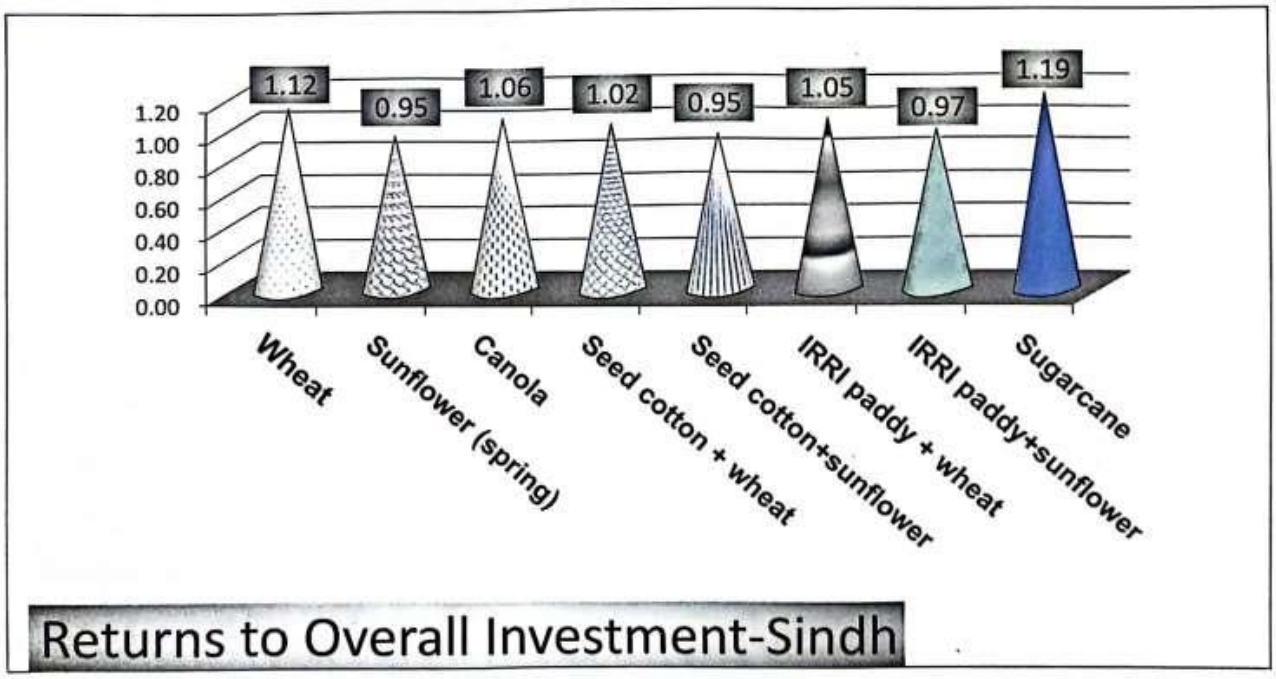
API SERIES NO. 260

WHEAT POLICY ANALYSIS FOR 2016-17 CROP



AGRICULTURE POLICY INSTITUTE
MINISTRY OF NATIONAL FOOD SECURITY AND RESEARCH
GOVERNMENT OF PAKISTAN
ISLAMABAD
November, 2016

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

A brief summary of the key findings and recommendatins are presented below:

Area and Production

- Punjab and Sindh on average, contribute about 76.4 and 15 per cent in wheat production while the share of KPK and Balochistan is 5.1 and 3.4 per cent, respectively.
- During the last decade, wheat production has risen @ 1.7 per cent per annum contributed by 1.0 per cent improvement in yield and 0.7 per cent expansion in area.
- Wheat production from 2015-16 crop is estimated at 25.57 million tonnes, an increase of 1.9 per cent over the production of 25.09 million tonnes in 2014-15.
- During last one decade, 20 high yielding wheat varieties have been developed by Research Institutes in Punjab for the irrigated and rainfed areas, while 6 varieties of wheat are released by Research Institutes in Sindh.

Domestic Requirements

- Based on 3-year average per capita availability of 112 kgs per annum, the domestic requirement of wheat for human consumption comes to 22.81 million tonnes for the year 2015-16.
- Assuming the per capita consumption at 120 kgs per annum, the domestic requirement for human consumption comes to 24.66 million tonnes.
- Including one million tonnes as food security reserve and 2.56 million tonnes for seed, feed and wastage, the total domestic requirement will range between 26.87 and 28.22 million tonnes. Adding the last year stocks, the surplus estimates at 3.15 to 1.82 million tonnes, respectively.

Domestic Prices

- Monthly average market prices of wheat for 2015-16 crop remained below the support price, both in the Punjab and Sindh.

- The wholesale prices of wheat averaged at Rs 1235 per 40 kgs in the Punjab and Rs 1187 in Sindh during the post harvest season in major producing areas.

- The wholesale prices of wheat collected through the API's Committee Meeting on wheat were reported around Rs 1280 per 40 kgs in the Punjab and Sindh during the post harvest period of 2015-16 crop.

Cost of Production

- In the Punjab, the cost of wheat cultivation for 2016-17 season is estimated at Rs 32,996 per acre including land rent.

- The cost of production at market / procurement centre level would be Rs 1128.74 per 40 kgs, reflecting fall of -8 per cent over the last year due to falling cost of farm operations, tubewell irrigation and harvesting/threshing charges.

- In Sindh, the cost of wheat cultivation for 2016-17 crop is expected at Rs 31,910 per acre including land rent.

- The cost of production at market/procurement centre level would come to Rs 1061 per 40 kgs, showing decrease of (10) per cent over the last year.

Economics of Wheat and Competing Crops

- Wheat farming in the Punjab has performed better than sunflower and canola during 2015-16 in terms of all the economic criteria adopted in the analysis.

- In Sindh, too wheat cultivation has left behind the sunflower and canola in terms of all the economic criteria analysed. Sunflower had a minor edge over wheat in terms of crop duration.

- In case of indirect competition, sugarcane has performed better than most of the crop combinations in majority of economic indicators both in Punjab and Sindh.

- However, certain combinations performed better than sugarcane like basmati+wheat in terms of output-input ratio and crop duration. Cotton combinations were also better in terms of irrigation water.

- In Punjab, wheat rotations with cotton and Basmati have paid better returns than rest of the crop combinations. Sugarcane also performed better in terms of returns to overall investment and purchased inputs.

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 the decade of 2005 to 2016.
- During 2015-16, the parity ratio between market prices of N and wheat was not in favour of wheat due to high prices of N fertilizer and 1.97 units of wheat were required to buy one unit of N fertilizer.
- The quantity of wheat needed to buy one nutrient tonne of P fertilizer has fluctuated between 2.79 to 6.26 tonnes during 2005-16.
- During 2015-16, the parity ratio between market prices of P and wheat was not in favour of wheat due to high prices of P fertilizers and 3.24 units of wheat could purchase one unit of P fertilizer.

Nominal and Real Support Prices

- The nominal support prices of wheat during 2007-08 to 2015-16 have experienced overall increase of 103.25 per cent, while the real support prices have decreased by 2.34 per cent.
- During 2014-15, the nominal support price remained unchanged over the last year, while the real support price has decreased by 2.24 per cent mainly for 2.3 per cent increase in CPI.

Nominal and Real Market Prices

- The nominal market prices of wheat have shown an overall surge of 80 per cent, while the real market prices have shown negative change by 11.6 per cent during the period.
- During 2015-16, the nominal market price has declined by 2.1 per cent, while the real market price has deteriorated by 0.2 per cent in the wake of inflationary trend.

World Production and Prices

- World wheat production estimated at 736 million tonnes in 2015-16 is higher by 6 million than the last year while it is forecast to 746 million tonnes in 2016-17.
- The closing stocks at 203 million tonnes in 2014-15 improved to 218 million tonnes in 2015-16 and are forecast to further improve to 231 million in 2016-17.

- The average Fob (gulf) prices of US Hard Red Winter (HRW) wheat fluctuated widely and rising as high as $ 361 per tonne in 2007-08 to 209 per tonnes in 2009-10. In 2015-16, wheat prices continued to decline reaching USD 212 per tonnes.

- During the first half-year of 2016-17, international prices of US No. 2 HRW wheat have averaged at US $ 189 per tonne all time lowest.

Export/Import Parity Prices

- Based on the average Fob (gulf) price of US HRW wheat during 2015-16, the export parity price works to Rs 728 per 40 kgs. The export parity price calculates to Rs 942 per 40 kgs on the basis of average fob price during 2013-14 to 2015-16.

- Based on the average Fob (gulf) price of 2016-17 (July-Oct), the export parity price of wheat works back to Rs 635 per 40 kgs.

- Based on average Fob (gulf) prices during 2013-14 to 2015-16, the import parity prices work to Rs 1401 per 40 kgs at Multan, while Rs 1337 per 40 kgs at Karachi.

- Based on the Fob price during 2016-17 (July-Oct), the import parity prices calculate to Rs 1068 per 40 kgs at Multan and Rs 1004 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 NPC remains below one under the importing scenario for 2009-10 to 2015-16 in both Punjab and Sindh.

- The EPCs below one during the entire period imply that wheat remained implicitly taxed in Punjab and Sindh

- Under export scenario, the NPC values are either greater than or very close to one both in the Punjab and Sindh. This means that for 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 less than one during the period, indicating a Comparative Advantage in domestic wheat production for import substitution. While under export scenario, DRCs do not indicate Comparative Advantage being greater than one; this implying that wheat production for export is not a viable proposition.

World Comparison

- Pakistan is the 9th largest wheat producer in terms of area and production but ranks at 64th position in terms of yield.
- Among the major wheat producing countries, Pakistan lies at the bottom in the context of yield.
- Support price of wheat in India during 2013-14 to 2015-16 was considerably lower as compared to Pakistan, through providing huge subsidies on farm inputs.

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 1300 per 40 kgs, the CPI would likely to rise by 0.083 per cent.
- Likewise, 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 1869 per household.

Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for wheat 2016-17 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 2015-16, if exported from Multan	728
b) Fob (gulf) average price of US HRW wheat during 2013-14 to 2015-16, if exported from Multan	942
c) Fob (gulf) price of US HRW wheat during 2015-16 (Jul-Oct), if exported from Multan	635
2. Import parity price on the basis of:	
a) Fob (gulf) price of US Hard Red Winter (HRW) wheat during 2015-16, if consumed at:	
- Karachi	1104
- Multan	1168
b) Fob (gulf) price of US HRW wheat during 2013-14 to 2015-16, if consumed at:	
- Karachi	1337
- Multan	1401
c) Fob (gulf) price of US HRW wheat during 2015-16 (July-Oct), if consumed at:	
- Karachi	1004
- Multan	1068
3. Monthly average wholesale market prices of wheat in major producing areas during the post-harvest period of 2015-16 crop:	
- Punjab	1235
- Sindh	1187
4. Cost of production estimates at market/procurement centre level for 2016-17 crop:	
- Punjab	1128.74
- Sindh	1061.00

- Recommendations

In view of the field information, consultation with the stakeholders in the API Committee meeting on Wheat and analysis of relevant factors, following recommendations are made regarding the support price, improving productivity and marketing of 2016-17 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 crop situation, stocks, consumption and production estimates of wheat, the Ministry of National Food Security and Research may like to consider the support price of wheat and maintain at Rs 1300 per 40 kgs for 2016-17 crop.
- It provides a reference point for procurement by the public sector agency to meet the food security requirements of the country.
- It is important to ensure that 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 needs to be further strengthend.
- This price is expected to provide some profit margin over the cost of production for improving productivity through balanced input use, better management and optimal technology adoption.
- PASSCO and Provincial Food Departments may be designated as the implementing agencies for the procurement of wheat at the support price announced by the government.
- 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 annually publicise the seed availability of new high yielding varieties well before the sowing season in collaboration with the Research Institutes.
- To ensure the food security in future, there is a dire need to study the impact of climate change on land use, crop maturity and cropping pattern.
- 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.
- The Government should emphasize on timely 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, herbicies, pesticides and fertilizer to enhance their efficiency.
- For the efficient use of fertilizer, 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 implemented in true spirit and the private seed companies selling spurious and fake seeds may be strictly penalized.
- The prices of ploughing tubewell irrigation/mechanical harvesting and thresing have not gone down in line with reduction in diesel/petrol prices. Government should ensure that benefit of reduced prices of petroleum products should be trickled down at farm level.

Improving Statistics and Marketing

- The Government should establish Input Price Regulatory Authority in order to check and control the input prices and other related matters.
- The Government should stress on value addition in wheat produce to improve its export competitiveness in the world market.
- The KPK and Balochistan Governments should adopt the crop cutting experiments in line with the Punjab and Sindh.
- There is a need to constitute a committee of experts to examine the current system of crop estimation and suggest ways and means to improve the provincial crop estimates.
- 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 for the masses
- 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.
- Farmers suggested reduction in mark up by the ZTBL and other commercial Banks on small loans to growers.

WHEAT POLICY ANALYSIS FOR 2016-17 CROP

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INTRODUCTION

Pakistan's economy benefits the highest from wheat, which being the leading food commodity and the staple diet of most of the people dominates all crops in acreage and production. Wheat contributes about 9.9 per cent to the value added in agriculture and 2.0 per cent to the GDP[1]. The crop occupies around 39 per cent of total cropped area. It is generally cultivated over 9 million hectares with an annual average production of 25.5 million tonnes (2015-16). During the decade ending 2015-16, wheat production has increased @ 1.7 per cent per annum. About 87 per cent of wheat area is irrigated which accounts for about 93.7 per cent of the annual production. During certain years like 2010-11 and 2011-12, wheat was exported in high quantity. During 2015-16, wheat production of 25.48 million tonnes remained 2 per cent lower than the target of 26 million tonnes. The reduced production was due to decline in yield by 4.4 per cent against the target, while the area was over sown by 3 per cent.

2. Amongst the large wheat producing countries Pakistan ranks 8th in terms of both area and production of wheat. However, in terms of productivity, Pakistan stands much lower in ranks i.e. 64th in terms of yield per hectare[2]. There is huge gap in yield potential, as the yield at Research Farms of high yielding wheat varieties range between 6 to 8 tonnes per hectare, while the national average yield is only 2.75 tonnes per hectare. This huge gap in yield can be narrowed through adoption of optimal technology and better management on general field conditions. Provision and availability of quality seed, fertilizers, herbicides and other inputs is an issue particularly for resource poor farmers to use at the optimum level. Timely availability of inputs and production technology at the grassroots level alongwith incentive prices for their produce are a few important steps to be ensured for attaining improved productivity on sustainable lines.

3. Ensuring food security and reducing uncertainty and price risk in wheat farming, are the policy objectives of the government which are pursued through announcing the minimum guaranteed/support price of wheat. This price is reviewed annually by the government on the recommendations of the API and M/o NFS&R. The ECC of the Cabinet had considered the Summary of the M/o National Food Security and Research on the Support Price Policy of Wheat for 2015-16 and retained at Rs 1300 per 40 kgs which was announced for 2015-16 crop.

4. During 2015-16, wheat procurement was reported at 5.8 million tonnes, around 18 per cent less than the target of 7.05 million tonnes[3]. The government has sufficient stocks of around 9.92

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[1] Economic Survey of Pakistan, 2015-16.
[2] Food and Agriculture Organization.
[3] M/o National Food Security and Research.

million tonnes to meet the domestic requirements of over 28 million tonnes during the consumption year 2016-17.

5. The price policy recommendations for 2016-17 wheat crop have been formulated based on the following important activities undertaken by the API:

i) An annual field survey was carried out in the important wheat growing areas of Sindh and the Punjab during third week of August, 2016 to update the data on prices of inputs, hiring rates of farm operations and marketing cost.

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. The 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 Committee on wheat was held on 5th September 2016 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 2016-17 crop.

6. Wheat being not only the staple but also a major food security crop of the country, its pricing is a complex phenomenon. Conflicting interests of various stakeholders like growers, consumers, millers, etc play important role in determining the price in the market. In view of fluctuating input prices and increasing cost of production, the farmers argue for higher output prices otherwise wheat farming may not be a viable proposition. Resultant increased 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. Wheat is one of the sensitive food commodities, thus a slight change in its price and availability does have a positive or negative impact on consumers, especially on the poor segment of the population. Hence, the government has been implementing a Safety Net for food assistance to the poorest to save them from the adverse effects of hike in prices of staple food like wheat and other essential food items.

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. Normally in Pakistan, wheat harvesting starts from end of March in south and continues till end of July in northern parts. Harvesting of wheat depends on the climatic conditions and maturing time of varieties sown. By and large it starts in March/April and continues up to May, depending upon the sowing time, management practices, climatic conditions and varieties.

3. REVIEW OF 2015-16 CROP

3.1 Provincial Shares in Area and Production

14. Based on average during 2013 to 2016, the Punjab and Sindh contribute, respectively 76.4 and 15.0 per cent in total wheat production while the shares of the KPK and Balochistan are around 5.1 and 3.4 per cent, respectively. The provincial shares of area and production are presented in Table-2 and depicted in Figures 1 & 2, respectively.

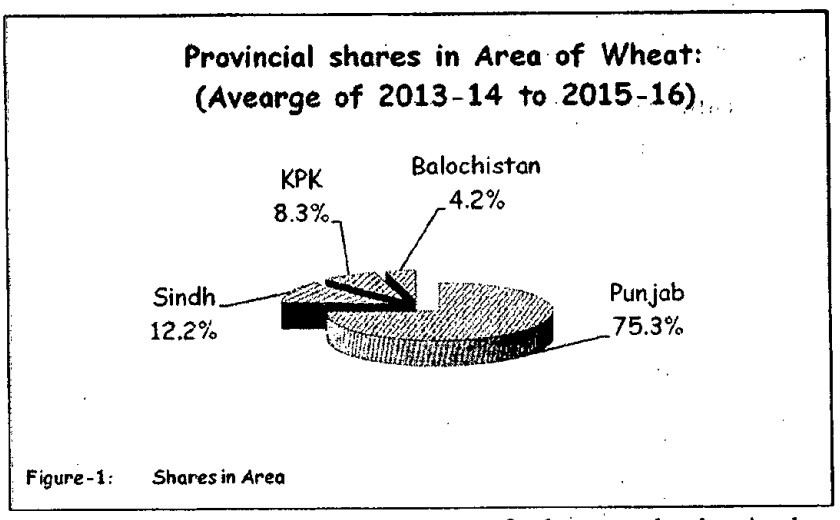


Figure-1: Shares in Area

15. Around 87.2 per cent of wheat acreage is cultivated under irrigated conditions which contribute 93.5 per cent of wheat production in the country.

Table-2: Average Share of different provinces in Area and Production of Wheat (2013-14 to 2015-16)

Item/ Province	Total	Pakistan	Punjab	Sindh	KPK	Balochistan
	000 hect.	---------- Per cent ----------				
A. Area						
Total	**9216.8 (22775.6)**	**100.0**	**75.3**	**12.2**	**8.3**	**4.2**
Irrigated	8033.1 (19850.7)	87.2	67.8	11.8	3.6	4.0
Un-irrigated	1183.6 (2924.9)	12.8	7.5	0.5	4.6	0.2
B. Production	000 tonnes	---------- Per cent ----------				
Total	**25544.7**	**100.0**	**76.4**	**15.0**	**5.1**	**3.4**
Irrigated	23890.5	93.5	72.6	14.8	2.8	3.3
Un-irrigated	1654.2	6.5	3.9	0.2	2.3	0.1

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

3.2 Long-term Changes: 2005-06 to 2015-16

16. During the decade ending 2015-16, wheat production at country level has surged @ 1.7 per cent per annum owing to 1.0 per cent improvement in yield and 0.7 per cent expansion in area. In the Punjab, wheat production has increased @ 1.6 per cent annually due to 1.0 per cent improvement in yield and 0.7 per cent acreage expansion. In Sindh, wheat production increased @ 2.3 per cent per annum due to improvement of yield by 0.5percent and by 1.8 percent expansion of area of the crop. Annual growth rate of wheat production in KPK and Balochistan remained 1.6 to 1.9 percent.

Table-3: Average Annual Growth Rate of Area, Yield and Production of Wheat during 2005-06 through 2015-16

Country/ Province	Area	Yield	Production
	---------- Per cent per annum ----------		
Pakistan	**0.7**	**1.0**	**1.7**
Punjab	0.7	1.0	1.6
Sindh	1.8	0.5	2.3
KPK	0.2	1.7	1.9
Balochistan	0.5	1.1	1.6

Note: The growth rates have been worked out by estimating the equation, $Y=a(1+r)^x$, (OLS).
Source: Annex-I.

3.3 Medium Term Changes: 2010-11 to 2015-16

17. The annual growth rate for the period 2010-11 to 2015-16 shows that in Pakistan wheat production has increased @ 1.0 per cent solely due to 1.3 percent expansion of area because yield had squeezed by 0.3 per cent at the country level. These growth rates are presented in Table-4.

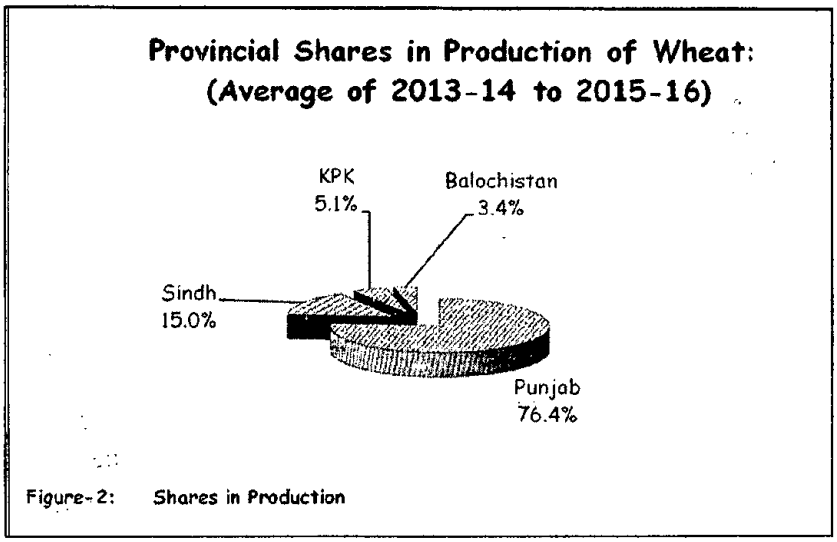


Figure-2: Shares in Production

Fig-3: Province-wise Area of Wheat: 2014-15 & 2015-16

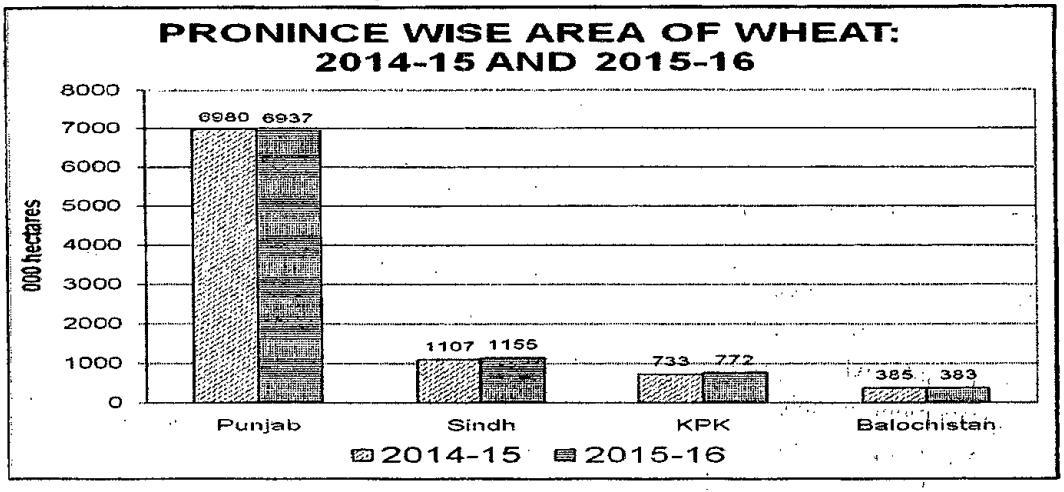


Table-4: Average Annual Growth Rates of Area, Yield and Production of Wheat: 2010-11 to 2015-16

Country/Province	Area	Yield	Production
	--------- Per cent per annum ---------		
Pakistan	**1.3**	**-0.3**	**1.0**
Punjab	1.3	-0.1	1.3
Sindh	0.8	-2.2	-1.5
KPK	1.1	2.0	3.2
Balochistan	1.9	1.4	3.3

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

3.4 Performance of 2015-16 Crop against 2014-15 (Short Term Changes)

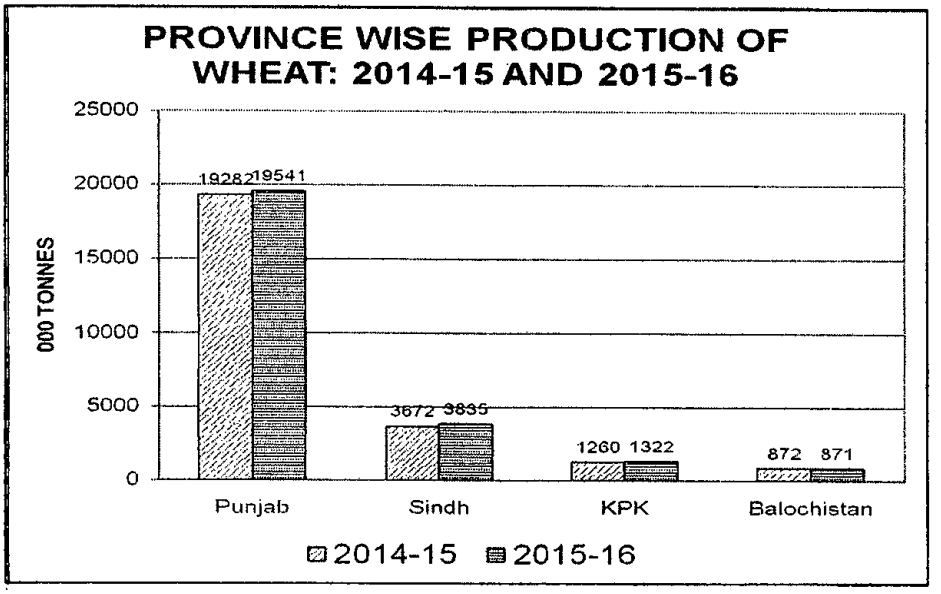
18. Wheat production from 2015-16 crop is reported at 25.568 million tonnes at the country level, showing 1.9 per cent higher over 25.086 million tonnes in 2014-15 due to increase of 1.4 percent in yield and 0.5 percent in area. These statistics are produced in Table-5, reflected in Fig. 3 & 4.

Table-5: Area, Yield and Production of Wheat: 2014-15 and 2015-16 Crops

Country/ Province	Area		Change s	Yield per hectare		Change s	Production		Change s
	2014-15	2015-16		2014-15	2015-16		2014-15	2015-16	
	-- 000 hectares --		Per cent	-----Kgs ----		Per cent	-- 000 tonnes --		Per cent
Pakistan	**9203.9**	**9247.1**	**0.5**	**2726**	**2765**	**1.4**	**25086.0**	**25568.7**	**1.9**
Punjab	6979.5	6937.4	-0.6	2763	2817	2.0	19281.9	19540.6	1.3
Sindh	1106.9	1154.5	4.3	3318	3321	0.1	3672.2	3834.6	4.4
KPK	732.5	772.3	5.4	1720	1712	-0.5	1259.9	1322.2	4.9
Balochistan	385.0	382.9	-0.5	2265	2276	0.5	872.0	871.3	-0.1

Source: Annex-I.

Fig-4: Province-wise Production of Wheat: 2014-15 & 2015-16



3.5 Important Wheat Producing Districts

19. The Bahawalnagar district is on the top in wheat production in Pakistan. If produces more than one million tonnes of wheat per annum. Districts producing more than 500 thousand tonnes per annum are R.Y.Khan, Faisalabad, Jhang, Bahawalpur, Vehari, Muzaffargarh, Okara, Sheikhupura, Gujranwala, Lodhran, Khanewal, Layyah, T.T.Singh. Multan, D.G.Khan, Pakpattan, Kasur and Sargodha. These 19 districts produce 55 per cent of total wheat production in Pakistan while their share in area is estimated at 49 per cent. Hafizabad, Sialkot, Rajanpur, Sahiwal, Bhakhar, Nankana Sahib, Mianwali, M.B.Din, Chinniot and Narowal from Punjab and NausheroFeroz, Khairpur, Sanghar, Ghotki from Sindh, Swat from KPK, Nasirabad and Jaffarabad from Balochistan are other important wheat producing districts in the country. Different districts production shares are given in Annex-III.

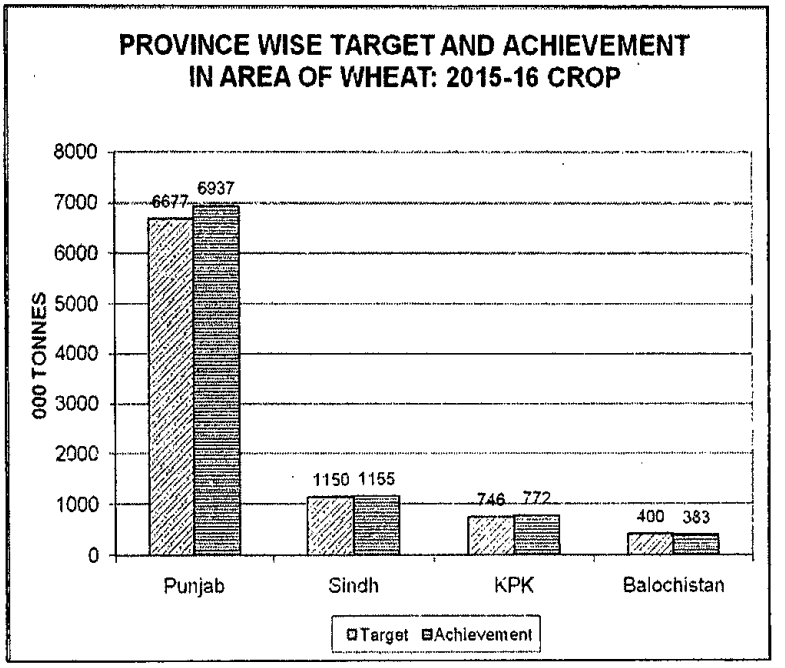


Fig-5: Province-wise Target and Achievement in Area of Wheat: 2015-16 crop

3.6 Targets Vs Achievements: 2015-16 Crop

20. The Federal Committee on Agriculture (FCA) had fixed target of wheat production for 2015-16 crop was at 25.844 million tonnes to be sown on an area of 8.973 million hectares. However, production from the 2015-16 crop is reported at 25.569 million tonnes under achievement of yield target by 4.0 percent short by 1.1 percent against the target. Provincial details on area, yield and production may be seen in Table-6, which are depicted in Figures 5 and 6.

Table-6: Targets Vs Achievements in Area, Yield and Production of Wheat: 2015-16 Crop

Country/ Province	Area		Deviation from target	Yield per hectare		Deviation from target	Production		Deviation from target
	Targets	Achievements		Targets	Achievements		Targets	Achievements	
	000 ha		Percent	Kgs		Percent	000 tonnes		Percent
Pakistan	**8972.7**	**9247.1**	**3.1**	**2880**	**2765**	**-4.0**	**25843.6**	**25568.7**	**-1.1**
Punjab	6677.2	6937.4	3.9	2920	2817	-3.6	19500.0	19540.6	0.2
Sindh	1150.0	1154.5	0.4	3652	3321	-9.1	4200.0	3834.6	-8.7
KPK	745.5	772.3	3.6	1735	1712	-1.3	1293.6	1322.2	2.2
Balochistan	400.0	382.9	-4.3	2125	2276	7.1	850.0	871.3	2.5

Sources: 1. For targets: Minutes of the meeting of FCA held on 14-04-2016 at Islamabad.
2. For Achievements: Annex-I.

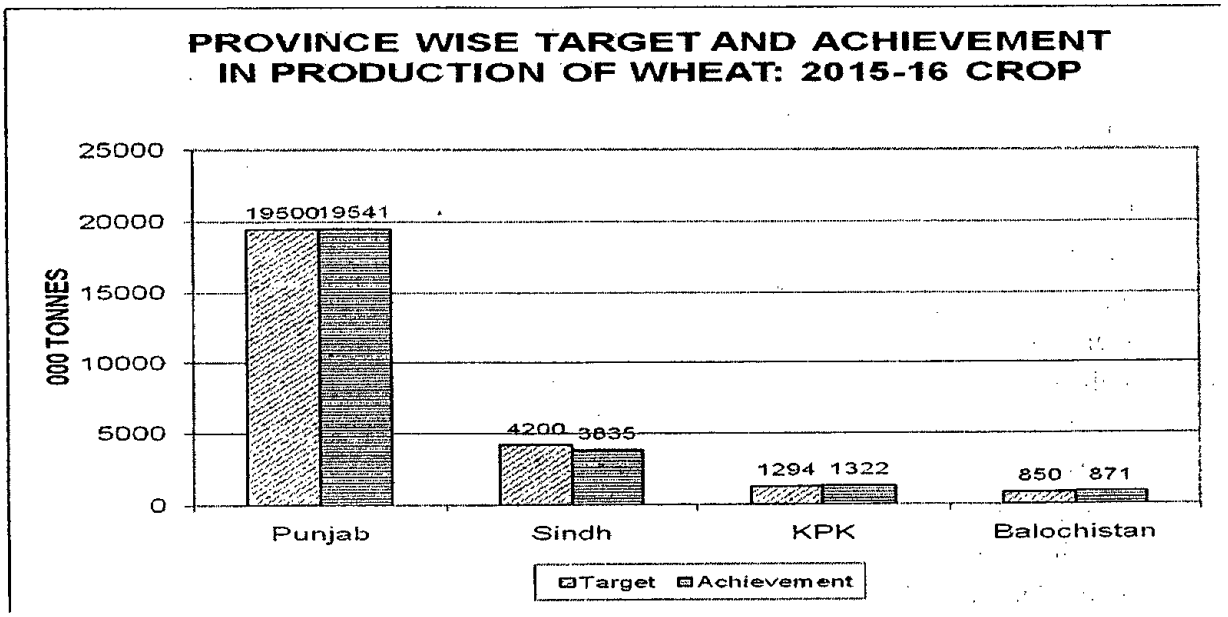


Fig-6: Province-wise Target and Achievement in Production of Wheat: 2015-16 crop

4. FACTORS CONSIDERED FOR PRICE POLICY ANALYSIS

21. Following major factors were considered for the analysis of the price policy of wheat 2016-17 crop:

i) Domestic Demand, Supply, Stocks and Price Situation
ii) World Production, Consumption, Stocks and Trade Situation
iii) International Price
iv) Export or Import Parity Prices
v) Cost of Production
vi) Comparative Economics of Competing Crops
vii) Nominal and Real Support and Market Prices
viii) Economic Efficiency of Wheat Production in Pakistan
ix) Producer Prices of Wheat in Selected Countries
x) Impact of Increase in Support Price of Wheat on Consumer Price Index (CPI) and Average Household Expenditure

4.1 Domestic Demand, Supply, Stocks and Price Situation

- **Domestic Demand, Supply and Stocks**

22. With the domestic production of 25.65 million tonnes[4] from 2015-16 crop and carryover stocks of 4.12 million tonnes, total wheat supply in the country for 2016-17 consumption year becomes 29.76 million tonnes. This supply may slightly increase if production of wheat in Azad Kashmir and Gilgit Baltistan estimated at 0.26 million tonnes is added. Thus total availability of wheat in the country would be 30.02 million tonnes.

Table-7: Domestic Requirements of Wheat for 2016-17 Wheat Year: (May-April)

S. No.	Item	Based on annual per capita	
		Consumption	Availability
		120 Kgs	112 Kgs
1.	Population (Million)	205.46	205.46
2.	Human consumption requirement (Million tonnes)	24.66	22.81
3.	Allowance for seed, feed and wastage @ 10 per cent of total production of 2015-16 crop(Million tonnes)	2.56	2.56
4.	Food Security reserves (Million tonnes)	1.00	1.00
5.	**Total requirements** (Million tonnes)	**28.22**	**26.87**
6.	**Total supply (production + carry forwarded)** (Million tonne)	**30.02**	**30.02**
7.	Surplus/ Deficit(Million tonnes)	1.82	3.15

Source: Annex-IV.

23. The estimation of consumption requirement of wheat for 2016-17 is based on its actual average per capita availability of 112 kgs per annum as worked by API through balance sheet method and 120 kgs per annum as per Planning Commission. Using total population of 205.46 million (including Afghan refugees) and 120 kgs per annum, human consumption requirement for

[4] Economic Wing, NFS&R.

2016-17 is estimated at 24.66 million tonnes. Adding allowance for seed, feed and wastage @ 10 per cent of production and strategic reserve of one million, gross domestic requirements for 2016-17 wheat year works to 28.22 million tonnes. However, this requirement would be 26.87 million tonnes if estimated at per capita availability of 112 Kgs per annum as per API analysis. Resultantly, country have 1.82 million tonnes surplus wheat is available as per 120 kgs consumption whereas it would be 3.15 million tonnes if used the 112 kgs per capita consumption. The calculations are presented in Table -7.

- **Post harvest prices**

24. Monthly wholesale prices of wheat during the post-harvest months of 2015-16 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 2015-16 Crop

Markets	April	May	June	Average
Punjab	----------Rs per 40 kgs----------			
Lahore	1347	1220	1220	**1262**
Faisalabad	1234	1275	1275	**1261**
Multan	1211	1204	1229	**1215**
Okara	1257	1210	1210	**1226**
R.Y. Khan	1228	1194	1178	**1200**
Bahawalpur	1295	1230	1204	**1243**
Average	**1262**	**1222**	**1219**	**1235**
Sindh	**March**	**April**	**May**	
Matyari	1300	1300	1300	**1300**
Sanghar	1090	1180	1185	**1152**
Mirpurkhas	1125	1150	1150	**1142**
Nawabshah	**1200**	1200	1200	**1200**
Sukkur	1125	1125	1175	**1142**
Average	**1168**	**1191**	**1202**	**1187**

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

25. 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 1300 per 40 Kgs during the months of April to June 2016, except in Lahore market in April 2016 where the price surpassed the support price. The monthly average ranged between Rs 1178 to 1295 per 40 kgs in Punjab markets.

26. In Sindh, the postharvest price was also below the support price of Rs 1300 except Matyari district. These prices have touched the support price during March to May 2016. The monthly average prices ranged between Rs 1125 to 1300 per 40 kgs during March-May 2016 in Sindh.

4.2 World Production, Consumption, Stocks and Trade Situation

27. The data on world production, consumption, stocks and trade situation from 2014-15 to 2016-17 are presented in Table-9:

28. The world wheat production in 2015-16 is estimated at 736 million tonnes, 6 million tonnes higher than that of last year. After adding the opening stocks of 203 million tonnes, the world supply of wheat in 2015-16 is estimated at 939 million tonnes, 21 million tonnes higher than the last year. Due to higher production and increasing carryover stocks have further increased the end year stocks 218 million tonnes in 2015-16, 15 million tonnes higher as compared to last year's stocks of 203 million tonnes.

Table-9: World Wheat Situation: 2014-15 to 2016-17

Items	2014-15	2015-16 (Estimated)	2016-17 (Forecast)
	.....Million tonnes.....		
Opening stocks	188	203	218
Production	730	736	747
Total Supply	918	939	965
Consumption	716	721	734
Closing stocks	203	218	231
Trade	153	165	164

Source: Grain Market Report, International Grains Council, London, September 29, 2016 GMR No 470.

29. According to the International Grains Council London, the global wheat production in 2016-17 is forecast to increase further to 747 million tonnes. Accounting for the opening stocks of 218 million tonnes, total supply is anticipated at 965 million tonnes against the consumption forecast of 734 million in 2016-17.

30. In the wake of this forecast proving true, the price of wheat in international market may drop further.

4.3 International Prices of Wheat

31. Average Fob (Gulf) prices of US Hard Red Winter from 2006-07 to 2016-17 are presented in Annex-V. The prices of US Hard Red Winter showed a volatile pattern during the period under review. The prices averaged at US $ 212 per tonne during 2006-07 and jumped to US $ 361 per tonne in next year the highest level of price during the period under review. The world prices of wheat followed a decreasing trend and averaged at US $ 209 per tonne in 2009-10. But prices again increased sharply to US $ 316 per tonne in 2010-11 and slightly declined to $ 301 per tonne in 2011-12. The prices again trended upward to $ 347 in 2012-13. From 2013-14, the prices adopt a declining trend and averaged at US $ 212 per tonne during 2015-16. In current season 2016-17 (July-October), the price is following a downward trend and average at $ 189 per tonnes.

4.4 Import and Export Parity Prices of wheat

32. The import and export parity prices have been calculated on the basis of fob (Gulf) prices of Hard Red Winter US wheat while the export parity price on the basis of both 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 No 2 Hard Red Winter fob (Gulf) Price

Item	Jul-Oct 2016-17	During 2015-16	During 2013-14 to 2015-16
Fob Gulf price (US $ per tonne)	189	212	265
Import parity price per 40 kgs of wheat:			
i) if consumed at Multan	1068	1168	1401
ii) If consumed at Karachi	1004	1104	1337

Table-11: Export Parity Prices of Wheat on the Basis of No.2 Hard Red Winter Fob (Gulf)

Item	Jul-Oct 2016-17	During 2015-16	During 2013-14 to 2015-16
Fob Gulf price assuming for Karachi (US $ per tonne)	189	212	265
Export parity price per 40 kgs at procurement centre	635	728	942

Source: Annex-VI to VIII.

4.5 Cost of Production

In formulating price proposals for the farm produce, cost of production (COP) provides the basic criterion. However, diverse group of farmers and cultivation practices make empirical estimation of cost of production tedious and complicated.

Cost of production for Punjab and Sindh provinces for 2016-17 have been estimated by using the API latest field survey data (post-harvest season 2015-16 crop) – input use and cultural operations made by different category of farmers and prices of the inputs and rates of different cultural operations prevailing at the village level. However, for some of the operations concerned parameters of the wheat policy for 2015-16 crop are also used.

Findings of the field survey data were also verified by the representatives of the provincial Governments and Farmer Associations in the API meeting conducted for the 2016-17 wheat crop support price policy. Details of the COP estimates for Punjab and Sindh for 2015-16 and 2016-17 crops are annexed while their summary is presented in Table - 12.

Average farmer cost of production of wheat: 2015-16 and 2016-17 crops

36. Cost of production for the 2016-17 crop is produced in consolidated form in Table-12.

Punjab

37. The expected net cost of cultivation of one acre of wheat in the Punjab during 2016-17 crop year is likely to be Rs 32,724 including land rent. Thus cost of production at the farm gate taking 30 Manuds/ acre yield turns out to be Rs 1091/40 Kg. Adding marketing expenses @ Rs 38/ 40 Kg, the procurement centre level COP comes out to Rs 1128.72 lower by Rs 97.46 than the corresponding COP Rs 1226.18 for the 2015-16 crop.

Sindh

38. Net cost of sowing one acre of wheat in Sindh in 2016-17 crop season is likely to be Rs 32,429/acre (inclusive land rent) at the farm gate. Distributing this cost over the average yield of 30 maund/ acre, COP comes to Rs 1081/40 Kg. Adding marketing cost @ Rs 42/40 Kg, cost of producing and selling in the market or at the procurement centre of Food Department would be Rs 1123/40 Kg. This cost is Rs 59/40 Kg less than the corresponding cost Rs 1182/40 Kg of the 2015-16 crop.

39. Decrease in the expected cost of production of 2016-17 wheat is attributed to reduction in price of urea, DAP and electricity tariff for agricultural tube wells announced during 2016.

Table – 12: Average farmer cost of production of wheat: 2015-16 and 2016-17 crops

Item	Unit	2015-16 crop	2016-17 crop	Change over 2015-16
Punjab				
1.Cost of production	Rs./acre	32,996	32,724	-271.11
2. Yield	40 Kg/acre	28	30	2
3.Cost of production at farm level	Rs./40Kg	1191	1091	-100.36
4. Marketing cost	"	35	38	3
5. Cost of production at market/ procurement centre:				
a) With land rent	"	1226.18	1128.72	-97.46
b) Without land rent	"	919.00	712.05	-206.95
Sindh				
1.Cost of production	Rs./acre	31,914	32,429	514.40
2. Yield	40 Kg/acre	27.82	30	2.18
3.Cost of production at farm level	Rs./40Kg	1147	1081	-66
4. Marketing cost	"	35	42	7
5. Cost of production at market/ procurement centre				
a) With land rent	"	1182	1123	-59.01
b) Without land rent	"	912	748	-164.80

Source: Annex - IX- and X.

Cost of major farm inputs and operations

40. A comparative account of the cost of main production operations involved in wheat production for 2015-16 and 2016-17 crops are presented in Table-13 .

Table- 13: Cost of major operations/ inputs of wheat: 2015-16 and 2016-17 crops

Operation/ input	2015-16 crop	2016-17 crop	Change over 2015-16
Punjab			
1. Land preparation	3748(10)	4879(12)	1131
2. Seed & sowing operations	3751(10)	3558(9)	-193
3. Weedicides	708(2)	658(2)	-50
4. Irrigation	3422(9)	2874(7)	-548
5. Fertilizer including transport & application	8595(22.32)	6186(15)	-2409
6. Harvesting & threshing charges	6896(18)	6771(17)	-125
7. Land rent	8500(22)	12500(31)	4000
8. Other costs	2772(7)	2799(7)	27
9. Gross cost	38496(100)	40224(100)	1728
Sindh			
1. Land preparation	4956(14)	5833(16)	877
2. Seed & sowing operations	3140(9)	4191(11)	1051
3. Weedicides	515(1)	600(2)	85
4. Irrigation	2184(6)	1243(3)	-941
5. Fertilizer including transport & application	8673(24)	5668 (15)	-3005
6. Harvesting & threshing charges	6162(17)	6149(17)	-13
7. Land rent	7500(21)	10000(27)	2500
8. Other costs	2779(8)	3239(9)	460
9. Gross cost	35914(100)	36929(100)	1015

Notes:

- Rounding of number may result in slight changes
- Other costs include mark-up on capital, management charges, land tax and Drainage Cess
- Figures in parenthesis are respective share in Gross cost

Source: Annex-IX and X.

Punjab

41. Land rent, harvesting/threshing charges and fertilizer costs would be major cost components in prospective cost of production of wheat: 2016-17 crop. Land rent will account for 31% followed by harvesting/ threshing charges (17%) while fertilizer cost would be 15% of the gross cost. After these cost components land preparation charges are to constitute 12% of the gross cost.

Sindh

42. In, Sindh land rent, harvesting and threshing, land preparation and fertilizer may constitute maximum of the cost of production of wheat for prospective 2016-17 crop. Land rent is expected to be 27%, harvesting and threshing 17%, land preparation 16%, fertilizer including transport and application cost 15%, and seed and sowing costs is likely to be 11% in the gross cost of production of wheat. Remaining cost items will cumulatively make 14% in the likely cost of production for the 2016-17 crop.

4.6 Comparative Economics of Wheat and Competing Crops

43. Farmers allocate farm resources among the various competing farm enterprises keeping in view certain economic indicators more specifically 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. These indicators provide useful insights about the options farmers consider before deciding on allocation of land and other resources. Largely, the farm management data and output-input prices help in constructing the indicators, which change over time and space, necessitating due care in the empirical estimation.

44. Wheat is grown under both the irrigated and rain-fed 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, IRRI + wheat, cotton + wheat, cotton + sunflower and IRRI + sunflower.

45. The economics of wheat and competing crops has been analyzed in terms of output and input prices received and paid by the growers during 2015-16 at farm level.

Punjab

46. A summary of the analysis of various economic indicators reviewed particularly the output-input ratio and revenue per rupee of purchased inputs cost, day of crop duration and unit of irrigation water for the Punjab is given in the following lines.

Table-14: Economics of Wheat and Competing Crops at Prices Realized by the Growers in the Punjab: 2015-16 Crops

Province / crops /crop combination	Output-input ratio	Revenue per		
		Rupee of purchased inputs cost	Crop day	Acre-inch of water used
		.....Rupees.....		
Wheat	1.08	2.9	231	3459
Sunflower (spring)	0.97	2.3	224	1832
Canola	1.04	2.7	163	2250
Cotton + wheat	0.98	2.8	218	2695
Cotton + sunflower	0.93	2.5	215	2055
Basmati + wheat	1.20	3.1	288	1481
IRRI + wheat	0.90	2.1	207	1007
Sugarcane	1.16	3.9	237	1943

Source: Annex-XI.

47. Wheat crop has shown better performance during 2015-16 and farmers received a small margin over the cost of wheat production (by 8%). Wheat crop performed better than both the oilseeds - sunflower and canola, in terms of all the economic criteria adopted.

48. Canola farming could not compete with wheat but out-competed sunflower crop in terms of overall investment, returns to purchased inputs and irrigation water with a great margin. However, sunflower performed much better than the canola in terms of crop duration.

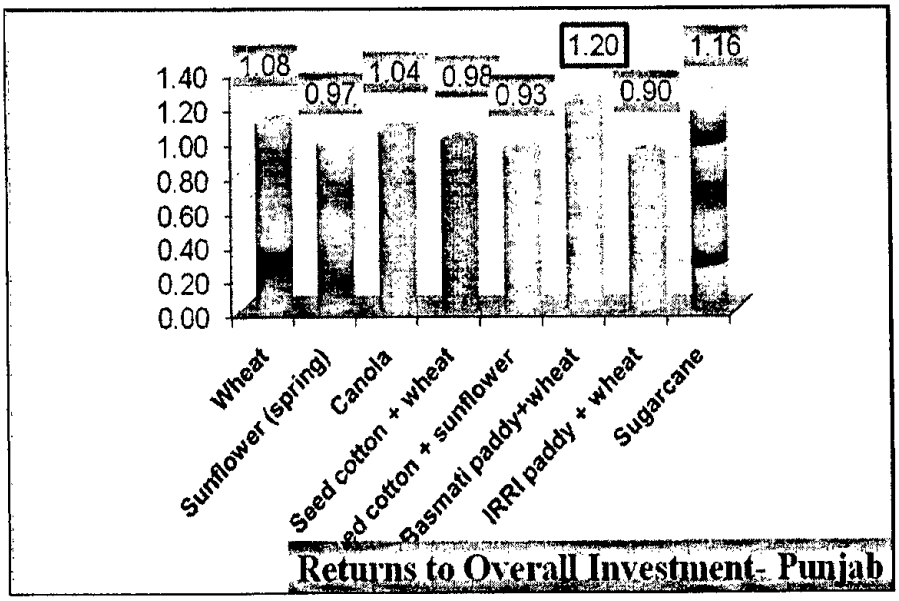


Fig - 7: Returns to Overall Investment in Punjab

49. Under the indirect competition scenario, wheat combination with Basmati performed relatively better in terms of returns to overall investment and crop duration. The sugarcane, on the other hand, did well as compared to rest of crop combinations more specifically in terms of returns to purchased inputs. However, Sugarcane lagged behind cotton combinations with wheat and sunflower in the returns to irrigation water.

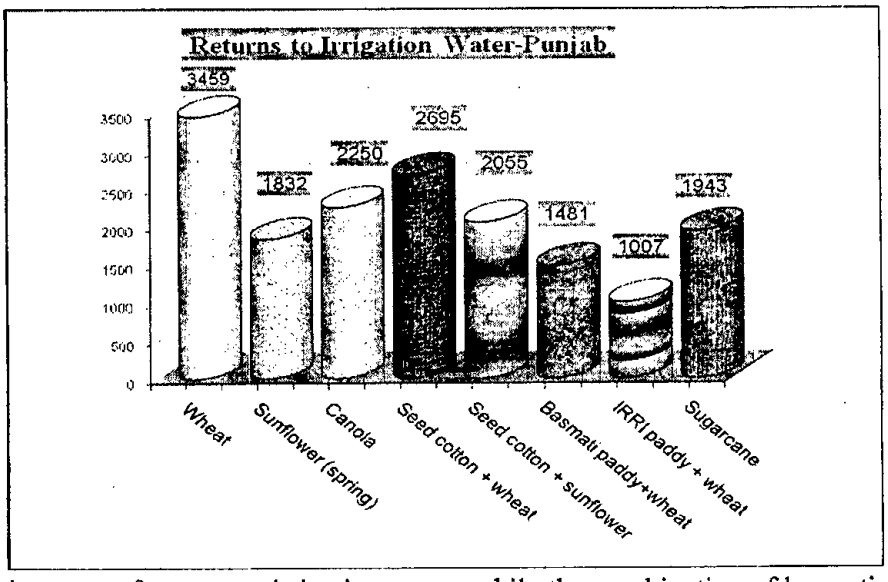


Fig-8: Returns to Purchased inputs (Punjab)

50. The IRRI + wheat combination was out-competed by sugarcane in terms of all the economic indicators reviewed. Amongst the crop combinations, the economic position of cotton + wheat rotation remained relatively better in terms of returns to irrigation water, while the combination of basmati with wheat performed better in returns to overall investment and crop duration, respectively.

51. Wheat has to struggle hard against the oilseed crops for retaining its position in terms of economic returns in various indicators.

Sindh

52. Economics of wheat and competing crops at prices realized by the growers in Sindh for crop season 2015-16 has been analyzed against various economic indicators including the output-input ratio and revenue per rupee of purchased inputs cost, day of crop duration and unit of irrigation water and presented below:

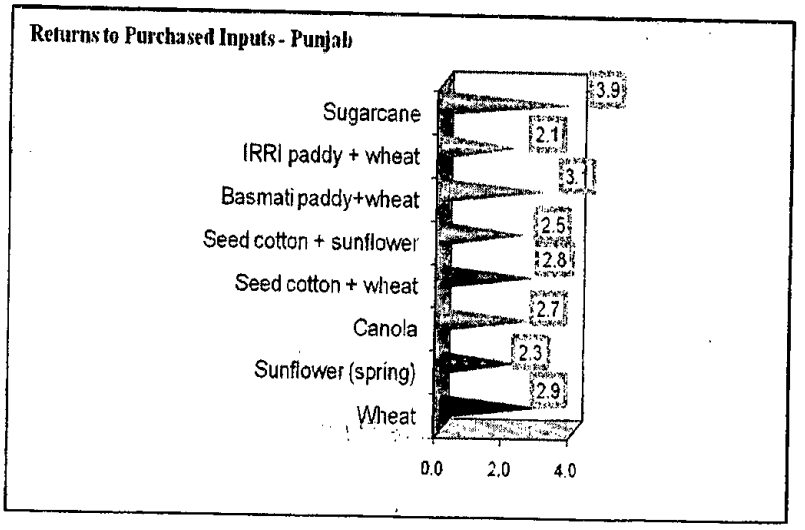


Fig-9: Returns to Irrigation Water (Punjab)

53. In Sindh, the returns to overall investment in wheat crop were higher than 'rabi' oilseed crops during 2015-16 (Fig-9). Also, in respect of other economic indicators like purchased inputs and irrigation water wheat performed better than the two oilseeds. Sunflower, however, got a marginal edge over wheat in terms of crop duration. Amongst the oilseeds, Canola's position was marginally better than Sunflower with respect to returns to overall investment, purchased inputs and irrigation water.

Table-15: Economics of Wheat and Competing Crops at Prices Realized by the Growers in Sindh: 2015-16 Crops

Province / crops / crop combination	Output-input ratio	Revenue per		
		Rupee of purchased inputs cost	Crop day	Acre-inch of water used
		.....Rupees.....		
Wheat	1.12	3.1	223	3348
Sunflower (spring)	0.95	2.3	224	1832
Canola	1.06	2.8	163	2250
Cotton + wheat	1.02	3.1	213	2980
Cotton + sunflower	0.95	2.6	213	2238
IRRI + wheat	1.05	2.9	217	1149
IRRI+Sunflower	0.97	2.5	217	1003
Sugarcane	1.19	3.8	232	1597

Source: Annex-X

54. The above results indicate that wheat has to gain improvement in productivity to remain a rewarding crop over the oilseeds.

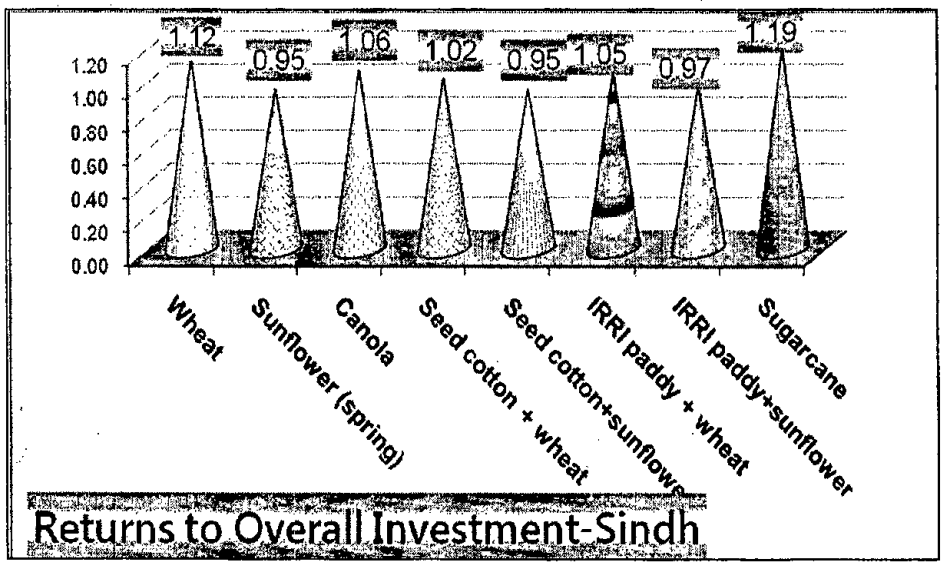


Fig-10 : Returns to Overall Investment in Sindh

55. In case of indirect competition, sugarcane performed comprehensively better than all the crop combinations in respect of returns to overall investment, purchased inputs and crop duration. However, wheat combinations with cotton and IRRI remained marginally profitable as output-input ratios were over 1.0, indicating 2% and 5%, respectively. Cotton combinations had a wider difference over sugarcane in terms of returns to irrigation water. IRRI combinations, however, paid returns to grower lower against the sugarcane.

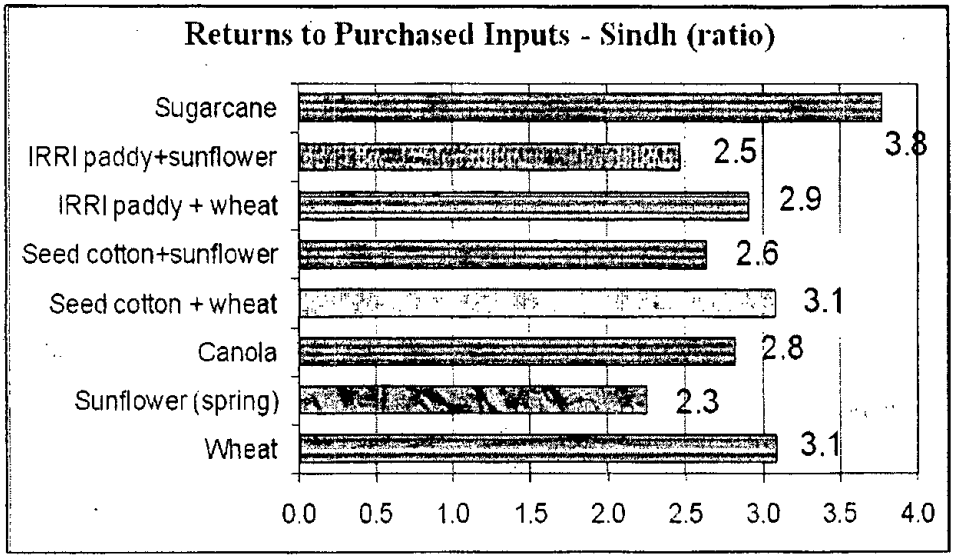


Fig- 11: Returns to Purchased Inputs in Sindh

4.7 Nominal and Real Prices of Wheat

56. 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 2015-16 have been deflated by the corresponding Consumer Price Index (CPI), the most common measure of inflation in the economy.

4.7.1 At Support Prices of Wheat

57. The analysis in terms of nominal and real support prices for the period 2007-08 to 2015-16 is presented in the Table-16.

58. The nominal support price of wheat was Rs 625 per 40 kgs in 2007-08. An increased price of wheat in nominal terms i.e. Rs 950 remained constant consecutively in the following three years 2008-09 to 2010-11. In 2011-12, nominal price increased to Rs 1050 per 40 kgs while for following two years it stagnated at Rs 1200 per 40 kgs, which however, increased to Rs 1300 in 2014-15, remaining unchanged for next year. Change in CPI during this period was evidenced quite high i.e. 14 per cent in 2010-11, 11 % in 2011-12 and 10 per cent in 2012-13 over the previous year. This higher trend in CPI pushed back the real worth of crop which is illustrated by the declining trend in the real price line in next three years in a row (Fig-11). The real support price of wheat for 2015-16 crop estimated at Rs 639 per 40 kgs in terms of 2015-16 price, shows a small increase of around 2.33 per cent over the base year real prices of Rs 625 per 40 kgs.

Table-16: Nominal and Real Support Prices of Wheat: 2007-08 to 2015-16

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	174.53	1200	687.56
2013-14	189.70	1200	632.58
2014-15	198.69	1300	654.28
2015-16	203.25	1300	639.60

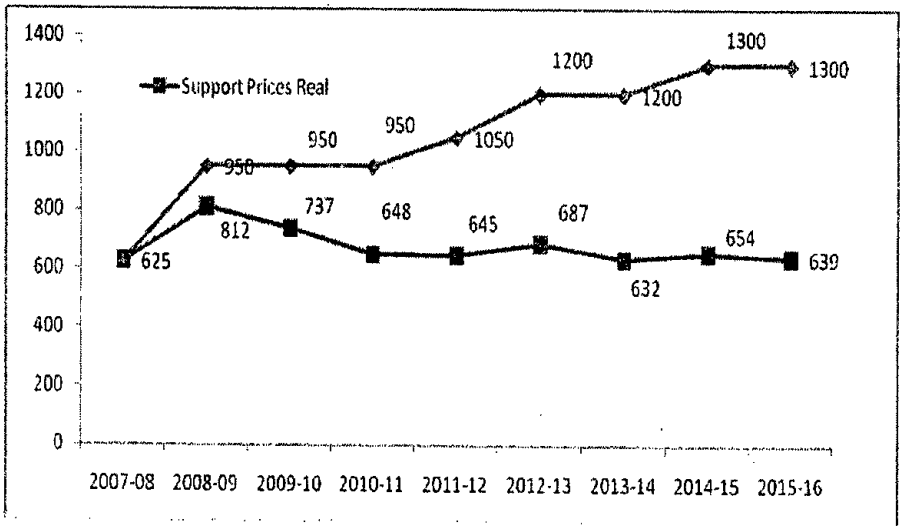
Sources: Pakistan Economic Survey: 2015-16.

Fig-12: Nominal and real support price of wheat.

59. It is illustrated in Fig-11, that real worth of the wheat crop is on continuous decline since 2008-09. The depth of the issue of this deterioration is day by day which is alarming for future food security of the country.

4.7.2 Market Prices of Wheat

60. The analysis in terms of real and nominal average market prices for the period 2007-08 to 2015-16 is set out in the Table-17.



61. Market prices of wheat have evidenced a consecutive change during the entire period under review. These prices remained lower than the support price throughout the period except 2007-08. After 2008-09, the market price could not gain an identical value as of support price and remained below at Rs 894 per 40 kgs in 2009-10. However, the nominal price took an upward move with gradual increase during next four years. In 2015-16, the nominal and real value of wheat once again declined. The average nominal market price of wheat has evidenced 80% increase against the base year during the period under review. On the other hand, the real value has receded by 11.6 per cent mainly for the rise in CPI by 103.25 % during this period.

Table-17: Nominal and Real Market Prices of Wheat: 2007-08 to 2015-16

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	174.53	1183	677.82
2013-14	189.58	1250	658.94
2014-15	198.69	1181	594.39
2015-16	203.25	1206	593.30

Sources: i) For CPI, Economic Survey of Pakistan: 2015-16. CPI has been worked out to 12 months on the basis of last year.

ii) For Market prices, Directorates of Agriculture, Government of the Punjab and Sindh (Average of major producing markets) (weightage average).

62. The real market value of wheat remained below the nominal value during the entire period under study. As depicted in Fig-12, the absolute gap between both the prices widened with increasing rate as the years passed over. This widening gap between the two prices indicates that farmers are on the losing end of the game with context to the real purchasing power of the biggest commodity of the economy.

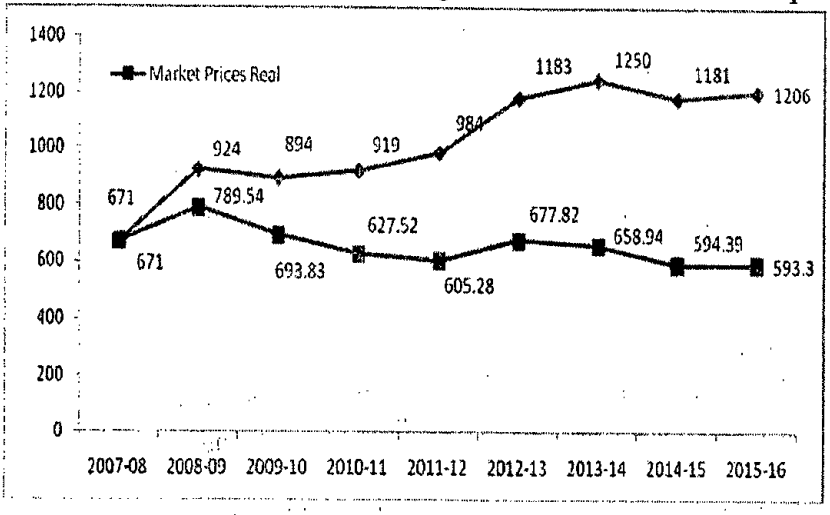


Fig.13: Nominal and real market prices of wheat

64. If the market prices had averaged at Rs 1339 per 40 kgs, the farmers would have retained the real purchasing power equivalent to 2013-14 level.

4.8 Economic Efficiency of Wheat Production in Pakistan

63. In Pakistan wheat is important from both farmer as well as consumer point of view. A vast majority of farmers cultivate wheat and the crop occupies maximum of the cropped area of the country.

64. Considerable economic resources are employed in wheat cultivation. Some of these are purchased with cash and are called traded inputs while others are called non-traded inputs because these are not purchased with cash. Traded inputs include seed, fertilizer, machinery, hired labour, tube well water etc while non-traded inputs comprise family labour, management charges, land rent and interest on capital. Economic efficiency of the referred resources used for producing wheat is normally assessed through three indicators. These are Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost Coefficient (DRC). Their definitions and estimates are described in detail in the following paragraphs.

4.8.1 Nominal Protection Coefficient (NPC)

65. NPC is the ratio of the market price to the social price of a commodity. It examines the impact of domestic market price of a crop ignoring distortions in the input prices. As a rule of thumb if NPC is greater than one it means that local producers are protected through produce pricing policy. If it is less than one it implies implicit taxation to growers rather than protection through the produce pricing policy. Implicit taxation to a crop means outflow of resources from that crop.

66. Nominal Protection Coefficients for wheat under import scenario are produced in Table-18. It is evident from the data in the referred table that NPC values for Punjab province remained less than one throughout the period under analysis. It ranged between 0.66 and 0.89 which implies implicit taxation to wheat growers of Pakistan.

Table – 18: Nominal and Effective Protection Coefficients for Wheat Under Import Scenario

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2009-10	0.89	0.80	0.89	0.79
2010-11	0.66	0.52	0.63	0.46
2011-12	0.69	0.54	0.61	0.42
2012-13	0.67	0.57	0.64	0.51
2013-14	0.76	0.69	0.77	0.67
2014-15	0.88	0.85	0.85	0.71
2015-16	0.77	0.70	0.71	0.58

67. Similarly NPC numerics for Sindh province remained less than one - ranged between 0.63 and 0.89. Fluctuations in NPC values may be attributed to fluctuating prices of wheat in Pakistan.

68. NPC values under export scenario have been fluctuation more. Sometime these were less than and sometime greater than one which indicate that for export purposes wheat production will incur heavy implicit taxation to the wheat growers in Pakistan.

4.8.2 Effective Protection Coefficient (EPC)

69. Unlike NPC, EPC is the ratio of the difference between the revenue and the cost of tradable inputs at the private prices and the difference between the revenue and the tradable inputs cost at social prices. Thus EPC is the indicator of the net incentive and disincentive effects of all policies affecting prices of tradable inputs and output. EPC greater than one means that private profit is higher than that would be without government intervention in the input/ output markets. In contrast EPC less than one indicates that net effect of policies which change prices of inputs and output reduces private profit in wheat cultivation. In the former case there is domestic protection to the producers of wheat while in the later case the producers are implicitly taxed which discourages domestic production.

70. Table-19 present EPC estimates for wheat. Under import scenario EPC coefficients remained less than one for Punjab (which may be due to relatively less increase in input prices as compared with the price of wheat).

Table – 19: Nominal and Effective Protection Coefficients for Wheat under Export Scenario

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2009-10	1.52	2.11	1.52	2.14
2010-11	0.98	0.94	0.94	0.85
2011-12	1.04	1.10	0.93	0.90
2012-13	0.97	1.02	0.93	0.90
2013-14	1.13	1.37	1.15	1.31
2014-15	1.33	2.06	1.26	1.66
2015-16	1.22	1.39	1.07	1.19

71. It is visible from the data in the referred tables that NPC and EPC estimates increased during 2015-16 over 2014-15. Its main reason is decline in international price of wheat during 2015-16. Price of wheat in the international market during 2014-15 was US$ 266/ tonne which decreased to US$ 212/ Tonne in 2015-16. As social prices of wheat and production inputs are based on import and export price of wheat which are derived from the international price, NPC and EPC estimates changed accordingly.

4.8.3 Domestic Resource Cost Coefficient (DRC)

72. DRC is the ratio of the social cost of domestic factors to value added at social prices. If DRC is less than one it implies comparative advantage as the domestic production can save foreign exchange at costs less than the corresponding cost of imports. When DRC is greater than one, it indicates comparative disadvantage in domestic production as in such situations import of a commodity is cheaper. However, it should be noted that DRC varies with changes in opportunity cost of non-tradable inputs as well as the social value of output. Based on cost of production of average farmer and import prices of wheat, DRC for Punjab and Sindh are estimated and produced in Table-20. Detailed data on private and social profitability for the study period are produced in Annexes-XII to XV.

Table – 20: Domestic Resource Cost Coefficient (DRC) for Wheat in Punjab and Sindh Provinces

Year [1]	Under import situation		Under export situation	
	Punjab [2]	Sindh [3]	Punjab [4]	Sindh [5]
2009-10	0.59	0.58	1.55	1.58
2010-11	0.41	0.41	0.75	0.76
2011-12	0.55	0.56	1.13	1.19
2012-13	0.43	0.41	0.78	1.73
2013-14	0.58	0.51	1.13	1.00
2014-15	0.86	0.78	2.08	1.82
2015-16	0.62	0.57	1.28	1.19

73. It is visible from data in the Table-20 that under import scenario Domestic Resource Cost Coefficients are substantially less than one which indicate Pakistan's comparative advantage in wheat production. In other words domestic resource cost would be less than the corresponding

import cost in case we have to import wheat. There-fore, it would be an economic proposition to invest in wheat production at home rather to import.

74. On the other hand under export situation DRC coefficients do not indicate comparative advantage as most of the time these have happened to be greater than one. It implies that Pakistan should not promote wheat production for export.

4.9 Producer Prices of Wheat in Selected Countries

75. Wheat is widely grown all over the world. Major wheat producing countries provide to their growers a variety of incentives including the minimum guaranteed prices. For a comparative analysis of the producer prices in Pakistan with those of other countries, the relevant information has been obtained through internet.

76. The data on the minimum guaranteed producer prices of wheat for 2013-14 to 2015-16 crops in major wheat producing countries are presented in Table-21.

77. While comparing the producer prices of a commodity across the globe, following major factors are being 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

78. The producer price of wheat in China was higher than support price of wheat in Pakistan by 12.5% during 2015-16. In Australia, premium white wheat Pool Return of Rs 1077.19 equivalent was lower by 17 per cent. While the minimum support price of wheat in India - Rs 968 equivalent was less than support price of wheat in Pakistan by over 25.6%. The Average Farm Price of US HRW wheat was also less by 24.6 per cent then the minimum support price in Pakistan.

Table-21: Minimum Guaranteed Producer Prices of Wheat in Selected Countries: 2013-14 to 2015-16 Crops

Country	2013-14		2014-15		2015-16		Remarks
	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	US $/ Tonne	Pak Rs/ 40 kgs	
Australia	295.00	1232	269.53	1152	257.09	1077	Australian premium white (APW) wheat Average Pool Return
Brazil	N.A	N.A	185.37	763	185.50	777	Minimum official price under the Producer's Equalization Payment Programme (Pepro)
China	385.43	1610	385.43	1586	348.61	1461	Minimum Support price for white wheat
India	220.08	919	228.24	939	231.0	968	Minimum Support Price
USA	252.43	1054	220.09	906	187.2	980	Average Farm Price of US HRW
Pakistan	291.49	1200	315.78	1300	310.26	1300	Support Price

Note: Exchange rates are 1US$=PKR104.417 for 2013-14, 102.92 for 2014-15, and 104.75 for 2015-16.
N.A: Not available.
Sources: For Australia, http://www.awb.com.au.
For Brazil and India, http://www.fao.org
For China, http://www.platts.com
For US, USDA.
For Pakistan, API.

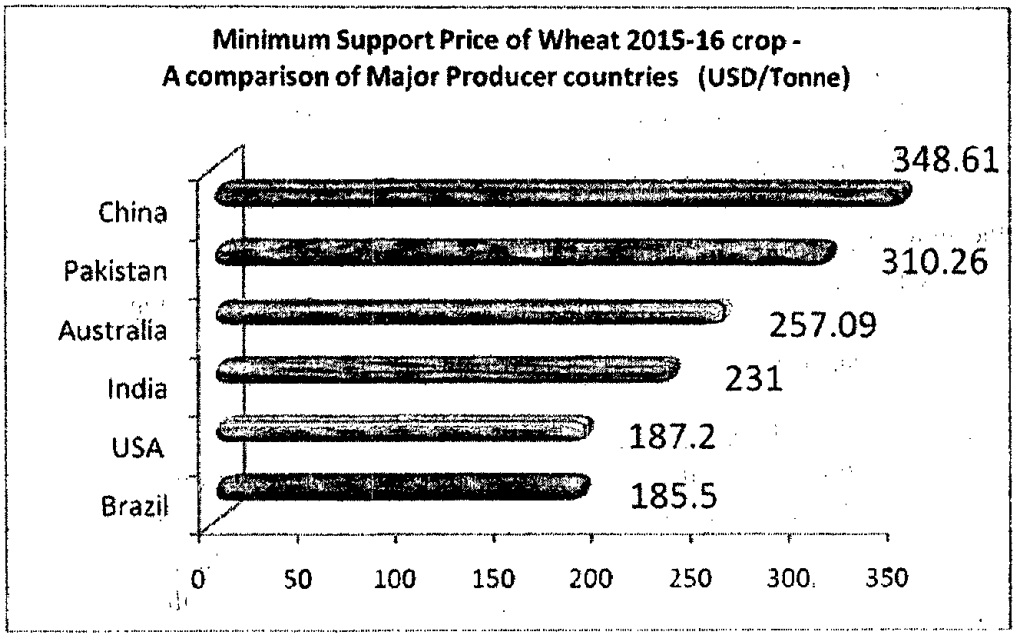


Fig-14: Minimum Guaranteed Producer Prices of Wheat in Selected Countries

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

79. Expenditure on wheat has a fairly large share 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-22. Major findings of the analysis are discussed as under:

4.10.1 Impact on CPI

80. The Pakistan Bureau of Statistics (PBS) has estimated changes in CPI as a result of increase in support price of wheat over the existing level of Rs 1300 per 40 kgs in 2015-16. 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 increase 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 40 kg	Per cent	---------- Rupees ----------	
1300*			
1325	0.0249	75	467
1350	0.0443	150	934
1375	0.0636	225	1402
1400	0.0829	300	1869
1425	0.1022	375	2336
1450	0.1216	450	2803

Sources: 1. Pakistan Bureau of Statistics (PBS), Islamabad.
2. Annex-XIII.
* Existing price for 2015-16 wheat crop.
** HH size 6.35.

81. 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 0.0249 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 0.0443, 0.0829 and 0.1216 per cent, respectively.

82. 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, increase in the CPI analyzed above is the direct effect 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.

4.10.2 Impact on Household Expenditure

83. According to the Household Integrated Economic Survey (HIES) 2013-14 by the PBS, the average household in Pakistan consists of 6.25 members. Taking the annual per capita consumption of wheat at 120 kgs and average household size of 6.23 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.

84. According to the above analysis, every increase of Rs 25 in the support price of wheat over the existing level of Rs 1300 per 40 kgs in 2015-16 would increase the annual expenditure by Rs 75 per person and Rs 467 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 39.00 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 1869 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.

5. CONSULTATIVE MECHANISM IN PRICE FORMULATION OF WHEAT

85. Annual meeting of the API's Committee on wheat was held on 5th September 2016 at Islamabad. The meeting, chaired by the Additional Secretary, M/o NFS&R, 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 production and marketing of wheat including prices of inputs and cost of production. 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 for some time.

86. Expressing the concerns about the current issues in the crop sector particularly depressed prices of agricultural produce, high cost of production and increase in losses to the farmers, the chair incurred about responsible factors and to share field experiences. The growers shared the experiences on various aspects of growing of wheat and suggest that a number of measures like timely growing, seed bed preparation judicious application of weedicides/pesticides and fertilizers, etc. The Additional Secretary NFS&R, suggested for observing the marketing situation and responding to the demands intelligently so that precious resources of land and water could be utilized optimally and farmers risks are minimized. The Deputy Chief, API presented the 2015-16 crop situation and explained aspects of the wheat crop including, change in Area, Yield and Production and marketing issues.

87. Farmers and representatives of technical service providing departments discussed and shared about the productivity, inputs and farm management issues. Some of the representatives brought to the notice of the meeting the malpractices in the procurement system, mainly due to the

inefficiency and procedural deficiencies in the Procurement Departments. It was also highlighted that the bar on issuance of 8 bags per acre as assigned Bardana is limiting the procurement. Farmers appreciated announcement of subsidy on fertilizers which has helped reducing the cost of production. They however, suggested implementation of an Inputs Price Regulatory System mainly for the check and control of input prices. The representative NFDC stated that due to subsidy on fertilizer farmers have increased application of fertilizers, which will reserves in improved productivity and increased production. The meeting also highlighted the need for development of suitable technology package for small holders in order for them to retain the activity on sustainable lines. There was a consensus in the meeting for having a program which ensures incentive prices to the farmers during the harvest season in general and for bumper harvest, in particular.

6. PARITY BETWEEN PRICES OF FERTILIZERS AND WHEAT

88. The parity ratio indicates the quantity of wheat required to buy one nutrient unit of fertilizer. Higher the ratio means 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 fertilizers 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 analyze the parity ratios between prices of wheat and fertilizers.

Table-23: Parity between Market Prices of Fertilizers and Wheat: 2005-06 to 2015-16

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 ----	
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
2013-14	78700	137330	31250	2.52	4.39
2014-15	82043	147104	29525	2.77	4.98
2015-16	59565	97916	30162	1.97	3.24

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 used in COP estimates by the API for the relevant crop year.

89. In order to study the overtime changes in the purchasing power of wheat in terms of nitrogenous and phosphatic fertilizers, the parity ratios between fertilizer nutrients and wheat have been calculated for the period of 2005-06 to 2015-16 (Table-23).

90. The parity ratios between market prices of fertilizers 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 gradually improved in the following four years as compared with the previous year and 1.97 units of wheat were required to buy one unit of N fertilizer during 2015-16.

91. 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. In 2012-13, 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. The situation in 2015-16 has relatively improved over the previous year as 3.24 units of wheat were required to buy one unit of P fertilizer, slide down by 35 per cent from 4.98 units of wheat to buy 1 unit of phosphatic fertilizer.

7. MAJOR WHEAT VARIETIES AND THEIR YIELD POTENTIAL

92. Seed is a material which is used for planting or regeneration purpose. It is a vital input in crop production. Seed is the cheapest input in crop production and key to agriculture progress. Crop status largely depends on the seed materials used for sowing.

93. Response of other inputs in crop production depends on seed material used. The seed required for raising crop is quite small and its cost is so less as compared to other inputs. This emphasizes the need for increasing the area under quality seed production. In this regard, over 50 wheat varieties have been evolved over the time by the wheat research institutions at country level.

94. During the last decade, among 20 high-yield varieties, 15 have been developed for irrigated areas and 5 for rain fed areas in the Punjab, while 6 varieties of wheat are released in Sindh.

95. The high yielding varieties of wheat released by Research Institutes in the Punjab for commercial cultivation in specified areas are presented in Table-24.

96. The yield potentials of these varieties range between 5200 and 7917 kgs per hectare. The highest yield potential of galaxy 13, seher-06 and SH 2002 varieties are estimated at 7917 kgs,7000 kgs and 6900 kgs per hectare, followed by Punjab 2011 at 6893 kgs, AS 2002 at 6750 kgs, AARI 2011 at 6563 and ASS 2011 at 6500 kgs 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.

Table-24: Commercial wheat varieties and their yield potential in the Punjab

Sr.no	Variety	Year of release	Yield potential (kg/ha)
IRRIGATED AREA			
1	Bhakhar - 02	2002	6000
2	AS 2002	2002	6750
3	SH 2002	2002	6900
4	Seher 2006	2006	7000
5	Shafaq 2006	2006	6000
6	Freed 2006	2006	6000
7	Fsd. 2008	2008	6732
8	Lasani 2008	2008	6100
9	Meraj2008	2008	6200
10	NARC 2011	2009	5400
11	AARI 2011	2011	6563
12	Punjab 2011	2011	6893
13	Millat 2011	2011	6358
14	AAS 2001	2011	6500
15	Galaxy 2013	2013	7917
RAINFED AREAS			
16	GA 2002	2002	5200
17	Chakwal 50	2008	6000
18	BARS 2009	2009	5800
19	Dharabi 2011	2011	6000
20	NARC 2011	2011	6200

Source: Wheat Research Institute, AARI, Faisalabad

97. High yielding wheat varieties evolved by Research Institutes in Sindh along with their yield potential and other characteristics are presented in Table-25.

Table-25: Commercial wheat varieties and their yield potential in Sindh

S. No	Variety	Year of Release	Sowing Time		Maturity	Yield Potential	Average Framer Yield	Protein
			Southern Sindh	Northern Sindh	Days	----- kgs/hectare-----		Per cent
1	Moomal 2002	2002	1st Nov. to 20th Nov	7th Nov. to 30th Nov	136	6721	5436	15.50
2	T.D-1	2004	1st Nov to 21st Dec		120	7907	5930	14.20
3	Imdad2005	2006	1st Nov. 20th Nov.	7th Nov. to 30th Nov.	130	6919	5436	13.20
4	SKD-1	2006	1st Nov to 21st Dec		118	5930	5732	14.00
5	Benazir13	2013	1st Nov. to 10th Dec.		126	8401	5930	12.00
6	Hamal-13	2013	Full month of November		130	7018	5634	13.96

Source: Wheat Research Institute, Sakrand, Sindh.

98. The yield potential of 6 varieties in Sindh is reported from 8401 to 5930 kgs per hectare. The average farmer yield of these varieties ranged from 5930 to 5436 kgs per hectare. The average farmer yield of Benazir-13 variety was recorded 5930 kgs per hectare which is the highest average yield among other varieties. Other high yield varieties are SKD-1 with yielding potential of 5732 kgs, Hamal-13 with 5634 kgs per hectare and Imdad-2005 with yield potential of 5436 kgs at the farmer's field.

8. ISSUE PRICE OF WHEAT AND CONSUMER SUBSIDY

99. For the year of 2015-16, the provincial governments of the Punjab, Sindh and Khyber Pakhtunkhwa and Balochistan fixed the issue price of wheat supplied to flour mills at Rs 1300, 1280, 1300 and 1120 per 40 kgs, respectively over the corresponding support price of Rs 1300 per 40 kgs. PASSCO issued wheat @ Rs 1578 per 40 kgs at full cost except to Utility Stores Corporation (USC). All the four provinces and PASSCO released 2.733 million tonnes of wheat to flour mills during May 2015 to April 2016. Details of wheat releases are given in Table-26.

Table-26: Release of Wheat to Flour Mills and Issue Price during 2015-16

Provinces	Release (Million tonnes)	Issue Price (Rs/40 kgs)
Punjab	0.523	1300
Sindh	1.100	1280*
KPK	0.310	1300
Balochistan	0.084	1120
PASSCO	0.289	1578
Total	**2.306**	

* Excluding cost of jute bag of Rs 140 and PP bag Rs.75.

100. 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 2015-16, the Provincial Governments subsidized wheat consumers over 42.88 billion as given in Table-27.

Table-27: Subsidy on Wheat 2015-16

Federal/Provinces	Subsidy (Rs in billion)
Punjab	31.06
Sindh	8.00
KPK	2.90
Balochistan	0.92
Total	42.88

Source: Provincial Food Departments.

101. According to the above data, total releases of wheat to the flour mills by the Provincial Food Departments and PASSCO come to 2.306 million tonnes. As per the information shared by

the Provincial Food Departments, the consumer subsidy through releases to flour mills amount to Rs 42.88 billion for 2015-16, Punjab bearing the heaviest bill amounting Rs.31.06 billion.

9. WHEAT YIELD AMONG COMPETING COUNTRIES

102. Wheat, the most popular cereal crop of world covers the acreage that no other cereal crop can ever get. Global wheat during 2015-16 occupied an area of around 215.960 million hectares with a total production of 222.152 million tonnes. The world top 28 producing countries contribute 97.2 per cent of total area and 97.9 per cent of total production as narrated in Table-28.

Table -28: Wheat Area in Major Wheat Producing Countries Of the World:2015-16 Crop

.No.	Country	Area in (000) hectares	per cent share in world area
1	India	30220	13.60
2	EU-27	26932	12.12
3	Russian Federation	26600	11.97
4	China	24300	10.94
5	United States	17844	8.03
6	Australia	12800	5.76
7	Kazakhstan	12000	5.40
8	Canada	9260	4.17
9	Pakistan	9230	4.15
10	Turkey	7815	3.52
11	Iran, Islamic Republic Of	6800	3.06
12	Ukraine	6500	2.93
13	Argentina	4800	2.16
14	Afghanistan	2550	1.15
15	Iraq	2300	1.04
16	Morocco	2109	0.95
17	Algeria	2100	0.95
18	Brazil	2100	0.95
19	Ethiopia	1600	0.72
20	Uzbekistan	1400	0.63
21	Egypt	1260	0.57
22	Syrian Arab Republic	1100	0.50
23	Turkmenistan	850	0.38
24	Nepal	770	0.35
25	Mexico	720	0.32
26	Belarus	700	0.32
27	Azerbaijan	700	0.32
28	Serbia	600	0.27
	Total	215960	97.21
	Total World Area	222152	100.00

Source: United States Department of Agriculture

103. In terms of wheat area India is on the top with 30.220 million hectares followed by EU-27 with 26.932 million hectares and Russian Federation with 26.600 million hectares Pakistan lies at 9th number in this regard with 4 per cent global share.

104. In terms of wheat production, EU-27 is on the top with 145.270 million tonnes, China 128.000 million tonnes followed by India with 90.000, Russian Federation 72.000 million tonnes and USA with 63.156 million tonnes. However, Pakistan stands at 9th in wheat production of the world. (Table-29):

Table-29: Wheat Production in Major Wheat Producing Countries Of the World:2015-16 crop

S.No.	Country	Production in (000) M.T	per cent share in world Production
1	EU-27	145270	19.50
2	China	128000	17.18
3	India	90000	12.08
4	Russian Federation	72000	9.67
5	United States	63156	8.48
6	Canada	30500	4.09
7	Australia	27500	3.69
8	Ukraine	27000	3.62
9	Pakistan	25300	3.40
10	Turkey	17500	2.35
11	Kazakhstan	16500	2.22
12	Iran, Islamic Republic Of	15500	2.08
13	Argentina	14400	1.93
14	Egypt	8100	1.09
15	Uzbekistan	7200	0.97
16	Brazil	6000	0.81
17	Afghanistan	5100	0.68
18	Mexico	3900	0.52
19	Ethiopia	3800	0.51
20	Iraq	3400	0.46
21	Serbia	3000	0.40
22	Morocco	2800	0.38
23	Belarus	2600	0.35
24	Syrian Arab Republic	2400	0.32
25	Azerbaijan	2000	0.27
26	Algeria	2000	0.27
27	Nepal	1890	0.25
28	South Africa	1800	0.24
	Total	728616.00	97.82
	Total World Production	744848.00	100.00

Source: United States Department of Agriculture

105. In terms of yield per hectare, New Zealand lies at the top with 8600 kgs per hectare followed by Zambia 7000 and Namibia with 6500 kgs per hectare. It is an alarming situation that Pakistan ranks at 34th in terms of yield at 2741 kgs per hectare while India lies at 31st position with 2978 kgs per hectare. However, the world average yield of wheat is 3353 kgs per hectare (Annex- XIII)

10. WHEAT PROCUREMENT TARGETS AND ACHIEVEMENTS

106. The Federal Government fixed the wheat procurement target at 7.05 million tonnes for 2015-16 crop. PASSCO and Provincial Food Departments have been designated as the procurement agencies. Province and-wise targets with their achievements are shown in Table-30.

Table-30: Procurement Targets and Achievements: 2015-16 Wheat Crop

Province/agency	Target	Achievement	Achievement as per cent of target
	-------- Million tonnes ------		Per cent
Pakistan	7.05	5.802	82.30
Punjab	4.50	3.929	87.31
Sindh	1.10	1.095	99.55
K.P.K	0.35	0.0025	0.71
Balochistan	0.10	0.000	0.00
PASSCO	1.00	0.775	77.5

Source: M/o NFS&R.

107. Procurement agencies have achieved around 82.3 percent of the targets. The Food Departments achieved 75 percent of target while the PASSCO achieved 100 percent of the procurement target.

Table-31: Production, Procurement, Market and Support Prices of Wheat: 2010-11 to 2015-16

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----	
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
2013-14	25.29	6.13	24.24	1225	1250
2014-15	25.09	5.15	20.53	1300	1181
2015-16	25.57	5.80	22.68	1300	1206

* Average of Punjab and Sindh

Source: PASSCO and Provincial Food Departments.

108. The share of procurement in total wheat production and comparison of support price with the market price for the years of 2010-11 to 2015-16 are presented in Table -31. During the period under review, wheat production has ranged between 23.34 to 25.57 million tonnes. Procurement has been in the range of 5.15 to 9.07 million tonnes. The wheat procurement by the public sector

has varied from 20.53 to 38.86 per cent of the respective production. The support price ranged between Rs 625 to 1300 per 40kgs, while the average market prices ranged between Rs 950to Rs 1300 per 40 kgs during this period, while the average market price ranged between Rs 905 and 1250 per 40 kgs.

*****

11. ACKNOWLEDGEMENT

109. The efforts of the following staff members are highly appreciated in completion of Wheat Policy Analysis Report for 2016-17 Crop:

	Officers	
1.	Mr. Sohail Muhammad Khan	Deputy Chief
2.	Mr. Abdul Karim	Deputy Chief/ **(Coordinator)**
3.	Mr. Muhammad Ejaz Ahmed	Deputy Chief
4.	Mr. Muhammad Amin	Assistant Chief
5.	Mr. Hussain Ali Turi	Assistant Chief
6.	Syed Riaz Ali Shah	Assistant Chief
7.	Mr. Muhammad Azim Hakro	Assistant Chief (IT)
8.	Miss Shagufta Tasleem	Research Officer **(Dy. Coord.)**
9.	Miss Kanwal Saleem Mehr	Research Officer
	Staff	
10.	Mr. Hafeez Ahmed	Assistant Private Secretary **(Composed the Report)**
11.	Mr. Shamir Ahmed	Assistant Private Secretary
12.	Mr. Muhammad Naeem	Machine Operator

Muhammad Abid Javed
Secretary
M/o NFS&R

Annex-I

AREA,YIELD AND PRODUCTION OF WHEAT : 2005-06 TO 2015-16

(Area in 000 hectares)

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA		---------- Thousand hectares ----------			
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
2013-14	6901.4	1121.6	776.8	399.5	9199.3
2014-15	6979.5	1106.9	732.5	385.0	9203.9
2015-16	6937.4	1154.5	772.3	382.9	9247.1
YIELD		---------- kgs per hectare ----------			
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	1714	2115	2794
2013-14	2860	3568	1755	2191	2824
2014-15	2763	3318	1720	2265	2726
2015-16	2817	3321	1712	2276	2765
PRODUCTION		---------- Thousand tonnes ----------			
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	1246.7	768.0	24200.4
2013-14	19738.9	4002.1	1363.1	875.3	25979.4
2014-15	19281.9	3672.2	1259.9	872.0	25086.0
2015-16	19540.6	3834.6	1322.2	871.3	25568.7

Sources:

1. For 2004-05 to 2013-14: Agricultural Statistics of Pakistan, 2013-14 NFS&R, Islamabad.
2. For 2014-15: Final estimate provided by concerned Provincial Agriculture Departments.
3. For 2015-16: Final estimate of Sindh, KPK and Balochistan and second estimate of Punjab provided by concerned Provincial Agriculture Departments.

Annex-I I

AREA,YIELD AND PRODUCTION OF WHEAT : 2005-06 TO 2015-16

(Area in 000 acres)

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA		---------- Thousand acres ----------			
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
2013-14	17054.0	2771.6	1919.6	987.2	22732.4
2014-15	17247.0	2735.3	1810.1	951.4	22743.8
2015-16	17143.0	2852.9	1908.4	946.2	22850.5
YIELD		---------- kgs per acre ----------			
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	694	856	1131
2013-14	1157	1444	710	887	1143
2014-15	1118	1343	696	917	1103
2015-16	1140	1344	693	921	1119
PRODUCTION		---------- Thousand tonnes ----------			
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	1246.7	768.0	24200.4
2013-14	19738.9	4002.1	1363.1	875.3	25979.4
2014-15	19281.9	3672.2	1259.9	872.0	25086.0
2015-16	19540.6	3834.6	1322.2	871.3	25568.7

Sources:
1. For 2004-05 to 2013-14: Agricultural Statistics of Pakistan, 2013-14 NFS&R, Islamabad.
2. For 2014-15: Final estimate provided by concerned Provincial Agriculture Departments.
3. For 2015-16: Final estimate of Sindh, KPK and Balochistan and second estimate of Punjab provided by concerned Provincial Agriculture Departments.

ANNEX-III

AREA, YIELD AND PRODUCTION OF WHEAT BY PROVINCE AND BY MODE OF IRRIGATION: 2013-14 TO 2015-16

Country/ Province	Area				Yield per hectare				Production			
	2013-14	2014-15	2015-16	Change over last year	2013-14	2014-15	2015-16	Change over last year	2013-14	2014-15	2015-16	Change over last year
	000 ha				Kgs				000 tonnes			
IRRIGATED												
PAKISTAN	8009.6	8036.2	8053.6	0.22	3052	2914	2956	1.45	24448.7	23415.9	23807.0	1.67
PUNJAB	6221.9	6277.0	6235.7	-0.66	3033	2908	2963	1.92	18874.10	18251.9	18479.1	1.24
SINDH	1071.0	1064.1	1114.9	4.77	3698	3403	3378	-0.74	3960.20	3621.2	3766.0	4.00
KPK	352.4	322.5	331.5	2.78	2212	2123	2123	0.00	779.40	684.6	703.6	2.78
BALOCHISTAN	364.3	372.6	371.5	-0.30	2292	2303	2310	0.31	835.00	858.2	858.3	0.01
UNIRRIGATED												
PAKISTAN	1189.70	1167.7	1193.5	2.21	1287	1430	1476	3.20	1530.7	1670.1	1761.7	5.48
PUNJAB	679.50	702.5	701.7	-0.11	1273	1466	1513	3.18	864.80	1030.0	1061.5	3.06
SINDH	50.60	42.8	39.6	-7.48	828	1192	1732	45.38	41.90	51.0	68.6	34.51
KPK	424.40	410.0	440.8	7.52	1375	1403	1403	0.00	583.70	575.3	618.6	7.52
BALOCHISTAN	35.20	12.4	11.4	-8.06	1145	1113	1140	2.47	40.30	13.8	13.0	-5.80
TOTAL												
PAKISTAN	9199.3	9203.9	9247.1	0.47	2824	2726	2765	1.45	25979.4	25086.0	25568.7	1.92
PUNJAB	6901.4	6979.5	6937.4	-0.60	2860	2763	2817	1.96	19738.9	19281.9	19540.6	1.34
SINDH	1121.6	1106.9	1154.5	4.30	3568	3318	3321	0.12	4002.1	3672.2	3834.6	4.42
KPK	776.8	732.5	772.3	5.43	1755	1720	1712	-0.46	1363.1	1259.9	1322.2	4.94
BALOCHISTAN	399.5	385.0	382.9	-0.55	2191	2265	2276	0.47	875.3	872.0	871.3	-0.08

Sources:
1. For 2004-05 to 2013-14: Agricultural Statistics of Pakistan, 2013-14 NFS&R, Islamabad.
2. For 2014-15: Final estimate provided by concerned Provincial Agriculture Departments.
3. For 2015-16: Final estimate of Sindh, KPK and Balochistan and second estimate of Punjab provided by concerned Provincial Agriculture Departments.

DISTRICT- WISE AREA, YIELD AND PRODUCTION OF WHEAT AVERAGE OF 2012-14 TO 2015-16

ANNEX-IV

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	Bahawalnagar	367.31	1146.42	4.48	3121.12	1	Swat	62.94	115.10	0.45	1828.67
2	R.Y.Khan	306.07	994.58	3.89	3249.52	2	Mansehra	37.60	97.07	0.38	2581.69
3	Faisalabad	302.03	959.69	3.75	3177.49	3	D.I.Khan	48.65	96.89	0.38	1991.81
4	Jhang	298.78	912.51	3.57	3054.09	4	Mardan	43.49	89.45	0.35	2056.93
5	Bahawalpur	295.69	906.56	3.55	3065.94	5	Charsadda	33.69	87.92	0.34	2610.06
6	Vehari	270.60	887.50	3.47	3279.80	6	Peshawar	36.71	80.22	0.31	2185.14
7	Muzaffargarh	311.33	871.47	3.41	2799.16	7	Swabi	39.40	76.74	0.30	1947.76
8	Okara	212.18	739.84	2.89	3486.78	8	Bunir	50.42	73.59	0.29	1459.68
9	Sheikhupura	222.71	705.30	2.76	3166.95	9	Haripur	37.41	71.15	0.28	1901.79
10	Gujranwala	234.04	679.28	2.66	2902.41	10	Kohat	39.38	63.22	0.25	1605.31
11	Lodhran	204.90	655.88	2.56	3200.92	11	Nowshera	24.31	53.12	0.21	2184.92
12	Khanewal	208.41	655.15	2.56	3143.51	12	Dir Lower	27.78	51.06	0.20	1838.21
13	Layyah	228.78	600.59	2.35	2625.21	13	Dir Uper	23.00	43.57	0.17	1894.40
14	T.T.Singh	169.83	565.12	2.21	3327.54	14	Shanlapar	24.36	38.79	0.15	1592.12
15	Multan	187.50	558.37	2.18	2978.03	15	Malakand	26.81	34.14	0.13	1273.41
16	D.G.Khan	184.40	541.20	2.12	2934.89	16	Bajour AG.	34.56	28.33	0.11	819.83
17	Pakpattan	156.61	539.26	2.11	3443.43	17	Lakki Marwat	21.73	27.82	0.11	1280.31
18	Kasur	171.58	522.38	2.04	3044.53	18	Bannu	11.50	24.55	0.10	2135.44
19	Sargodha	219.05	509.24	1.99	2324.62	19	Abbottabad	14.55	24.43	0.10	1679.04
20	Hafizabad	160.25	493.25	1.93	3077.96	20	Tank	12.26	21.80	0.09	1774.62
21	Sialkot	209.36	490.68	1.92	2343.75	21	Khyber AG.	13.60	20.15	0.08	1481.59
22	Rajanpur	175.09	480.23	1.88	2742.79	22	Chitral	8.26	17.66	0.07	2137.95
23	Sahiwal	149.74	468.14	1.83	3126.40	23	Kurram AG.	10.61	16.49	0.06	1554.71
24	Bhakkar	180.49	430.11	1.68	2383.03	24	Battagram	7.86	16.16	0.06	2056.00
25	Nankana Sahib	125.59	409.65	1.60	3261.89	25	Hangu	11.50	15.02	0.06	1305.55
26	Mianwali	179.55	377.82	1.48	2104.32	26	Karak	20.75	9.81	0.04	472.88
27	M.B.Din	144.33	363.60	1.42	2519.19	27	Mohmand AG.	7.60	9.72	0.04	1277.64
28	Chiniot	118.44	355.23	1.39	2999.27	28	S.Waziristan	7.53	7.93	0.03	1053.27
29	Narowal	161.33	325.60	1.27	2018.24	29	F.R.Peshawar	4.64	6.39	0.02	1377.96
30	Attock	171.99	282.60	1.11	1643.10	30	Orakzai AG	4.11	5.66	0.02	1376.53
31	Gujrat	156.34	263.25	1.03	1683.81	31	F.R.D.I.Khan	4.29	4.33	0.02	1010.18
32	Chakwal	122.08	189.49	0.74	1552.15	32	F.R.Bannu	3.38	4.27	0.02	1264.94
33	Rawalpindi	114.52	178.08	0.70	1554.97	33	N.Waziristan	2.77	3.44	0.01	1241.47
34	Lahore	59.08	169.09	0.66	2861.83	34	Kohistan	1.53	3.10	0.01	2026.83
35	Khushab	92.27	168.94	0.66	1831.00	35	F.R.Kohat	1.57	2.08	0.01	1320.12
36	Jhelum	54.09	103.96	0.41	1921.93						
37	Islamabad	13.08	20.43	0.08	1561.78						
	Sub Total	**6939.43**	**19520.49**	**76.34**	**2812.98**		**Sub Total**	**780.57**	**1341.18**	**5.24**	**1763.39**
	SINDH						**BOLUCHISTAN**				
1	N.Feroze	105.35	396.47	1.55	3763.18	1	Nasirabad	75.67	192.19	0.75	2540.00
2	Khairpur	102.98	377.37	1.48	3664.64	2	Jaffarabad	68.04	172.52	0.67	2535.55
3	Sanghar	105.98	375.06	1.47	3538.87	3	Jhal Magsi	53.15	126.56	0.49	2381.08
4	Ghotki	101.64	371.36	1.45	3653.65	4	Khuzdar	39.32	80.38	0.31	2044.35
5	Sh. Benazirabad	86.32	339.35	1.33	3931.38	5	Dera Bughti	17.76	33.59	0.13	1890.97
6	Dadu	73.06	242.49	0.95	3318.95	6	Sibi	12.01	25.47	0.10	2119.83
7	Mirpurkhas	63.72	210.97	0.83	3311.03	7	Awaran	13.66	25.05	0.10	1833.86
8	Sukkur	48.92	174.77	0.68	3572.91	8	Lasbela	11.90	24.22	0.09	2035.26
9	Matiari	39.83	154.87	0.61	3888.65	9	Barkhan	11.47	23.12	0.09	2015.55
10	Shadadkot	51.23	150.14	0.59	2930.58	10	Loralai	9.81	22.50	0.09	2293.08
11	Larkana	47.17	137.95	0.54	2924.38	11	Killa Saifullah	10.29	19.28	0.08	1874.84
12	Jamshoro	38.97	127.65	0.50	3275.21	12	Kachhi	7.68	17.72	0.07	2308.47
13	Tando Allahyar	32.31	116.15	0.45	3594.82	13	Noushki	5.60	11.37	0.04	2028.73
14	Umerkot	37.56	113.75	0.44	3028.74	14	Turbat	5.19	10.76	0.04	2073.12
15	Badin	38.08	113.71	0.44	2985.88	15	Kalat	5.20	10.70	0.04	2056.49
16	Shikarpur	37.98	106.98	0.42	2816.82	16	Kharan	5.43	10.16	0.04	1871.41
17	Kashmore	35.48	96.75	0.38	2726.71	17	Mastung	4.69	9.27	0.04	1975.77
18	Jacobabad	31.58	76.84	0.30	2432.78	18	Pishin	4.47	8.09	0.03	1808.84
19	Hyderabad	14.91	52.90	0.21	3548.94	19	Panjgoor	3.39	6.99	0.03	2059.52
20	Thatta	17.77	51.92	0.20	2921.49	20	Quetta	2.76	5.61	0.02	2032.59
21	Tando Muhammad Khan	12.94	37.95	0.15	2932.74	21	K.Abdullah	3.07	5.55	0.02	1809.67
22	Tharparkar	2.27	6.32	0.02	2785.30	22	Chaghi	2.89	5.32	0.02	1841.36
23	Karachi	1.64	4.60	0.02	2809.61	23	Washuk	2.80	5.06	0.02	1808.72
						24	Zhob	3.05	4.77	0.02	1563.83
						25	Kohlu	2.49	4.28	0.02	1720.05
						26	Musa Khel	2.52	4.12	0.02	1636.94
						27	Harnai	1.80	3.77	0.01	2096.59
						28	Sherani	2.48	3.58	0.01	1446.67
						29	Ziarat	0.52	0.85	0.00	1623.16
	Sub Total	**1127.69**	**3836.31**	**15.00**	**3401.92**		**Sub Total**	**389.12**	**672.88**	**3.41**	**2243.20**
							Pak Total	**9216.81**	**25570.86**	**100.00**	**2774.37**

Notes:

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

ANNEX - V

PER CAPITA AVAILABILITY OF WHEAT:2013-14 to 2015-16 (MAY-APRIL)

S.No	Description	Production year / Consumption year	2012-13 / 2013-14	2013-14 / 2014-15	2014-15 / 2015-16
1	Total Population (a)		195.43	199.12	202.89
			----------000 tonnes----------		
2	Opening stocks as on 1st May		1618	1177	4119
3	Production of Pakistan		24211	25979	25086
4	Production of AJ&K and GB (b)		242	260	251
5	Imports		377	687	0
6	Exports (wheat and wheat preparation)		43	10	1
7	Closing stocks as on 30th April		1177	4119	4117
8	Total availability		25228	23974	25338
9	Deduction for seed,feed and wastage @ 10 per cent of production		2445	2624	2534
10	Available for human consumption (item 8 minus item 9)		22783	21350	22804
			----------Kgs/ annum----------		
11	Per capita availability (item 10 divided by item 1)		117	107	112
12	Average per capita availability during 2011-12 to 2013-14			112 Kgs	

Notes:
a). It includes the population of Pakistan, AJ&K, GB and Afghan Refugees(1.4 million registred and 0.7 million unregestered) as informed by commissionrate of Afghan refuges. For analysis purpose the population of Afghan refugees taken 2 million.
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 - VI

INTERNATIONAL PRICES (FOB GULF)OF US NO-2 HARD RED WINTER WHEAT
2006-07 TO 2015-16

Year (July - June)	Month	US$ per tonne
2006-07		212
2007-08		361
2008-09		270
2009-10		209
2010-11		316
2011-12		301
2012-13		347
2013-14		318
2014-15		266
2015-16		212
2016-17		**189**
	July	188
	August	188
	September	188
	October	191

Source: International Grains Council, London.

Annex-VII

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

S. No	Item	2016-17 Jul-Oct	2015-16	2013-14 to 2015-16
		----------US $ per tonne----------		
1	Average Fob(Gulf) price	189.00	212.00	265.00
2	Freight charges from Gulf port to Karachi	34.00	34.00	34.00
3	Average c&f (Karachi) price in US $	223.00	246.00	299.00
		----------Rs per tonne----------		
4	Exchange rate	**104.74**	**104.74**	**104.74**
5	Average c&f (Karachi) price in Pak Rupees	23357	25766	31317
6	Marine insurance charges @0.23% of c & F cost	54	59	72
7	Lc opening charges @0.4% of c&f cost.	93	103	125
8	Stevedoring, clearing, handling, wharfage, weightment, inland insurance, survey & pre-shipment charges and provision for unforeseen losses	651	651	651
9	TCP commission @ 2 % of c&f cost as per ECC	467	515	626
10	Bank markup @ 6.00 % per annum for 30 days	467	515	626
11	**Landed cost (item 3 to 8) at Karachi**	25089	27610	33418
12	Transport cost from Karachi to Multan	1800	1800	1800
13	Expences from procurement center to Multan	200	200	200
14	Import parity price at procurement center level	**26689**	**29210**	**35018**
15	Import parity prices of wheat	----------Rs per 40 kgs----------		
	i) If consumed at Multan	**1068**	**1168**	**1401**
	ii) If consumed at Karachi	**1004**	**1104**	**1337**

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-VIII

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

S.No		Item	.2016-17 Jul-Oct	2015-16	2013-14 to 2015-16
			---------US $ Per Tonne -------		
1		Fob(Gulf) price assuming Fob (Karachi) price	189.00	212.00	265.00
2		Exchange rate	**104.74**	**104.74**	**104.74**
3		Fob(Gulf) price assuming Fob (Karachi) price in Pak Rupees	19796	22205	27756
4		Incidental charges: (items i to xi)	3929	4016	4215
	i)	Expenses from procurement centre to Multan	200	200	200
	ii)	Transport cost from Multan to Karachi	1000	1000	1000
	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	247	278	347
	viii	Insurance charges at port 1 % for one month	16	19	23
	ix)	Bank commission & charges 0.25 %	49	56	69
	x)	Mark up @ 6.00% per annum for one month	396	444	555
	xi)	Miscellaneous charges (Ghati, Wastage, Godown rent)	250	250	250
5		Export parity price of wheat at procurement centre level(item 1- items 2)	15867	18189	23542
			------Rs per 40kgs----------		
6		Export parity price at procurement center level	635	728	942

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-IX

AVERAGE FARMER COST OF PRODUCTION OF WHEAT IN PUNJAB: 2015-16 AND 2016-17 CROPS

S. No	Operations / Inputs	Average No. of oprs/units/ acre	2015-16 crop		Average no. of oprs/units/ acre Basis 2016-17	2016-17 crop		Change in 2016-17 over 2015-16
			Cost per unit	Cost per acre		Cost per unit	Cost per acre	
1	2	3	4	5 = 3 * 4	6	7	8 = 6*7	9
			.....Rs.....			.....Rs.....		Rs
1	**Land preparation:**							
	1.1 Rotavator/disc plough	0.598	1500	897.00	1.250	1200	1500.00	603.00
	1.2 Ploughing	2.137	750	1602.75	2.696	600	1617.60	15.11
	1.3 Ploughing & planking	0.714	850	606.90	0.714	600	428.40	-178.50
	1.4 Planking	0.649	375	243.38	2.000	300	600.00	356.63
	1.5 Levelling (hrs)	0.498	800	398.40	1.000	733	733.33	334.93
2	**Seed and sowing operations:**							
	2.1 Seed used (kgs)	52.577	42.00	2208.23	51.161	37.50	1918.54	-289.71
	2.2. Tractor drilling (M.day)	0.166	750	124.50	0.166	400	66.40	-58.10
	2.3 Labour for seed broadcasting (m.hrs)	0.858	44	37.75	1.455	50	72.75	34.98
	2.4 Ploughing in case of broadcasting	1.390	750	1042.50	2.000	600	1200.00	157.50
	2.5 Planking in case of broadcasting	0.321	375	120.38	1.000	300	300.00	179.63
3	**Bund making:**							
	3.1 Manual (m.hrs)	1.033	44	45.45	1.000	50	50.00	4.55
	3.2 tractor (hrs)	0.203	850	172.55	0.250	600	150.00	-22.55
4	**Weedicides**	0.787	900	708.30	1.000	658	657.50	-50.80
5	**Irrigation: * (Nos)**							
	5.1 Canal	0.507	-	50.00	1.900	-	50.00	0.00
	5.2 Private tubewell (Rs./hr)	3.002	900	2701.80	3.696	499	1842.83	-859
	5.3 Mixed	0.230	550	126.50	0.230	499	114.68	-11.82
6	Labour for irrigation and water course cleaning (Rs)			543.90			866.16	322.26
7	Farm Yard Manure (no. of trolley)			600.00	1.198	2444.9	732.25	132.38
8	Fertilizers: (bags)							
	8.1 DAP	1.090	3677.00	4007.93	1.000	2350.00	2350.00	-1657.93
	8.2 Urea	1.747	1883.00	3289.60	2.000	1370.00	2740.00	-549.60
	8.3 SSP	0.132	1012.00	133.58				
	8.4 NP	0.079	2584.00	204.14	0.079	1875.00	148.13	-56.01
	8.5 CAN	0.039	1606.00	62.63				
	8.6 SOP	0.024	4904.00	117.70				
	8.7 Gypsum	0.024	300.00	7.20				
	8.8 Transport and application	3.135	55.00	172.43	3.079	70.00	215.53	43.11
9	Mark up on investment on item 1to 8 excluding item 5(1) @14 % per annum for 6 months	-	-	1507.11	-	-	1189.77	-317.61
10	Harvesting charges (40 kgs/acre)	2.997	1216	3644.35	3.036	1111	3373.00	-270.91
11	Threshing:							
	11.1 Threshing @ 2.469 kgs/40 kgs	2.237	1216	2720.19	2.407	1111	2674.18	-46.25
	11.2 M.days	1.810	350	633.50	1.810	400	724.00	90.50
12	Land rent for 6 months	-	17000	8500	0.500	25000	12500	4000.00
13	Average weighted land tax @ Rs 132/acre/annum for 8 months	-	132	66.00	0.500	132	66.00	0.00
14	Management charges for 6 months	-		1199	-		1343	144.00
15	Gross cost per acre	-		38496	-		40224	1728.38
16	Value of wheat bhoosa (Rs/40Kg)	-	199	5500	-	250	7500	2000.00
17	Net cultivation cost (item 15-16)	-		32996	-		32724	-271.11
18	Yield per acre (kgs)	-		1108	-		1200	92.00
19	Cost of production at farm level: (Rs/40 kgs)			1191			1091	-100.36
20	Marketing cost (Rs/40 kgs)	-		35	-		38	2.91
21	Cost of production at market/procurement centre (Rs/40 kgs)							
	21.1 Including land rent	-		1226.18	-		**1128.72**	-97.46
	21.2 Excluding land rent	-		919	-		712.05	-206.95

Annex-X

AVERAGE FARMER COST OF PRODUCTION OF WHEAT IN SINDH: 2015-16 AND 2016-17 CROPS

S.No	Operations / Inputs	Average No. of oprs/units/ acre	2015-16 crop		Average No. of oprs/units/ acre	2016-17 crop		Change in 2016-17 over 2015-16
			Cost per unit	Cost per acre		Cost per unit	Cost per acre	
1	2	3	4	5 = 3*4	6	7	8=6*7	9=8-5
				Rs.			Rs.	Rs
1	**Land preparation:**							
	1.1 Rotavator	0.349	1700	593.30	1.000	1450	1450.00	856.70
	1.2 Ploughing	3.034	1050	3185.70	3.000	900	2700.00	-485.70
	1.3 Ploughing & planking	0.070	1050	73.50	0.070	900	63.00	-10.50
	1.4 Planking	0.081	525	42.53	1.000	500	500.00	457.48
	1.5 Levelling (hrs/acre)	1.010	1050	1060.50	1.250	900	1125.00	64.50
2	**Seed and sowing operations:**							
	2.1 Seed used (kgs)	55.817	45.00	2511.77	55.403	50.0	2770.15	258.39
	2.2. Tractor drilling cost (M.day)	0.037	1050	38.85	0.037	400	14.80	-24.05
	2.3 Labour for seed broadcasting (m.hrs)	1.127	44	49.59	1.127	50	56.35	6.76
	2.4 Ploughing in case of broadcasting	0.275	1050	288.75	1.000	900	900.00	611.25
	2.5 Planking in case of broadcasting	0.162	525	85.05	1.000	450	450.00	364.95
3	**Bund making:**							
	3.1 Manual (m.hrs)	1.611	44	70.88	1.611	50	80.55	9.67
	3.2 tractor (hrs)	0.091	1050	95.55	0.091	900	81.90	-13.65
4	**Interculture/ weeding**							
	Manual (M. Day)	0.037	1050	38.85				
	4.1 Weedicides	0.529	900	476.10	0.907	662	600.39	124.29
5	**Irrigation: * (Nos)**							0.00
	5.1 Canal	1.763		53.00	1.763		53.30	0.30
	5.2 Private tubewell (Rs./hr)	1.046	900	941.40	2.000	262.59	525.18	-416.22
	5.3 Mixed	0.449	600	269.40				-269.40
	5.4 Lift pump	0.551	800	440.80	0.551	262.4	144.58	-296.22
6	**6. Labour for irrigation and water course cleaning**	1.371	350.00	479.85	1.300	400.00	520.00	40.15
7	**Farm Yard Manure (no. of trolley)**			700.00	0.5	2800	350.00	-350.00
8	**Fertilizers: (bags)**							
	8.1 DAP	1.013	3650.00	3697.45	1.000	2350.00	2350.00	-1347.45
	8.2 Urea	1.950	1850.00	3607.50	2.000	1370.00	2740.00	-867.50
	8.3 NP	0.186	2570.00	478.02	0.186	1875.00	348.75	-129.27
	8.4 CAN	0.020	1600.00	32.00	0.020	1600.00	32.00	0.00
	8.5 Transport and application	3.169	50.00	158.45	3.206	61.531	197.27	38.82
9	**Mark up on investment on item 1to 8 excluding item 5[1] @14 % per annum for 6 months**			1460.16			1259.99	-200.16
10	**Harvesting charges (40 kgs/acre)**	2.876	1150	3307.40	2.250	1183	2661.75	-645.65
11	**11.1 Threshing (kgs/40 kgs)**	2.052	1150	2359.80	2.469	1183	2920.83	561.03
	11.2 M.days	1.415	350	495.25	1.415	400	566.00	70.75
12	**Land rent for 6 months**		15000	7500.00		20000	10000.00	2500.00
13	**Average weighted land tax @ Rs 200/acre/annum**			100.00			100.00	0.00
14	**Drainage Cess**			24.00			24.00	0.00
15	**Management charges for 6 months**			1199			1343	144.00
16	**Gross cost per acre**			35914			36929	1014.40
17	**Value of wheat bhoosa (Rs/40Kg)**		30	4000		150	4500	500.00
18	**Net cultivation cost (item 15-16)**			31914			32429	514.40
19	**Yield per acre (kgs)**			1113			1200	87.00
20	**Cost of production at farm level: (Rs/40 kgs)**			1147			1081	-66.01
21	**Marketing cost (Rs/40 kgs)**			35			42	7.00
22	**Cost of production at market/procurement centre (Rs/40 kgs)**							0.00
23	**23.1 Including land rent**			1182			**1123**	-59.01
	23.2 Excluding land rent			912			748	-164.80

Notes:

1. Labour cost for irrigation and water course cleaning derived by multiplying hours/irrigation and total no. of irrigations. This is then divided by 8 (hours/M.day). The resultant is then multiplied by 400 (wage rate).
2. FYM calculated by multiplying no. of trolleys used per acre with cost/ trolley. The resultant is multiplied by .5 because Effect of FYM remains for two years. Again the reultant is multiplied by .5 because wheat avails FYM only for 6 months.
3. threshing charges are derived by multiplying kgs paid /40 Kg with price/ kg. Then the resultnat is multipled by yiedl which is in Kgs/acre. Again the resultant is divided by 40 to get threshing cost in Rs./40 Kg.

Notes for Annex-IX and X.

1. The input-output parameters for estimating cost of production of wheat 2016-17 crop have been adopted from the Wheat Policy Analysis Report for wheat 2015-16 Crop.

2. The inputs prices and hiring rates of field operations have been revised in the light of the information provided by the Provincial Agriculture Departments, Farmer Associations and discussion made in the meeting of the Standing Committee on Wheat held at the API premises in 2016.

3. Prices of chemical fertilizers are revised in light of fertilizer prices published by the Pakistan Bureau of Statistics, Islamabad and announced by the government in the form of Kissan Package 2016 and subsequently subsidy given by the government on DAP and UREA during 2016.

4. The cost of supplementary irrigation is revised in view of changes in power tariff rates announced during 2016 and tube well water hiring rates collected from the field.

5. The management charges for a manager looking after a 25-acre farm and devoting one-fourth of his time to the managerial activities have been worked out at Rs 1343 per month for a Field Assistant at the 15th stage in BPS-6 as per revised scale of July 2011, including 10% Ad hoc Relief in two years i.e 2015 and 2016 respectively.

6. The value of kind payments for harvesting and threshing of wheat has been revised in the light of current average farm level price of Rs 1111/ 40 kg in the Punjab and Rs 1183/40 Kg in Sindh.

7. In both provinces, Punjab and Sindh, land rent is the most significant item of the cost of cultivation. There are no specific measures for updating the land rentals. However, land lease has been adjusted keeping in view the observations obtained during field survey conducted by API during August 2016 and discussion made in the meeting of the API Standing Committee on wheat.

ECONOMICS OF WHEAT AND COMPETING CROPS AT PRICES REALIZED BY THE GROWERS: 2015-16 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	38343	14094	41510	27416	3167	1.08	2.9	231	3459
2	Seed Cotton	240	22	55454	18998	50134	31136	-5320	0.90	2.6	209	2279
3	Basmati paddy	180	58	47869	23330	40564	17234	-7304	0.85	1.7	225	699
4	IRRI paddy	180	62	44457	20988	33039	12051	-11418	0.74	1.6	184	533
5	Sunflower (spring)	180	22	41690	17858	40300	22443	-1390	0.97	2.3	224	1832
6	Canola	180	13	28255	10844	29250	18407	995	1.04	2.7	163	2250
7	Seed cotton + wheat	420	34	93797	33092	91644	58552	-2153	0.98	2.8	218	2695
8	Seed cotton + sunflower	420	44	97144	36856	90434	53578	-6710	0.93	2.5	215	2055
9	Basmati paddy+wheat	360	70	86212	33730	103656	69926	17444	1.20	3.1	288	1481
10	Basmati paddy+sunflower	360	80	89559	41188	80864	39677	-8695	0.90	2.0	225	1011
11	IRRI paddy + wheat	360	74	82800	35082	74549	39467	-8251	0.90	2.1	207	1007
12	IRRI paddy+sunflower	360	84	86147	38846	73339	34493	-12808	0.85	1.9	204	873
13	Sugarcane	394	48	80503	24139	93250	69111	12747	1.16	3.9	237	1943
	Sindh											
1	Wheat	180	12	35877	13025	40173	27148	4296	1.12	3.1	223	3348
2	Seed cotton	240	18	52041	16047	49238	33192	-2803	0.95	3.1	205	2735
3	IRRI paddy	180	56	38300	13822	37967	24145	-334	0.99	2.7	211	678
4	Sunflower (spring)	180	22	42280	17908	40300	22393	-1980	0.95	2.3	224	1832
5	Canola	180	13	27512	10381	29250	18869	1738	1.06	2.8	163	2250
6	Seed cotton + wheat	420	30	87918	29071	89411	60340	1493	1.02	3.1	213	2980
7	Seed cotton+sunflower	420	40	94321	33954	89538	55584	-4783	0.95	2.6	213	2238
8	IRRI paddy + wheat	360	68	74177	26847	78139	51293	3962	1.05	2.9	217	1149
9	IRRI paddy+sunflower	360	78	80581	31729	78267	46537	-2314	0.97	2.5	217	1003
10	Sugarcane	488	71	95334	30037	113355	83318	18021	1.19	3.8	232	1597

Notes for Annex - XI

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2015-16 crops.

2. The data regarding input-output parameters have been adopted from the API's price policy papers for sugarcane, seed cotton, rice paddy and wheat, 2015-16 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 2015-16 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2015-16 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 2015-16 season.

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

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

4.1 The minimum guaranteed price of wheat at Rs 1300 per 40 kgs, as maintained by the government for 2015-16 crop, has been adopted for the current analysis.

4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post- harvest period in major producer area markets have averaged at Rs 1320 and Rs 801 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs 713 per 40 kgs.

4.3 The wholesale market prices of seed cotton during the post-harvest months of Sep - Feb 2015-16 in the main producer area markets have averaged at Rs 2626 per 40 kgs in the Punjab and Rs 2461 in Sindh.

4.4 The price of sunflower 2014-15 crop has been reported hovering around Rs 2050/40 kgs and Rs 2375 for canola.

4.5 The market prices of sugarcane at mill-gate in the major cane producing areas are reported to hover around Rs 180 per 40 kgs in the Punjab and Rs 182 per 40 kgs 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 15 per 40 kgs in Punjab and Rs 14.32 in Sindh for sugarcane, Rs 40 for seed cotton in Punjab and Sindh, Rs 45 for rice paddy in Punjab and Sindh, and Rs 35 for wheat and oilseeds.

6.	Gross income	=	(Yield per acre multiplied by price of principal produce at farm gate) plus (value of by-products per acre).
7.	Cost of purchased inputs	=	Cost incurred on seed and related items, fertilizer, supplementary irrigation including labour, canal water rate, pesticides and weedicides.

Annex-XII

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN PUNJAB

POLICY ANALYSIS MATRIX (PAM)

Based on import parity prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
	--------- Rupees per acre ---------			
2009-10				
Private Prices	27185	12141	10748	4296
Social Prices	29310	10535	11045	7731
Transfers	-2125	1606	-296	-3434
2010-11				
Private Prices	28178	13563	11390	3225
Social Prices	40085	11730	11672	16684
Transfers	-11908	1834	-282	-13459
2011-12				
Private Prices	31783	17382	14516	-115
Social Prices	41692	14937	14770	11985
Transfers	-9909	2445	-253	-12100
2012-13				
Private Prices	38018	18034	15084	4900
Social Prices	50778	15485	15351	19941
Transfers	-12759	2549	-267	-15041
2013-14				
Private Prices	39876	19217	16853	3806
Social Prices	46318	16479	17169	12671
Transfers	-6442	2738	-316	-8865
2014-15				
Private Prices	39183	19958	19307	-82
Social Prices	39642	17127	19344	3171
Transfers	-459	2830	-36	-3253
2015-16				
Private Prices	37355	20361	18134	-1141
Social Prices	32634	17470	18168	-3004
Transfers	4721	2891	-34	1863

Annex-XIII

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN PUNJAB

POLICY ANALYSIS MATRIX (PAM)

Based on export parity prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
	-------- Rupees per acre --------			
2009-10				
Private Prices	27185	12141	10748	4296
Social Prices	17676	10535	11045	-3903
Transfers	9509	1606	-296	8200
2010-11				
Private Prices	28178	13563	11390	3225
Social Prices	27343	11730	11672	3942
Transfers	835	1834	-282	-717
2011-12				
Private Prices	31783	17382	14516	-115
Social Prices	28036	14937	14770	-1671
Transfers	3747	2445	-253	1556
2012-13				
Private Prices	38018	18034	15084	4900
Social Prices	35155	15485	15351	4318
Transfers	2864	2549	-267	582
2013-14				
Private Prices	39876	19217	16853	3806
Social Prices	31609	16479	17169	-2038
Transfers	8267	2738	-316	5844
2014-15				
Private Prices	39183	19958	19307	-82
Social Prices	26485	17169	19346	-10030
Transfers	12699	2789	-39	9948
2015-16				
Private Prices	37355	20361	18134	-1141
Social Prices	20446	17470	18168	-15192
Transfers	16909	2891	-34	14051

Annex-XIV

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN SINDH

POLICY ANALYSIS MATRIX (PAM)

Based on import parity prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
	--------- Rupees per acre ---------			
2009-10				
Private Prices	23824	11030	9242	3552
Social Prices	25760	9622	9429	6709
Transfers	-1936	1408	-187	-3156
2010-11				
Private Prices	23614	12406	9881	1328
Social Prices	35123	10778	10063	14282
Transfers	-11509	1628	-182	-12955
2011-12				
Private Prices	25679	16097	12469	-2888
Social Prices	36575	13879	12654	10042
Transfers	-10896	2218	-185	-12930
2012-13				
Private Prices	35665	17404	14717	3543
Social Prices	51001	14977	14919	21105
Transfers	-15336	2427	-202	-17562
2013-14				
Private Prices	39032	18706	15348	4977
Social Prices	46521	16071	15583	14868
Transfers	-7490	2636	-235	-9891
2014-15				
Private Prices	35887	19583	17959	-1655
Social Prices	39815	16777	17923	5115
Transfers	-3928	2807	36	-6771
2015-16				
Private Prices	37028	19497	16464	1068
Social Prices	32776	16739	16423	-386
Transfers	4253	2758	41	1454

Annex-XV

ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN SINDH

POLICY ANALYSIS MATRIX (PAM)

Based on export parity prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
	--------- Rupees per acre ---------			
2009-10				
Private Prices	23824	11030	9242	3552
Social Prices	15598	9622	9429	-3453
Transfers	8226	1408	-187	7006
2010-11				
Private Prices	23614	12406	9881	1328
Social Prices	23994	10778	10063	3152
Transfers	-379	1628	-182	-1825
2011-12				
Private Prices	25679	16097	12469	-2888
Social Prices	24526	13879	12654	-2007
Transfers	1153	2218	-185	-881
2012-13				
Private Prices	35665	17404	14717	3543
Social Prices	35308	14977	14919	5412
Transfers	357	2427	-202	-1869
2013-14				
Private Prices	39032	18706	15348	4977
Social Prices	31607	16071	15583	-47
Transfers	7425	2636	-235	5023
2014-15				
Private Prices	35887	19583	17959	-1655
Social Prices	26599	16777	17923	-8101
Transfers	9289	2807	36	6446
2015-16				
Private Prices	37028	19497	16464	1068
Social Prices	20533	16739	16423	-12629
Transfers	16496	2758	41	13697

ANNEX – XVI

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.....			
*1300	3900	24297	-	-
1325	3975	24764	75	467
1350	4050	25231	150	934
1375	4125	25699	225	1402
1400	4200	26166	300	1869
1425	4275	26633	375	2336
1450	4350	27100	450	2803

Note: Average size of Household comprises of 6.23 members.

* Existing price for 2015-16 wheat crop.

** Planning Commission of Pakistan.

Source: PSLM, Household Integrated Survey (HIES) 2013-14, Pakistan Bureau of Statistics (PBS), Islamabad.

Annex-XVII

YIELD PER HECTARE OF MAJOR WHEAT PRODUCING COUNTRIES IN THE WORLD:2014 CROP

S. No.	Country	Yield per Hectare in Kgs	S. No.	Country	Yield per Hectare in Kgs
1	New Zealand	8600	41	Kyrgyzstan	2333
2	Zambia	7000	42	Iran, Islamic Republic Of	2279
3	Namibia	6500	43	Turkey	2239
4	Egypt	6429	44	Syrian Arab Republic	2182
5	Switzerland	6000	45	Australia	2148
6	Chile	5500	46	Israel	2071
7	Mexico	5417	47	Sudan	2045
8	EU-27	5394	48	Afghanistan	2000
9	China	5267	49	Georgia	2000
10	Uzbekistan	5143	50	Malawi	2000
11	Saudi Arabia	5000	51	Tunisia	2000
12	Serbia	5000	52	Zimbabwe	2000
13	Ukraine	4154	53	Myanmar	1900
14	Albania	4133	54	Colombia	1875
15	Mali	4000	55	Rwanda	1857
16	Japan	3873	56	Paraguay	1851
17	Lebanon	3784	57	Chad	1667
18	Macedonia, The Former Yugoslav Republic Of	3778	58	Yemen	1652
19	Norway	3731	59	Bhutan	1538
20	Belarus	3714	60	Peru	1538
21	South Africa	3711	61	Mongolia	1500
22	United States	3539	62	Iraq	1478
23	Korea, Republic Of	3462	63	Korea, Democratic People's Republic	1444
24	Bosnia and Herzegovina	3333	64	Uganda	1429
25	Canada	3294	65	Turkmenistan	1412
26	Armenia	3273	66	Kazakhstan	1375
27	Moldova, Republic Of	3226	67	Morocco	1328
28	Bangladesh	3141	68	Jordan	1250
29	Argentina	3000	69	Libya	1212
30	Uruguay	3000	70	Eritrea	1200
31	India	2978	71	Congo, The Democratic Republic Of	1125
32	Azerbaijan	2857	72	Bolivia	1044
33	Brazil	2857	73	Angola	1000
34	Pakistan	2741	74	Guatemala	1000
35	Russian Federation	2707	75	Nigeria	1000
36	Kenya	2571	76	Tanzania, United Republic Of	1000
37	Tajikistan	2567	77	Algeria	952
38	Taiwan, Province Of China	2500	78	Ecuador	800
39	Nepal	2455	79	Lesotho	667
40	Ethiopia	2375		**World Average**	3353

Source: United States Department of Agriculture