjab and at Rs 2543 per 40 kgs in Sindh.

   4.4 The wholesale market prices of sunflower during 2012-13 reported by PODB averaged at Rs. 2050 per 40 kgs in the Punjab and Rs 2275 per 40 kgs in Sindh. The corresponding prices for canola are reported at Rs. 2350 per 40 kgs in both the provinces.

4.5 The market prices of sugarcane at mill-gate during 2012-13 in the major cane producing areas are reported to hover around Rs 170 per 40 kgs in the Punjab and Rs. 174 in Sindh.

5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 13.25 per 40 kgs in Punjab and Rs 13.32 in Sindh for sugarcane, while these are Rs 35 for seed cotton and rice paddy, and Rs. 30 for wheat and oilseeds both the provinces.

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 in acre inches.

Annex-XII

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN PUNJAB AND SINDH

POLICY ANALYSIS MATRIX (PAM)

Based on import parity prices

Description	Revenues	Traded cost	Domestic Factors Cost	Profits
		Rupees per acre		
Punjab				
2007-08				
Private Prices	20253	6733	4035	9485
Social Prices	42025	6830	4135	31060
Transfers	-21772	-97	-100	-21575
2008-09				
Private Prices	27401	10269	5743	11388
Social Prices	28515	10594	5857	12064
Transfers	-1114	-325	-113	-675
2009-10				
Private Prices	26985	9361	7370	10255
Social Prices	23870	9580	7477	6813
Transfers	3115	-219	-107	3441
2010-11				
Private Prices	27678	10734	8088	8856
Social Prices	32557	11029	8200	13328
Transfers	-4879	-295	-112	-4472
2011-12				
Private Prices	28315	14335	8645	5335
Social Prices	33852	14920	8774	10158
Transfers	-5537	-585	-129	-4823
Sindh				
2007-08				
Private Prices	15485	1127	5404	8954
Social Prices	33535	1074	5496	26965
Transfers	-18050	54	-92	-18011
2008-09				
Private Prices	23252	1609	7754	13888
Social Prices	25434	1532	7887	16014
Transfers	-2182	77	-133	-2126
2009-10				
Private Prices	22187	2027	10641	9518
Social Prices	20745	1931	10756	8058
Transfers	1442	97	-115	1461
2010-11				
Private Prices	21364	2457	10880	8027
Social Prices	29409	2340	11004	16065
Transfers	-8044	117	-124	-8037
2011-12				
Private Prices	22985	2856	13380	6750
Social Prices	30815	2720	13549	14547
Transfers	-7830	136	-169	-7797

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

Proposed support price	Expenditure on wheat at average per capita consumption @ 120kgs per year		Rise in expenditure	
	Per person	Per household	Per person	Per household
Rs per 40 kgs	.....Rupees per year.....			
1200 (Existing for 2012-13)	3600	22968	-	-
1225	3675	23447	75	479
1250	3750	23925	150	957
1275	3825	24404	225	1436
1300	3900	24882	300	1914
1325	3975	25361	375	2393
1350	4050	25839	450	2871

Note: Average size Household comprises of 6.38 members.

Sources: 1. PSLM, Household Integrated Survey (HIES) 2010-11, Pakistan Bureau of Statistics (PBS), Karachi.

2. Annex – IV.

Annex-XIV

YIELD PER HECTARE OF MAJOR WHEAT PRODUCING COUNTRIES IN THE WORLD:2012 CROP

S.No.	Country	Yield per Hactare in Kgs	S.No.	Country	Yield per Hactare in Kgs
1	New Zealand	8924	31	Italy	4016
2	Netherlands	8587	32	Slovakia	4015
3	Belgium	8305	33	China, Taiwan Province of	4000
4	France	7599	34	Serbia	3977
5	Denmark	7369	35	Bulgaria	3972
6	Germany	7328	36	Lebanon	3947
7	Namibia	7000	37	Finland	3903
8	United Arab Emirates	7000	38	Estonia	3902
9	Zambia	6788	39	Mali	3872
10	United Kingdom	6657	40	Bosnia and Herzegovina	3708
11	Egypt	6516	41	Belarus	3582
12	Saudi Arabia	6400	42	Norway	3521
13	Ireland	6306	43	Hungary	3518
14	Sweden	6238	44	Republic of Korea	3462
15	Switzerland	5776	45	Zimbabwe	3360
16	Malta	5714	46	India	3173
17	Mexico	5550	47	United States of America	3115
18	Luxembourg	5462	48	Oman	3077
19	Slovenia	5438	49	Greece	3057
20	Croatia	5347	50	South Africa	3013
21	China, mainland	4995	51	Argentina	2973
22	Chile	4947	52	Kenya	2971
23	Lithuania	4783	53	Canada	2888
24	Uzbekistan	4664	54	Uruguay	2857
25	Latvia	4341	55	Ukraine	2800
26	Czech Republic	4323	56	Montenegro	2783
27	Austria	4141	57	Israel	2782
28	Poland	6120	58	Qatar	2727
29	Albania	4110	59	**Pakistan**	**2714**
30	Japan	4100		**World average**	**3115**

Source: FAO production year Bok 2012

ANNEX-XV

Subsidy on Wheat Released to Flour Mills During 2011-12 by Provincial Governments

Province	Procure-ment price	Incidental charges	Net procure-ment cost	Indicative issue price	Subsidy		Wheat released to flour mills	Total Subsidy
	---------- Rs per 40 kgs ----------					Rs/ tonne	Million tonnes	Million Rs
Punjab	950	240	1190	1050	140	3500	4.367	15284.50
Sindh	950	196	1146	1050	96	2400	1.058	2539.2
Khyber Pakhtunkhwa	950	280	1230	1050	180	4500	0.365	1642.5
Balochistan	950	210	1160	1068	92	2300	0.030	69.0
Total Subsidy								**19535.20**