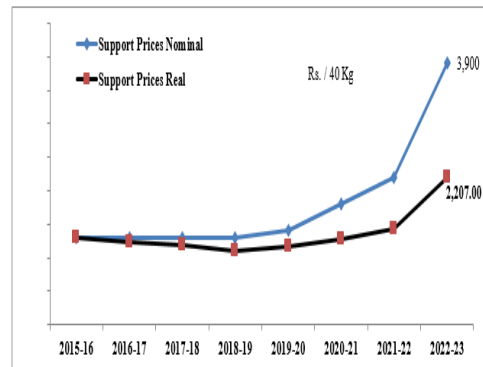
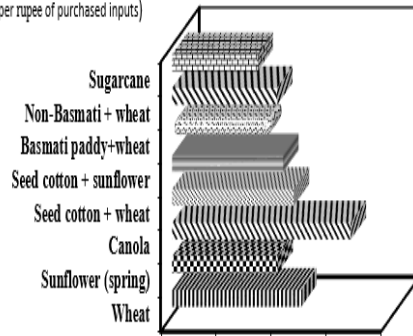




WHEAT POLICY ANALYSIS FOR 2023-24 CROP



Returns to Purchased Inputs - Punjab
(Revenue per rupee of purchased inputs)



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

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Preface

Wheat Policy Analysis is aimed to provide information on various economic aspects of the wheat crop, crucial in the formulation of the Minimum Support Price Policy. A report of this kind is always important because a broader audience benefits, ranging from policy makers to planners, academia, researchers, student community, growers / growers' associations, chambers of agriculture, traders, etc.

The single title of the report may not lengthily reflect the scope and purpose, unless the reader travels through the important elements of the report. The document contains several important factors adopted for the analysis of wheat crop. Many portions are relevant; however, a few economic factors have been described as the building blocks which provide useful insights into the Support Price Policy perspective. It is partly uncontrollable curiosity of the stakeholders and partly the practical needs of policy makers that this report is there to give answers to the questions on determining of producer price of the commodity.

We as API team, collectively owe thanks to all the Committee members and participants of the various meetings for their valuable discussion and input, Federal and Provincial Government Departments for sharing of information, without all that it would have not been possible to complete the report.

API greatly appreciates the feedback and suggestions from all the four corners and looking forward for a continued partnership in the formulation of price policy analysis and producing of important reports concerning agriculture and food security.

(Abdul Karim)
Director General

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Acronym**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
GB	Gilgit Baltistan
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
MSP	Minimum Support Price
N	Nitrogen
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
PSP	Profitable Support Price
USA	United States of America
USDA	United States Department of Agriculture

WHEAT POLICY ANALYSIS FOR 2023-24 CROP

SUMMARY OF FINDINGS AND RECOMMENDATIONS**1. Findings**

A brief summary of the key findings and recommendations are given below:

A. Area and Production

- Punjab and Sindh sow wheat around 86 per cent of the area and contribute about 90 per cent in production. While the collective of Khyber Pakhtunkhwa and Balochistan is 14 per cent in area and 10 per cent in production.
- During the decade ending 2022-23, wheat production has been observed as sluggish with the growth rate of 0.9 per cent per annum, while in area no significant change occurred.
- Wheat production from 2022-23 crop is reported at 28.18 million tonnes, showing 7.5 per cent higher than the production of 26.21 million tonnes in 2021-22.
- Since 2010, around 22 high yielding varieties have been developed by Research Institutes for the irrigated and rainfed areas, with an estimated yield potential ranging 5,000-8,000 kgs per hectare. However, the average National yield during the last decade improved mainly by 0.9 per cent.

B. Domestic Requirements

- Based on annual per capita consumption of 115 kgs per annum (M/o NFS&R), the domestic requirement of wheat for human consumption comes to 28.71 million tonnes for the year 2023-24.
- On the basis of balance sheet method, the 3-year average annual per capita availability is estimated at 112.82 kg for the period 2020-21 to 2022-23.
- Including one million tonnes as food security reserve and 2.83 million tonnes for seed, feed and wastage, the total domestic requirement will range between 32.00 and 32.54 million tonnes. Adding the last year carry over stocks, the deficit estimates at 2.21 to 2.75 million tonnes, respectively.

C. Domestic Prices

- Monthly average market prices of wheat for 2022-23 crop were observed higher than the profitable support price. The wholesale prices of wheat averaged at Rs 4,135 per 40 kgs during the post harvest season in major producing areas in Punjab.

D. World Production and Prices

- World wheat production estimated at 803 million tonnes in 2022-23 is higher by 23 million tonnes than the last year, while it is forecast at 784 million tonnes in 2023-24.
- The closing stocks at 282 million tonnes in 2022-23 decreased to 261 million tonnes in 2023-24 a decline of 21 million tonnes over the last year stocks.
- The average Fob (gulf) prices of US Hard Red Winter (HRW) wheat fluctuated widely and rising as high as US \$ 347 per tonne in 2012-13. The price decreased to US \$ 197 per tonne in 2016-17, however, showed upward trend and reached at US \$ 399 per tonne in 2021-22.
- During 2023-24 (July-September), international prices of US No. 2 HRW wheat have averaged at US \$ 327 per tonne and that of SRW at US \$ 257 per tonne.

E. World Comparison

- Pakistan is the 8th largest wheat producer in terms of area and production.
- Among the major wheat producing countries, Pakistan's positions falls at the bottom in the context of yield ranks at 56th position in terms of yield per hectare (FAO). This gap in yield can be narrowed through adoption of optimal technology.

F. Import/Export Parity Prices

- Based on the Fob price during 2023-24 (July- Sep), the import parity prices of US \$ 2 HRW calculate to Rs. 5,089 per 40 kgs at Multan and Rs. 4,899 per 40 kgs at Karachi while for SRW, the prices worked out at Rs. 3,848 at Multan and Rs. 3,658 per 40 kgs at Karachi. These prices were relatively low during 2023-24.
- Based on the average Fob (gulf) price during 2020-21 to 2022-23, the import parity price of US \$ HRW works to Rs.5,005 per 40 kgs at Multan, while Rs. 4,815 per 40 kgs at Karachi.
- Based on the futures prices of Black Sea wheat during (October 2023), the import parity prices work out at Rs. 3,658 and Rs. 3,468/40 kg at Multan and Karachi.
- Based on the average Fob (gulf) price of US HRW and US SRW wheat during 2022-23, the export parity price works to Rs 4,163 and 3,232 per 40 kgs at procurment centre level. For 2023-24 (July-Sep.), prices are equivalent to Rs. 3,838 and 2,682 for HRW and SRW, respectively. The export parity price calculates to Rs. 3,759 and 3,209 per 40 kgs respectively on the basis of average fob price during 2020-21 to 2022-23.

G. Cost of Production

- In Punjab, the net cost of wheat cultivation for 2023-24 season is estimated at Rs 100,859 per acre including land rent.
- The cost of production at market / procurement centre level would be Rs. 3,304 per 40 kgs for 2023-24, which is higher by Rs.1,081 than the corresponding COP of Rs 2,222 in 2022-23. However, this estimate is higher by 32% on the COP estimated by PM Task Force on Agriculture for the year 2022-23.
- In Sindh, the net cost of wheat cultivation for 2023-24 crop is probable at Rs. 99,666 per acre including land rent.
- The cost of production at market/procurement centre level would come to Rs. 3,075 per 40 kgs, showing increase of Rs. 970 over the last year.

H. Economics of Wheat and Competing Crops

- Wheat crop, in terms of direct competition with rabi oilseed crops, has shown a mix performance. In terms of returns to overall investment, wheat was better option than sunflower but lagged behind canola. In terms of purchased inputs, cost an identical picture is depicted. However, wheat has outperformed both Sunflower and Canola in terms of irrigation water, considerably.
- Under the indirect competition scenario, wheat combination with Cotton performed higher against sugarcane in terms of all the economic criteria adopted in this analysis. The sugarcane, on the other hand, could not perform well as compared to combinations of wheat and rice in terms of entire economic criteria except irrigation water.
- In Sindh, the returns from wheat crop remained relatively higher than ‘rabi’ oilseed crops, Sunflower and Canola in the entire criteria analyzed during 2022-23. However, Canola performed much better than sunflower in terms of purchased inputs and irrigation water.
- In case of indirect competition sugarcane failed to compete with all the crop combinations in terms of entire economic criteria analyzed. Certain crops performed better in various indicators but remained behind others.

I. Economics of Fertilizer Use

- The quantity of wheat needed to buy one nutrient tonne of Nitrogenous fertilizer has fluctuated from 1.35 to 2.77 tonnes during the decade of 2013-14 to 2022-23.
- During 2022-23, the parity ratio between market prices of Nitrogen and wheat was not in favour due to high prices of Nitrogen fertilizer and 1.59 units of wheat were required to buy one unit of Nitrogenous fertilizer, a nominal improvement over previous year.

- The quantity of wheat needed to buy one nutrient tonne of Phosphatic fertilizer has fluctuated between 1.16 to 4.98 tonnes during 2018 to 2023.
- During 2022-23, the parity ratio between market prices of Phosphatic and wheat purchasing power has worsened further and around 4.3 units of wheat could purchase one unit of P fertilizer.

J. Nominal and Real Support Prices

- The nominal support prices of wheat during 2015-16 to 2022-23 have experienced an overall increase of 77.27 per cent, while the real support prices have increased by 54.5 per cent, over the base year.

K. Nominal and Real Market Prices

- The nominal market prices of wheat have shown an overall increase of 244 per cent, against the base year, while the real market prices increased by 95 per cent due to rise in CPI by 77 per cent, during this period.

L. 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) during 2018-19 to 2022-23.
- The NPC values in Punjab under import scenario ranged between 0.50 to 0.85 in Punjab and 0.55 to 0.88 in Sindh.
- The EPCs under import scenario, in Punjab remained less than one due to less increase in input prices as compared with the price of wheat
- Under export scenario, the NPC values are greater than one, which indicate that domestic input prices and open market prices of wheat do not offer favorable prospects for wheat export from Pakistan.
- The DRCs in Punjab and Sindh under import scenario are less than one, except 2016-17 and 2017-18, during the period, indicating a Pakistan's Comparative Advantage in domestic wheat production rather than import. While under export scenario, DRCs coefficients do not indicate Comparative Advantage being greater than one; thus implying that Pakistan should not promote wheat production for export.

M. Policy Options

Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for wheat 2023-24 crop would be as under:

Base		Likely price of domestic wheat at procurement center
		Rs per 40 kgs HRW
1.	Import parity price on the basis of:	
a)	Fob (Gulf) prices of US HRW wheat during 2022-23, if consumed at:	
	- Multan	5,439
	- Karachi	5,246
b)	Fob (Gulf) price of US HRW wheat during 2020-21 to 2022-23, if consumed at:	
	- Multan	5,005
	- Karachi	4,815
c)	Fob (Gulf) price of US HRW wheat during 2023-24 (July-September), if consumed at:	
	- Multan	5,089
	- Karachi	4,899
d)	Import Parity Price of wheat on the basis of Future Price of Black Sea (US \$ per ton)	
	October, 2023	
	- Multan	3,658
	- Karachi	3,468
	November, 2023`	
	- Multan	3,682
	- Karachi	3,492
	December, 2023	
	- Multan	3,691
	- Karachi	3,501
2.	Export parity price on the basis of:	
a)	Fob (Gulf) prices of US Hard Red Winter (HRW) & Soft Red Winter (SRW) wheat during 2022-23, if exported from Multan	HRW 4,163 SRW 3,323
b)	Fob (Gulf) average prices of US HRW & SRW wheat during 2020-21 to 2022-23, if exported from Multan	HRW 3,759 SRW 3,209
c)	Fob (Gulf) prices of US HRW & SRW wheat during 2023-24 (July only), if exported from Multan	HRW 3,838 SRW 2,682
3.	Monthly average wholesale market prices of wheat in major producing areas during the post-harvest period of 2022-23 Punjab crop:	4,135
4.	Cost of production estimates at market / procurement center level for 2023-24 crop:	
	- Punjab	3,334
	- Sindh	3,075

2. Recommendations

In view of the field information, consultation with the stakeholders in the API Committee meeting on Wheat and analysis of relevant factors, the following recommendations are made regarding the profitable support price, improving productivity and marketing of 2023-24 wheat crop:

A. Support Price

- Sustainable growth in wheat production is essential as the crop is not only the staple food but also the major food security concern of the economy.
- In view of the current situation of the economy due to food inflation and other food security concerns, the Government may like to consider timely announcing of the profitable Support Price of Wheat.
- The profitable Support Price provides a reference point for procurement by the public sector agencies to meet the food security requirements of the country.
- The PSP 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.
- 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's policy of encouraging the role of private sector in wheat marketing needs to be strengthened ensuring that a strong regulatory mechanism is in place.
- PASSCO and Provincial Food Departments being the implementing agencies should make prior arrangements for wheat procurement and enter in the field well in time, especially in Sindh province where the harvesting starts early.

B. Improving Productivity

- The post-flood situation needs to be reviewed and a comprehensive plan for rehabilitation of agricultural land, devised by the Research and Extension Departments to ensure that the crop productivity is sustained.
- 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.
- Impact of climate change on land use, crop maturity and cropping patterns need to be assessed and mitigation measures be adopted by the Provinces.
- Coordinated efforts should be made for fast tracking the national wheat breeding programme for resistant varieties to various key issues like: stem rust, drought, salinity, heat and frost.
- Molecular breeding for development of low input but high responsive varieties of wheat should be strengthened through enhance's capacity of research institutions and extension services.

- 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.
- Advanced technologies like laser levelling, zero tillage and high efficiency irrigation systems should be promoted, encouraging small holders with provision of such technologies at village/tehsil level.
- There should be a national programme for multiplication and dissemination of seed - fertilizer drills, on cost sharing basis to improve the fertilizer use efficiency in case of phosphate.
- Provincial Governments emphasize on timely availability of certified seed and grading of farm seed for wheat cultivation by private sector and of farmers' own seed.
- Provinces take measures for strict quality control to check adulteration of weedicides, herbicides, pesticides and fertilizer to enhance their efficiency.
- For the efficient use of fertilizer, the Provincial Governments should control the black marketing of DAP and Urea to keep the prices at optimal level to maintain certain level of ratio in the application of fertilizers.
- The Seed Act may be implemented in true spirit and the private seed companies selling spurious and fake seeds may be strictly penalized.

C. Improving Statistics and Marketing

- Establishing of an Input Price Regulatory Authority at Provincial level will help control the input prices and other quality related matters.
- Value addition in wheat sector would help improve its export competitiveness in the world market.
- A committee of experts be established at Provincial level to examine the current system of crop estimation and suggest ways and means to improve the provincial crop estimates.
- Storage capacity needs to be enhanced both in public and private sectors, particularly at grassroots level.
- The strategic reserve of two million tonnes needs to be maintained for the sake of food security for the masses.
- In line with the Industry sector, agricultural credit should be offered at self-terms and reduced mark up by the ZTBL and other Commercial Banks.

WHEAT POLICY ANALYSIS FOR 2023-24 CROP

INTRODUCTION

Wheat is a cereal grain and one of the most widely cultivated and important staple crops in the world. Wheat is also the major cereal crop and the largest area under cultivation in Pakistan. The crop accounts for 7.8 per cent of value added in agriculture and about 1.9 per cent to GDP¹ of the country. The crop plays a significant role in the economic stability of the country. On average (2020-21 to 2022-23), wheat was cultivated on 9.1 million hectares with the production of about 27.3 million tonnes. Production of wheat has been increased by 0.9 percent average annual growth over the last decade due mainly the improvement in yield by 0.9 percent, while the area has been observed unchanged. For the year 2022-23, wheat crop has been estimated at 28.18 million tons², an increase by 7.5 percent over the last year.

2. Wheat Global balance sheet for 2023-24 presents a downward trend as compared to 2022-23. Production is forecast at 784 MMT, over 19 MMT less than 2022-23 estimates. International trade of wheat is projected at 197 MMT. This global wheat scenario may give signal of a lower crop situation and an upward variation in the price of the commodity.

3. International Grains Council, London reported that the global wheat production in 2023-24 is forecast to decrease significantly to 784 million tons³, 19 million tons or 2.4 per cent lower than last year. Adding the opening stock of 282 million tons, total supply would be at 1,066 million tons against the consumption forecast of 805 million tons in 2023-24. The carryover stocks during 2023-24 are forecast to decrease to 261 million tons due to less production.

4. The price policy recommendations for 2023-24 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 Punjab and Sindh 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 through internet. These data have been analyzed to reflect the domestic and international position on various aspects of wheat production and marketing.

¹ Economic Survey of Pakistan, 2022-23.

² Wheat Monitor, MNFS&R (Sept. 26, 2023).

³ Economic Survey of Pakistan, 2022-23.

5. Wheat being the staple and 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.

6. 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 segments 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 commodities.

2. SOWING AND HARESTING TIMES OF WHEAT

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

Table-1: Recommended Sowing and Harvesting Times of Wheat

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

Source: Pakistan Agricultural Research Council, Islamabad.

8. 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.

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

10. 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.

11. 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.

12. 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 2022-23 CROP

3.1 Provincial Shares in Area and Production

13. Based on 3-year average ending 2021-23, the Punjab and Sindh contribute about 75.9 and 14.1 per cent in total wheat production while the shares of the KPK and Baluchistan are around 5.2 and 4.8 per cent, respectively. The provincial shares of area and production are presented in Table-2 and depicted in Figures 1 & 2, respectively.

14. Around 87.3 per cent of wheat acreage is cultivated under irrigated conditions which contribute 93.4 per cent of wheat production in the country.

Table-2: Provincial Shares in Area and Production of Wheat
(Average of 2020-21 to 2022-23)

Item/Country/ Province	Total	Pakistan	Punjab	Sindh	KPK	Balochistan
	000 hact.	----- Per cent -----				
A. Area						
Total	9,061.9 (22,392.8)*	100.0	72.8	13.3	8.5	5.4
Irrigated	7,914.0 (19,556.3)*	87.3	65.0	13.0	4.1	5.2
Un-irrigated	1,147.9 (2,836.5)*	12.7	7.8	0.3	4.3	0.3
B. Production						
Total	27,282.7	100.0	75.9	14.1	5.2	4.8
Irrigated	25,490.5	93.4	71.5	13.9	3.3	4.7
Un-irrigated	1,792.3	6.6	4.4	0.2	1.9	0.1

Note: *: Represent thousand acres.

Source: Worked out from Annex-I.

Fig 1: Provincial shares in Area of Wheat: Average of 2020-21 to 2022-23

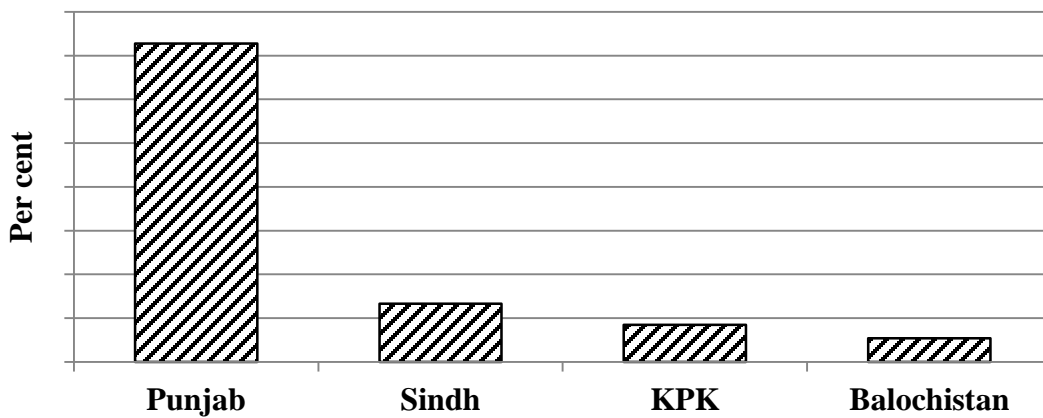
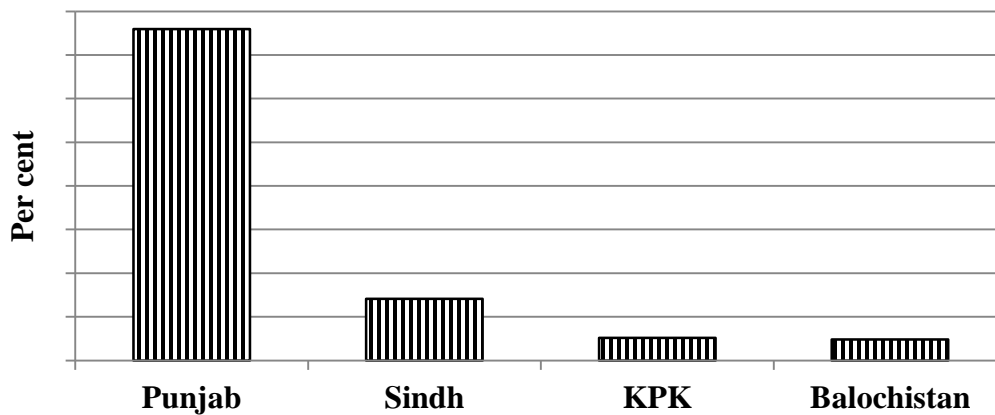


Fig 2: Provincial Shares in Production of Wheat: Average of 2020-21 to 2022-23



3.2 Long-term Changes: 2012-13 to 2022-23

15. During the decade ending 2022-23, wheat production at country level has surged @ 0.9 per cent per annum owing to 0.9 per cent improvement in yield and unchanged in area. In the Punjab, wheat production has increased @ 0.8 per cent annually due to 1.2 per cent improvement in yield and 0.4 per cent acreage contraction. In Sindh, wheat production has also raised @ 0.2 per cent per annum mainly due to improvement of area by 1.0 per cent though the yield declined by 0.8 per cent. Details of wheat area, yield and production by province are presented in Table-3.

Table-3: Average Annual Growth Rates of Area, Yield and Production of Wheat (2012-13 to 2022-23)

Country/ Province	Area	Yield	Production
	----- Per cent per annum -----		
Pakistan	0.0	0.9	0.9
Punjab	-0.4	1.2	0.8
Sindh	1.0	-0.8	0.2
KPK	0.2	0.4	0.6
Balochistan	3.2	2.0	5.2

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

3.3 Medium Term Changes: 2017-18 to 2022-23

16. The annual growth rates for the period 2017-18 to 2022-23 show that the wheat production has increased @ 2.6 per cent by virtue of 1.8 per cent improvement in yield and the acreage by 0.8 per cent at the country level. Provincial growth rates for all three indicators are presented in Table-4.

Table-4: Average Annual Growth Rates of Area, Yield and Production of Wheat (2017-18 to 2022-23)

Country/Province	Area	Yield	Production
	----- Per cent per annum -----		
Pakistan	0.8	1.8	2.6
Punjab	0.0	2.4	2.4
Sindh	3.0	-2.2	0.8
KPK	0.8	1.7	2.5
Balochistan	6.7	4.6	11.6

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

3.4 Short-term Changes: 2021-22 Vs 2022-23

17. Wheat production from 2022-23 crop is reported at 28.176 million tonnes at country level, showing 7.5 per cent increase over 26.209 million tonnes in 2021-22. This growth in production is mainly attributed to expansion of area and amplification in the yield by 0.7 and 6.7 percent respectively, as compared to the last year. The province wise data on area, yield and production of wheat are presented in Table-5 and also depicted in Figures 3 and 4.

Table-5: Area, Yield and Production of Wheat: 2021-22 and 2022-23 Crop

Country/ Province	Area		Changes	Yield per hectare		Changes	Production		Changes
	2021-22	2022-23		2021-22	2022-23		2021-22	2022-23	
	-- 000 hectares --		Per cent	-----Kgs ----		Per cent	-- 000 tonnes --	Per cent	
Pakistan	8,976.8	9,040.5	0.7	2,920	3,117	6.7	26,208.6	28,175.5	7.5
Punjab	6,559.8	6,480.5	-1.2	3,054	3,275	7.3	20,032.0	21,225.0	6.0
Sindh	1,181.7	1,238.2	4.8	3,010	3,182	5.7	3,556.7	3,940.2	10.8
KPK	760.6	778.1	2.3	1,792	1,920	7.2	1,362.8	1,494.1	9.6
Baluchistan	474.7	543.7	14.5	2,648	2,789	5.3	1,257.1	1,516.2	20.6

Source: Worked out from Annex-I.

3.5 Important Wheat Producing Districts

18. The only Bahawalnagar, Rahim Yar Khan and Bahawalpur districts are on the top in wheat production in Pakistan producing more than three million tonnes of wheat per annum. Besides, districts producing more than 500 thousand tonnes per annum are Bahawalnagar, R.Y. Khan, Bahawalpur, Jhang, Faisalabad, Layyah, Khanewal, Muzaffargarh, D.G. Khan, Sheikhpura, Rajanpur, Gujranwala, Vehari, Multan, Hafizabad, Lodhran, Sargodha, Mianwali, Okara, Sialkot. These 20 districts produce 55 per cent of total wheat production in Pakistan while their share in area is estimated at 50 per cent. Bakhar, Hafizabad, Kasur, Nankana Sahib, Sahiwal, Pakpattan, and M.B. Din from Punjab and Shaheed Benazirabad, Naushero Feroz, Khairpur, Ghotki and Sanghar from Sindh, D.I khan and Swat from KPK, Nasirabad, Jafarabad, Jhal Magsi and Khuzdar from Baluchistan are other important wheat producing districts in the country. District-wise production shares are given in Annex-III.

Fig 3: Province Wise Area of Wheat: 2021-22 & 2022-23

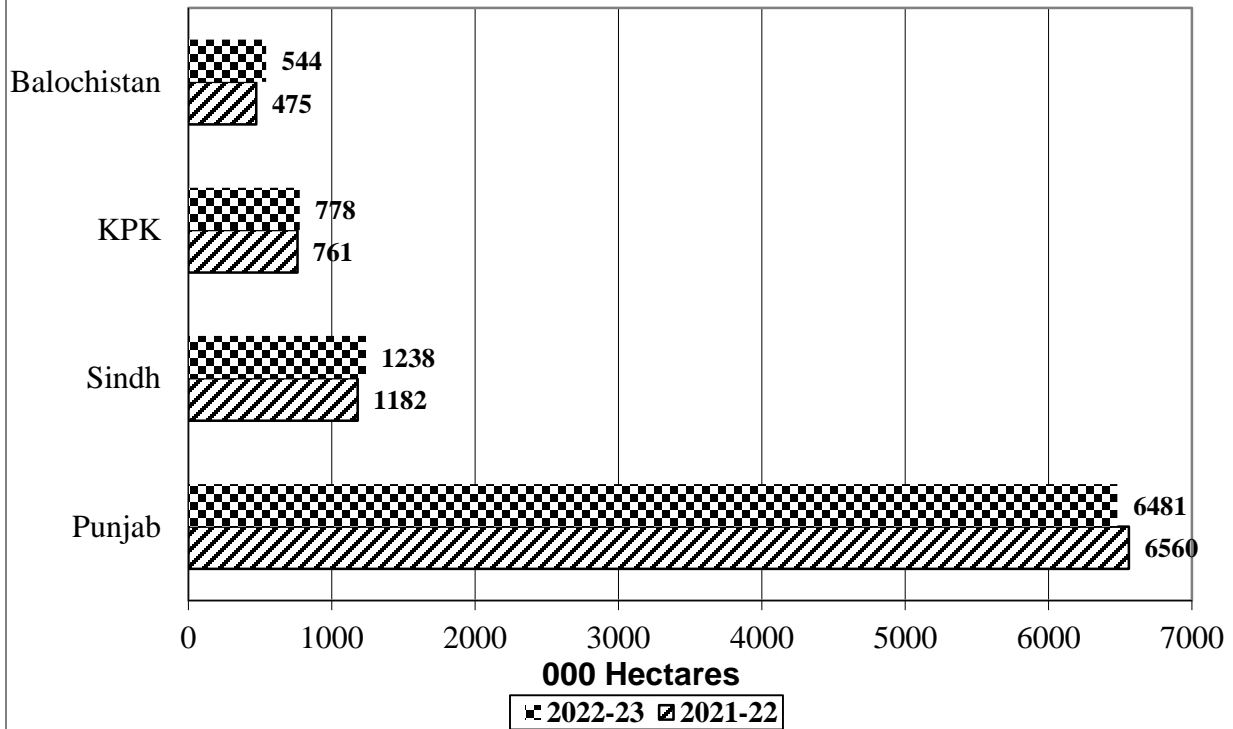
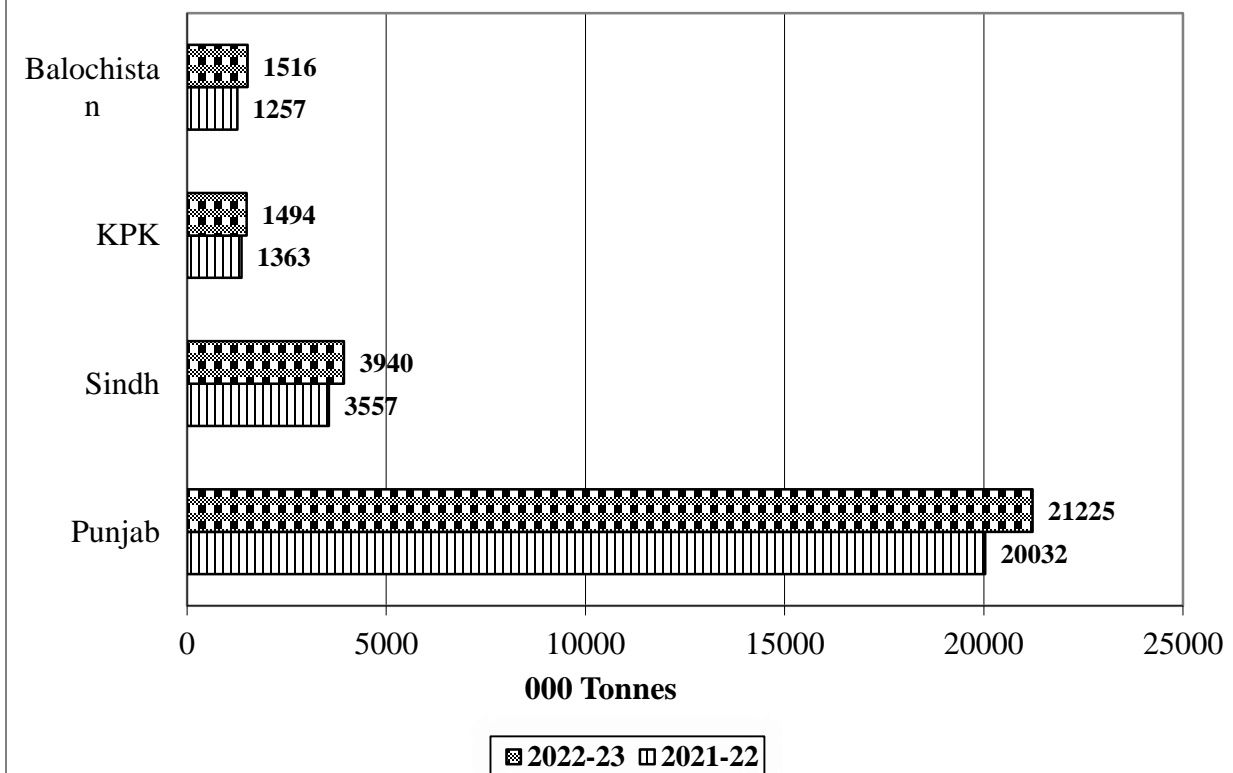


Fig 4: Province Wise Production of Wheat: 2021-22 & 2022-23



3.6 Targets Vs Achievements: 2022-23 Crop

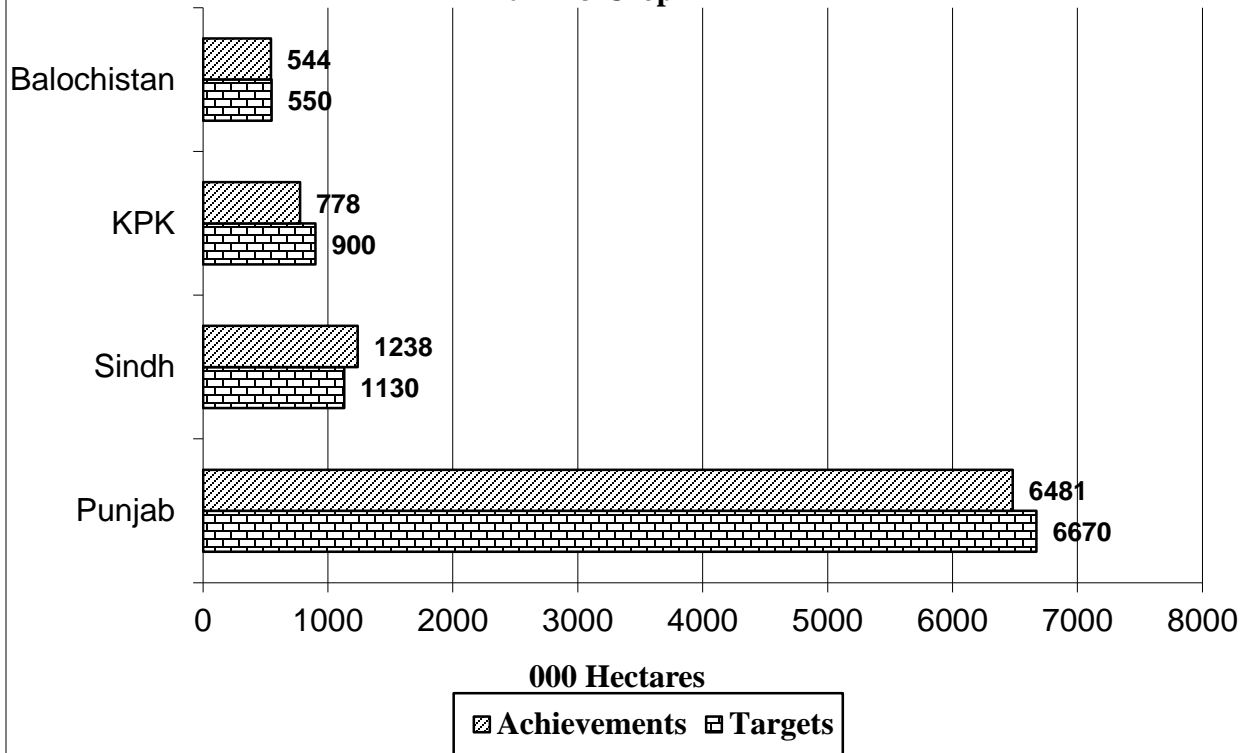
19. Wheat production target for 2022-23 crop was set at 28.370 million tonnes from an area of 9.250 million hectares by the provincial governments. However, the production of wheat is reported at 28.176 million tonnes, lagged behind the target by 0.7 per cent. The production target could not be achieved due to lagging by 2.3 per cent in area. Provincial details on area, yield and production may be seen in Table-6 and also depicted in Figures 5 and 6.

Table-6: Targets Vs Achievements in Area, Yield and Production of Wheat: 2022-23 Crop

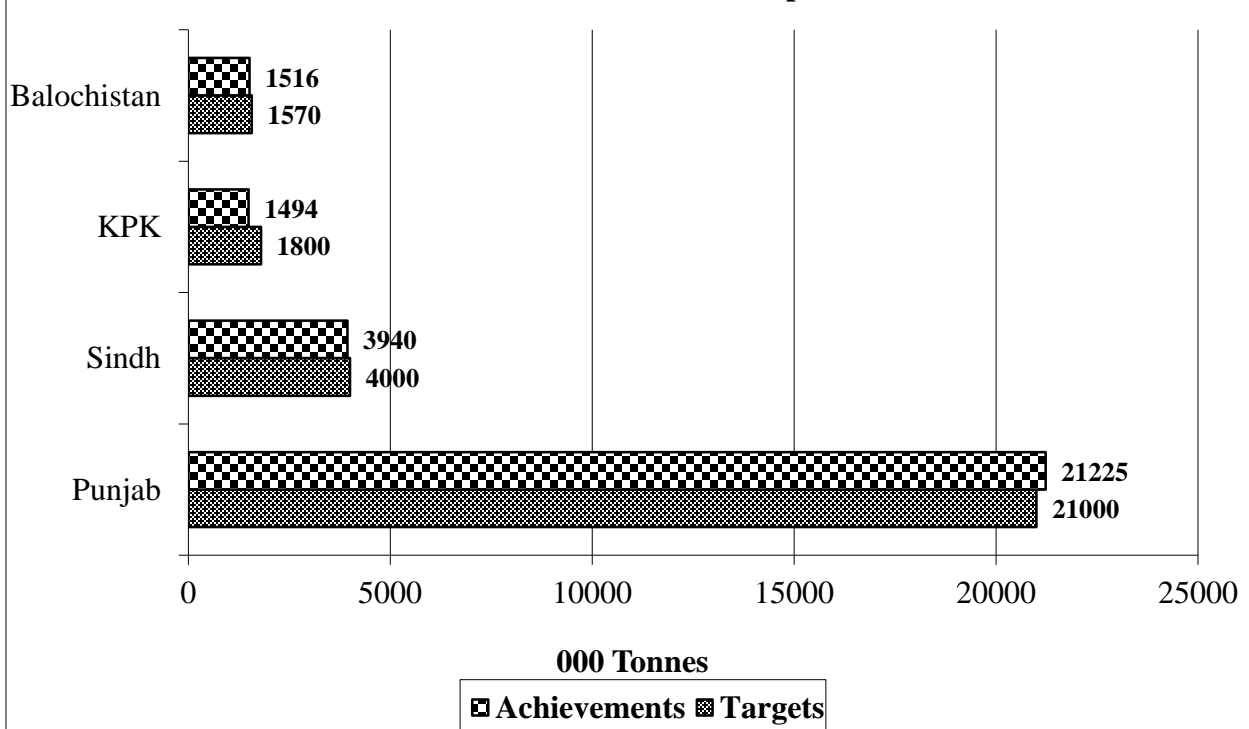
Country/ Province	Area		Devia- tion from target	Yield per hectare		Devia- tion from target	Production		Devia- tion from target
	Targets	Achieve- ments		Targets	Achieve- ments		Targets	Achieve- ments	
	000 ha		Per cent	Kgs		Per cent	000 tonnes		Per Cent
Pakistan	9,250.04	9,040.50	-2.3	3,067	3,117	1.6	28,370.00	28,175.50	-0.7
Punjab	6,670.00	6,480.50	-2.8	3,148	3,275	4.0	21,000.00	21,225.00	1.1
Sindh	1,130.00	1,238.20	9.6	3,540	3,182	-10.1	4,000.00	3,940.20	-1.5
KPK	900.04	778.10	-13.5	2,000	1,920	-4.0	1,800.00	1,494.10	-17.0
Balochistan	550.00	543.70	-1.1	2,855	2,789	-2.3	1,570.00	1,516.20	-3.4

- Sources: 1. For targets: 18th Federal Committee on Agriculture (FCA) meeting minutes held on 31-03-2022, Ministry of National Food Security and Research, Islamabad.
Average estimates of area & production of last three years for KPK and Balochistan.
2. For Achievements: Worked out from Annex-I.

**Fig 5: Province Wise Target and Achievement in Area of Wheat:
2022-23 Crop**



**Fig 6: Province Wise Target and Achievement in Production of Wheat:
2022-23 Crop**



4. FACTORS CONSIDERED FOR PRICE POLICY ANALYSIS

20. Following major factors were considered for the analysis of the price policy of wheat 2023-24 crop:

- 4.1 Domestic Demand, Supply, Stocks and Price Situation
- 4.2 World Production, Consumption, Stocks and Trade Situation
- 4.3 International Price of Wheat
- 4.4 Import and Export Parity Prices
- 4.5 Cost of Production
- 4.6 Comparative Economics of Competing Crops
- 4.7 Nominal and Real Support and Market Prices
- 4.8 Economic Efficiency of Wheat Production in Pakistan
- 4.9 Producer Prices of Wheat in Selected Countries
- 4.10 Impact of Increase in Support Price / Profitable Price of Wheat on Consumer Price Index (CPI) and Average Household Expenditure

4.1 Domestic Demand, Supply, Stocks and Price Situation

4.1.1 Domestic Demand, Supply and Stocks

21. During 2022-23, the country has produced 28.18 million tons wheat. After adding the carryover stocks of 1.61 million tons as on May 1, 2023, total wheat supply in the country for 2022-23 consumption year would be 28.02 million tons. This supply may slightly increase if production of wheat in Azad Kashmir and Gilgit Baltistan estimated at 0.26 million tons is added. Thus total availability of wheat in the country would be 29.79 million tons.

22. National requirement of wheat has been worked out on three bases:

- i. On the basis of balance sheet method. According to this method, last three years production plus last year carryover stocks plus imports minus export and carry forwarded stocks are accounted for separately. On the basis of three years average, it is assumed that it is per capita consumption of the country (for detailed annex-IV) for current year it works out 112.82 kgs.
- ii. M/o National Food Security and Research is using 115 kgs per capita consumption.
- iii. Pakistan Bureau of Statistics has reported in House Hold Integrated Economic Survey (HIES) that the national per capita wheat consumption has been reduced to 84 kg per annum. The calculations are presented in Table -7.

Table 7: Domestic Requirement of Wheat for 2023-24 (May to April)

S#	Item	Based on annual per capita Consumption on the basis of		
		API	M/o NFS&R	HIES
		112.82 kg	115kg	84kg
1	Population (Million)	249.67	249.67	249.67
2	Human Consumption Requirement (MMT)	28.17	28.71	20.97
3	Allowance for seed, feed and wastage@10% of total production of 2022-23 crop (MMT)	2.83	2.83	2.83
4	Food Security reserves (MMT)	1.00	1.00	1.00
5	Total Requirements (MMT)	32.00	32.54	24.80
6	Total Supply (Production + carry forward) (MMT)	29.79	29.79	29.79
7	Surplus/Deficit (MMT)	(2.21)	(2.75)	4.99

Source: i. For Population of Pakistan: Economic Survey of Pakistan 2022-23
ii. For Production and carry-forward estimates: Food Security Commissioner-II, Ministry of National Food Security & Research

23. Table-7 reveals that annual per capita availability of wheat requirement/ consumption for 2023-24 for the population of 249.67 million (including population of AJK area, Gilgit Baltistan and Afghan Refugees) the per capita requirements according to balance sheet method and M/o NFS&R for the year 2023-24 is estimated at 28.17 and 28.71 million tons respectively. Accounting for seed, feed and wastage @ 10 per cent of production and strategic reserve of one million, gross domestic requirement for 2023-24 is estimated at 32 and 32.54 million tons, deficit of 2.21 and 2.75 million tons respectively. However, this requirement would be 24.8 million tons if used the HIES consumption requirement data of 84 kgs per annum. Resultantly, the country will have 4.99 million tons surplus wheat.

4.1.2 Post- harvest prices

Punjab

24. Monthly wholesale prices of wheat during the post-harvest months of 2022-23 crop in the major producing area markets of the Punjab is depicted in Table-8.

Table-8: Monthly Average Wholesale Prices of Wheat in Main Producing Area Markets of Punjab during Post-harvest Season of 2022-23 Crop

Markets	April	May	June	Average
	-----Rs per 40 kgs-----			
Faisalabad	4,356	4,450	4,450	4,419
Multan	4,180	4,141	4,020	4,114
Okara	3,964	4,009	3,912	3,961
R. Y. Khan	4,028	4,282	4,250	4,187
Bahawalpur	4,019	3,988	3,900	3,969
DG Khan	4,053	4,195	4,006	4,085
Average	4,125	4,159	4,120	4,135

Source: Directorate of Agriculture (E&M), Lahore, Punjab.

25. The price data of wheat in table-8 shows that the monthly average wholesale prices of wheat in main producing areas of Punjab were higher than the support price of Rs. 3,900 per 40 Kgs during the month of April to June 2023, where grower received Rs. 3,900 equal to support price in the month of June during post-harvest period. The largest price during post-harvest period has been observed in Bahawalpur market during the month of June, 2023 and the highest price of Rs. 4,195 in DG Khan market during month of May 2023. The seasonal average price has ranged between Rs. 3,961 to Rs. 4,419 per 40 kgs.

4.2 World Production, Consumption, Stocks and Trade Situation

26. The data on world production, consumption, stocks and trade situation from 2021-22 to 2023-24 are presented in Table-9.

Table:9 World Productions, Consumption: 2021-22 to 2023-24

Items	2021-22	2022-23 (Estimated)	2023-24 (Forecast)
	-----Million Tonnes-----		
Opening Stocks	277	274	282
Production	780	803	784
Total Supply	1,057	1,077	1,066
Consumption	784	795	805
Closing Stocks	274	282	261
Trade	198	207	197

Source: International Grain Council London, 20-09-2023.

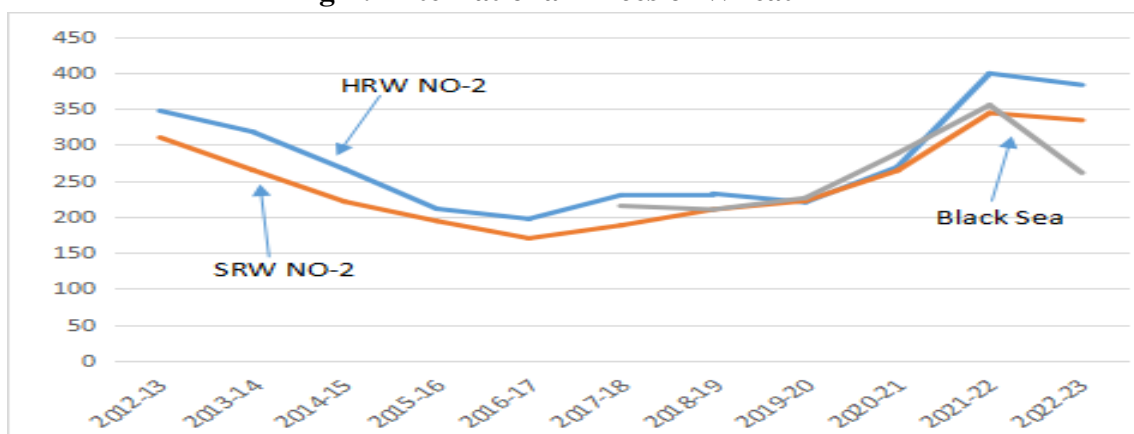
27. The global wheat production in 2022-23 is estimated at 803 million tons, 23 million tons higher than the production of 2021-22. Adding the opening stocks of 274 million tons, total supply would be at 1,077 million tons against the consumption forecast of 795 million tons in 2022-23.

28. According to International Grain Council London, the global wheat production in 2023-24 is forecast to decrease significantly to 784 million tons, 19 million tons or 2.3 per cent lower than last year. Adding the opening stock of 282 million tons, total supply would be at 1,066 million tons against the consumption forecast of 805 million tons in 2023-24. The carryover stocks during 2023-24 are forecast to decrease to 261 million tons due to less production, although the carryover stocks were higher as compared to the last year.

4.3 International Prices of Wheat

29. If the above mentioned forecast becomes true, the price of wheat in international market may increase.

Fig-7: International Prices of Wheat



30. Average Fob (Gulf) prices of US Hard Red Winter from 2014-15 to 2023-24 (July-Sep, 23) are presented in Annex-V. The prices of US Hard Red Winter showed a volatile pattern during the period under review.

31. The prices averaged at US \$347 per ton during 2012-13 and started decline in the next couple of years and averaged at US \$ 197 per ton during 2016-17. Next year, the price recovered sharply, and averaged at US \$ 230 per tons. The prices increased slightly to US \$232 per ton but again decreased to US\$ 220/ton during 2019-20. Since then the prices started increasing continuously and reached at US\$ 399/ton, the highest level of period under review. However, the prices showing a slight downward trend in 2023-24 (July to Sept).

32. The world prices of HRW wheat showed an increasing trend in the years 2017-18 to 2021-22 ranging from US \$ 230 per tons to 399 per ton then decrease to US \$ 383 in 2022-23.

33. The price of Soft Red Winter has followed almost similar pattern as of HRW during the period under review. The data regarding Black sea prices of wheat are not available from 2012-13 to 2017-18. However, the prices of Black Sea also followed similar pattern as in case of HRW and SRW.

4.4 Import and Export Parity Prices

34. The import and export parity prices have been calculated on the basis of fob (Gulf) prices of US No 2 HRW and SRW wheat and future price of black sea. 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 VIII.

Table -10: Import Parity Price of Wheat on the Basis of US No 2 HRW and SRW fob (Gulf) Price and Future Prices of Black Sea

Sr. No.	Item	2023-24 (July-Sept)	During 2022-23	During 2020-21 to 2022-23
I	Fob (Gulf) price of US. NO. 2 HRW (US \$ per ton)	360	3,889	353
	Import parity price per 40 kgs of wheat:			
	i) if consumed at Multan	5,089	5,439	5,005
	ii) If consumed at Karachi	4,899	5,246	4,815
II	Fob (Gulf) price of SRW (US \$ per ton)	257	306	304
	Import parity price per 40 kgs of wheat:			
	i) if consumed at Multan	3,848	4,438	4,414
	ii) If consumed at Karachi	3,658	4,248	4,224
		Oct, 23	Nov, 23	Dec, 23
III	Future Prices of Black Sea (US \$ per ton)	243.25	245.25	246
	Import parity price per 40 kgs of wheat:			
	iii) if consumed at Multan	3,658	3,682	3,691
	iv) If consumed at Karachi	3,468	3,492	3,501

Source: For HRW and SRW, International Grain Council, London

Table-11: Export Parity Prices of Wheat on the Basis of No.2 HRW and SRW fob (Gulf) Price

Item	2023-24 (July-Sept)	During 2022-23	During 2020-21to 2022-23
Fob (Gulf) price of US. NO. 2 HRW assuming for FOB (Karachi) price (US \$ per tonne)	360	389	353
Export parity price of HRW per 40 kgs at procurement centre	3,838	4,163	3,759
Fob (Gulf) price of SRW assuming for FOB (Karachi) price (US \$ per tonne)	257	306	304
Export parity price of SRW per 40 kgs at procurement center	2,682	3,232	3,209

Source: Worked out from Annex-VIII

4.5 Cost of Production of Wheat

35. In formulating price proposals for the farm produce, the cost of production (COP) is one of the crucial considerations. However, the empirical estimation of a typical COP involves a number of conceptual and practical difficulties. These difficulties in general arise from the larger number of growers with diverse farming systems involving substantial variations in the agro-climatic conditions, cropping pattern, use level of inputs, adoption of farm technologies, cultural practices etc., resulting in varying crop yields and unit cost of production.

36. The cost of production of wheat for 2023-24 crop in the Punjab and Sindh have been estimated by adopting the input-output parameters used in the 2022-23 Wheat Policy Analysis Report along with the latest inputs prices and custom hiring rates of cultural operations, collected through mini field survey conducted by the API during May-June 2023 in the major wheat growing areas of the Punjab and Sindh. The inputs prices and custom hiring rates were also supplemented with the information provided by the representatives of the Provincial Governments and Farmer's Associations in the meeting of the API's Committee on wheat, held on 4th September 2023 at NFS&R, Islamabad. The details of the COP estimates for the Punjab and Sindh for 2022-23 and 2023-24 crops are presented at Annex-IX and X, respectively while the summary of these is presented in Table-12.

4.5.1 Average Farmers' Cost of Production of Wheat: 2022-23 and 2023-24 Crops

37. The cost of production estimates of wheat in the Punjab and Sindh for 2022-23 and 2023-24 crops are summarized and presented in Table-12.

Table-12: Average Farmers' Cost of Production of Wheat: 2022-23 and 2023-24 Crops

Items	Units	2022-23 Crop	2023-24 crop	Increase/ decrease in 2023-24 over 2022-23
Punjab				
1. Net Cost of cultivation	Rs/acre	66,404.43	100,859.18	34,454.74
2. Yield				
a) Yield in kgs	Kgs/acre	1,220.00	1,240.00	20.00
b) Yield in maunds	40 kgs/acre	30.50	31.00	0.50
3. Cost of production at farm level	Rs/40 kgs	2,177.19	3,253.52	1,076.33
4. Marketing cost	Rs/40 kgs	45.00	50.00	5.00
5. Cost of production at market/ procurement centre				
a) With land rent	Rs/40 kgs	2,222.19	3,303.52	1,081.33
b) Without land rent	Rs/40 kgs	1,484.49	2,174.49	690.00
Sindh				
1. Net Cost of cultivation	Rs/acre	67,826.98	99,665.80	31,838.82
2. Yield				
a) Yield in kgs	Kgs/acre	1,320.00	1,320.00	0.00
b) Yield in maunds	40 kgs/acre	33.00	33.00	0.00
3. Cost of production at farm level	Rs/40 kgs	2,055.36	3,020.18	964.81
4. Marketing cost	Rs/40 kgs	50.00	55.00	5.00
5. Cost of production at market/ procurement centre				
a) With land rent	Rs/40 kgs	2,105.36	3,075.18	969.81
b) Without land rent	Rs/40 kgs	1,423.54	2,014.57	591.02

Source: Worked out from Annex-VIII and IX.

Punjab

38. The expected cost of cultivation of one acre of wheat in the Punjab during 2023-24 crop year is likely Rs. 100,859.18 including land rent (Table12). The cost of producing wheat at farm gate is worked out at Rs. 3,253.52 per 40 kgs, provided that average yield is 1,240 kgs per acre. Accounting for the marketing charges @ Rs. 50 per 40 kgs, the market/procurement center level cost of production comes out to Rs. 3,303.52, high by Rs 1,081.33 (32.73 %) than the corresponding cost of Rs 2,222.19 in 2022-23.

Sindh

39. Cost of set down one acre of wheat in Sindh during 2023-24 crop is likely to be Rs 99,665.80, inclusive of land rent. Distributing this cost over the average yield of 1,320 kgs per acre, the farm level cost of production comes to Rs 3,020.18 per 40 kgs. Adding marketing cost

@ Rs 55 per 40 kgs, the cost of producing and delivering 40 kgs wheat at market/procurement centre level would be Rs 3,075.18, reflecting an increase of Rs 969.81 (31.53 %) over the last year's corresponding cost of production.

40. The increases in the cost of production of wheat for the 2023-24 crop in the Punjab and Sindh over the last year's cost are mainly attributed to the inclined hiring rates of land rent, Fertilizer & FYM, harvesting & threshing, Plant protection and Interculture and ploughing. Moreover, the escalation in other inputs has also added substantially to the increase in cost of production of wheat for 2023-24 crop.

4.5.2 Cost of major farm inputs and operations

41. The cost of major operations and farm inputs in the total cost of cultivation of wheat in the Punjab and Sindh during 2022-23 and 2023-24 crops along with percent changes therein is presented in Table-13.

Table-13: Cost of Major Farm Operations/Inputs of Wheat: 2022-23 and 2023-24 Crops

Sr. No.	Operations/inputs	2022-23 crop		2023-24 crop		Increase/ Decrease over last year
		Rs/acre	Share	Rs/acre	Share	
Punjab						Percent
1	Land preparation:	5,900.00	7.81	10,000.00	8.71	69.49
2	Seed and sowing operations:	5,975.00	7.91	10,100.00	8.80	69.04
3	Plant Protection & Interculture	2,000.00	2.65	2,500.00	2.18	25.00
4	Irrigation & WCC	4,400.00	5.82	9,650.00	8.41	119.32
5	Fertilizers, FYM & TPT/Application	19,064.49	25.23	21,689.25	18.89	13.77
6	Harvesting & threshing	10,450.00	13.83	18,525.00	16.14	77.27
7	Land rent	22,500.00	29.78	35,000.00	30.49	55.56
8	Other costs (Mark-up, Land Tax, Mgnt)	5,264.95	6.97	7,344.93	6.40	39.51
9	Gross cost of cultivation	75,554.43	100.00	114,809.18	100.00	51.96
10	Value of wheat bhoosa	(9,150.00)	(12.11)	(13,950.00)	(12.15)	52.46
11	Net cultivation cost	66,404.43	87.89	100,859.18	87.85	
12	Yield (kgs/acre)	1,220.00		1,240.00		
13	Cost of production at market/ procurement centre	2,222.19		3,303.52		
Sindh						
1	Land preparation:	7,100.00	9.13	13,135.00	11.15	85.00
2	Seed and sowing operations:	6,780.00	8.72	11,500.00	9.76	69.62
3	Plant Protection & Interculture	1,600.00	2.06	3,000.00	2.55	87.50
4	Irrigation & WCC	4,400.00	5.66	6,450.00	5.47	46.59
5	Fertilizers, FYM & TPT/Application	19,381.80	24.94	22,103.00	18.76	14.04
6	Harvesting & threshing	10,450.00	13.44	19,000.00	16.13	81.82
7	Land rent	22,500.00	28.95	35,000.00	29.71	55.56
8	Other costs (Mark-up, Land Tax, Mgnt)	5,515.18	7.10	7,627.80	6.47	38.31
9	Gross cost of cultivation	77,726.98	100.00	117,815.80	100.00	83.33
10	Value of wheat bhoosa	(9,900.00)	(12.74)	(18,150.00)	(15.41)	46.94
11	Net cultivation cost	67,826.98	87.26	99,665.80	84.59	
12	Yield (kgs/acre)	1,320		1,320		
13	Cost of production at market/ procurement centre	2,105.36		3,075.18		

Notes:

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

Source: Worked out from Annex-IX & X.

Punjab

42. The land rent, Fertilizer including FYM and harvesting and threshing are the major component in gross cost of cultivation of wheat in the Punjab during 2023-24 crop year, accounting for 30.5, 18.9 and 16.1 per cent. The other ingredients are as: Seed and sowing operations (8.8%), Land preparation (8.7%), Irrigation and watercourse cleaning (8.4%) and Others costs (6.4%).

Sindh

43. In Sindh, the land rent, Fertilizer including FYM and harvesting and threshing are also the major integral in the total cost of cultivation during 2022-23 crop season, accounting for 29.7, 18.8 and 16.1 per cent. The other components of the cost of cultivation are: Land preparation (11.2%), Seed and sowing operations (9.8%), Others costs (6.5%). and Irrigation and WCC (5.5%).

4.6 Comparative Economics of Wheat and Competing Crops

44. 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.

45. Wheat is grown under both the irrigated and rain-fed conditions throughout the country. Around 87 percent 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, non-basmati + wheat, cotton + wheat, cotton + sunflower and non-basmati + sunflower.

46. The economics of wheat and competing crops has been analyzed in terms of output and input prices received and paid by the growers during 2022-23 at farm level.

4.6.1 Performance of Wheat – Punjab

47. 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 Table-14.

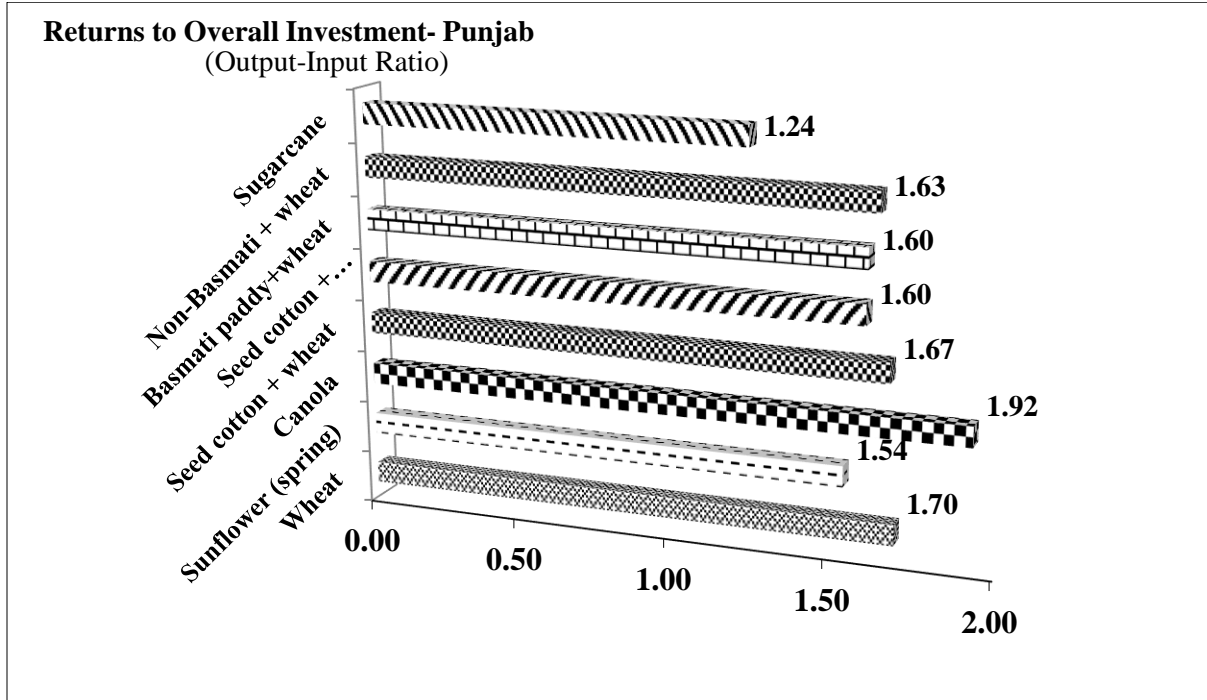
Table-14: Economics of Wheat and Competing crops at Prices realized by the growers in the Punjab: 2022-23 Crop

Province / crops /crop combination	Output-input ratio	Revenue per:		
		Rupee of purchased inputs cost	Crop day	Acre-inch of water used
	Rupees.....		
Wheat	1.70	4.7	854	10,675
Sunflower (spring)	1.54	3.8	1,176	6,414
Canola	1.93	6.5	695	9,624
Seed Cotton + wheat	1.67	4.4	808	8,555
Seed Cotton+ sunflower	1.60	4.0	779	6,906
Basmati Paddy + wheat	1.60	3.5	766	3,610
Non-basmati Paddy + wheat	1.63	3.8	764	3,407
Sugarcane	1.24	3.1	540	4,433

Source: Worked out from Annex-XII

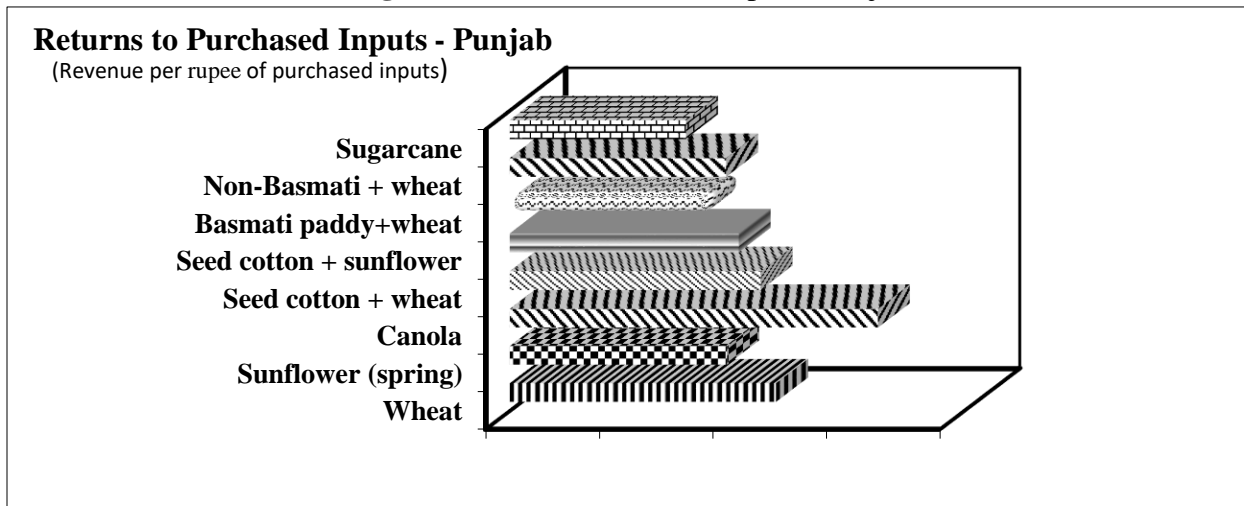
48. Wheat crop, in terms of direct competition with rabi oilseed crops has shown a mix performance. In terms of returns to overall investment, wheat was better option than sunflower but lagged behind canola. In terms of purchased input, cost on identical picture is depicted. However, wheat has outperformed both sunflower and Canola in terms of irrigation water, considerably.

Fig - 8: Returns to Overall Investment in Punjab



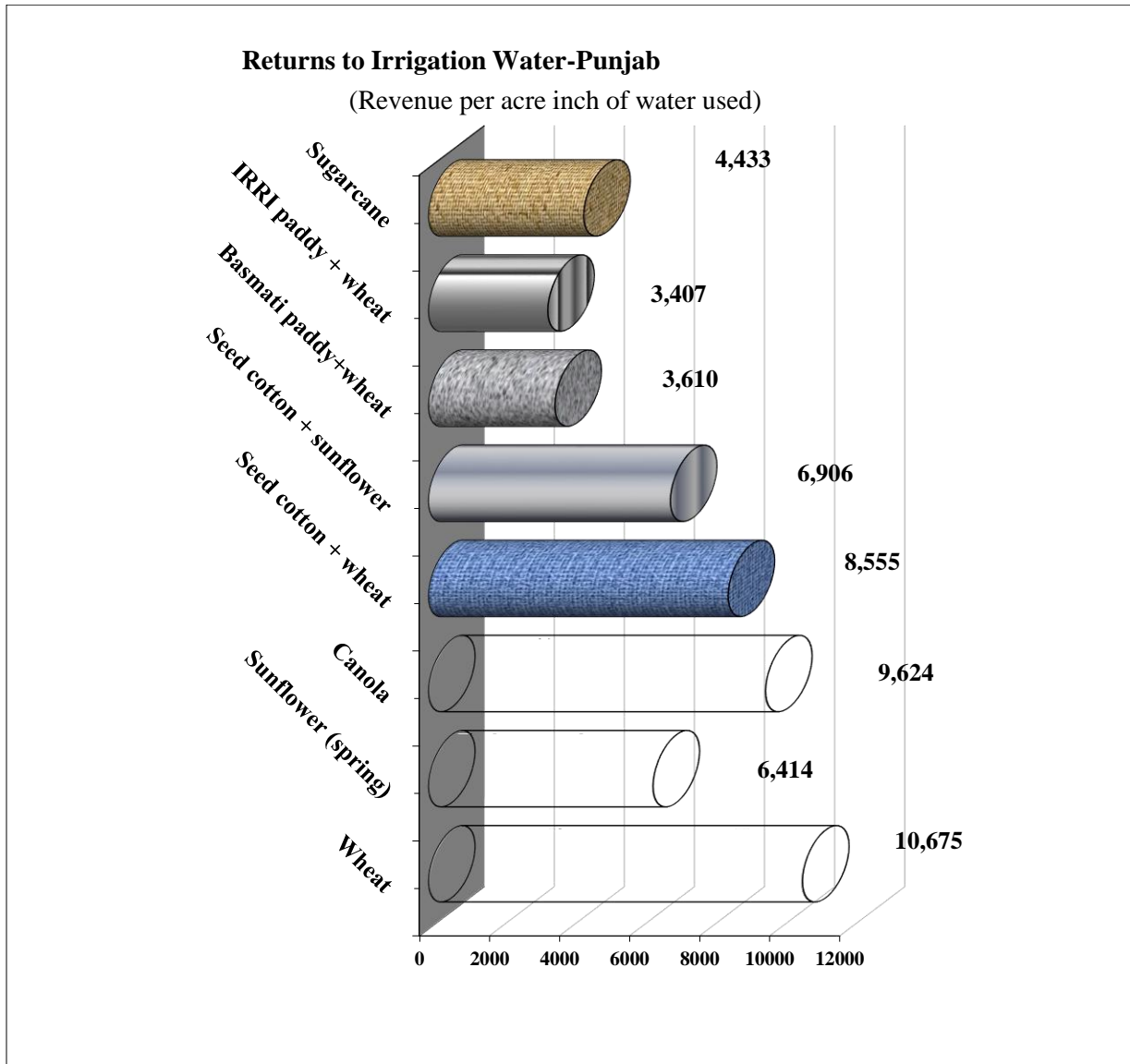
49. Wheat crop has out-competed sunflower in terms of all the criteria except crop duration.

Fig - 9: Returns to Purchase Input – Punjab



50. Under the indirect competition scenario, wheat combination with Cotton performed higher against sugarcane in terms of all the economic criteria adopted in this analysis. The sugarcane, on the other hand, could not perform well as compared to combinations of wheat and rice in terms of entire economic criteria except irrigation water.

Fig-10: Returns to Irrigation Water (Punjab)



51. Wheat's position viz a viz oilseed crops, both under the direct and indirect competition, is much higher in large part of the economic criteria analyzed. The major factor is the better prices received by the wheat during 2022-23 crop season.

4.6.2 Performance of Wheat - Sindh

52. Economics of wheat and competing crops has been analyzed at prices realized by the growers in Sindh for crop season 2022-23 against various economic indicators including the output-input ratio and revenue per rupee of purchased inputs cost, day of crop duration and acre-inch of irrigation water. The findings of the analysis are presented below:

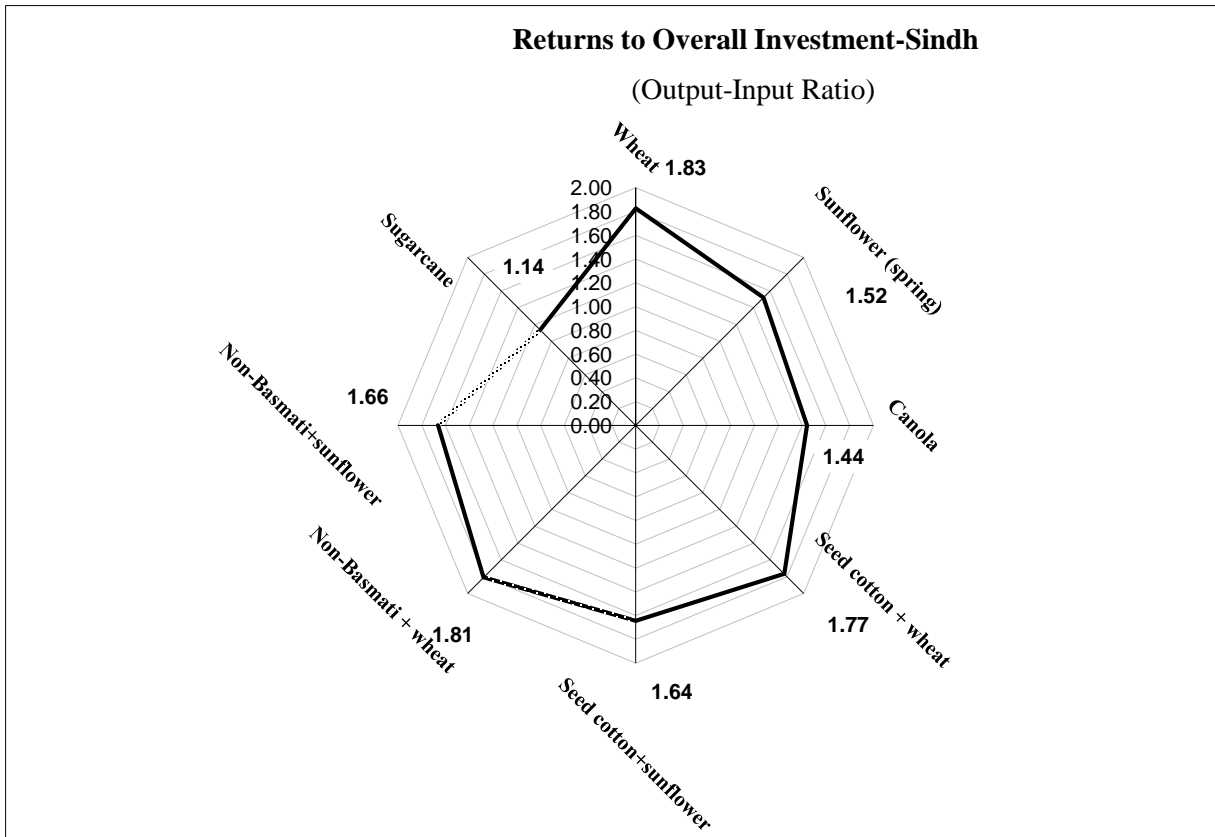
53. In Sindh, the returns from wheat crop remained relatively higher than ‘rabi’ oilseed crops Sunflower and Canola in the entire criteria analyzed during 2022-23. However, Canola performed much better than sunflower in terms of purchased inputs irrigation water.

Table-15: Economics of Wheat and Competing crops at Prices realized by the growers in Sindh: 2022-23 Crop

Province / crops / crop combination	Output-input ratio	Revenue per:		
		Rupee of purchased inputs cost	Crop day	Acre-inch of water used
	Rupees.....		
Wheat	1.83	4.9	946	11,825
Sunflower (spring)	1.52	3.5	881	4,807
Canola	1.44	4.9	502	6,944
Seed Cotton + wheat	1.77	4.9	893	10,714
Seed Cotton + sunflower	1.64	4.3	731	7,132
Non-Basmati Paddy + wheat	1.81	4.7	776	4,108
Non-Basmati Paddy + Sunflower	1.66	4.0	676	3,118
Sugarcane	1.14	2.9	393	2,701

Source: Worked out from Annex-XIII.

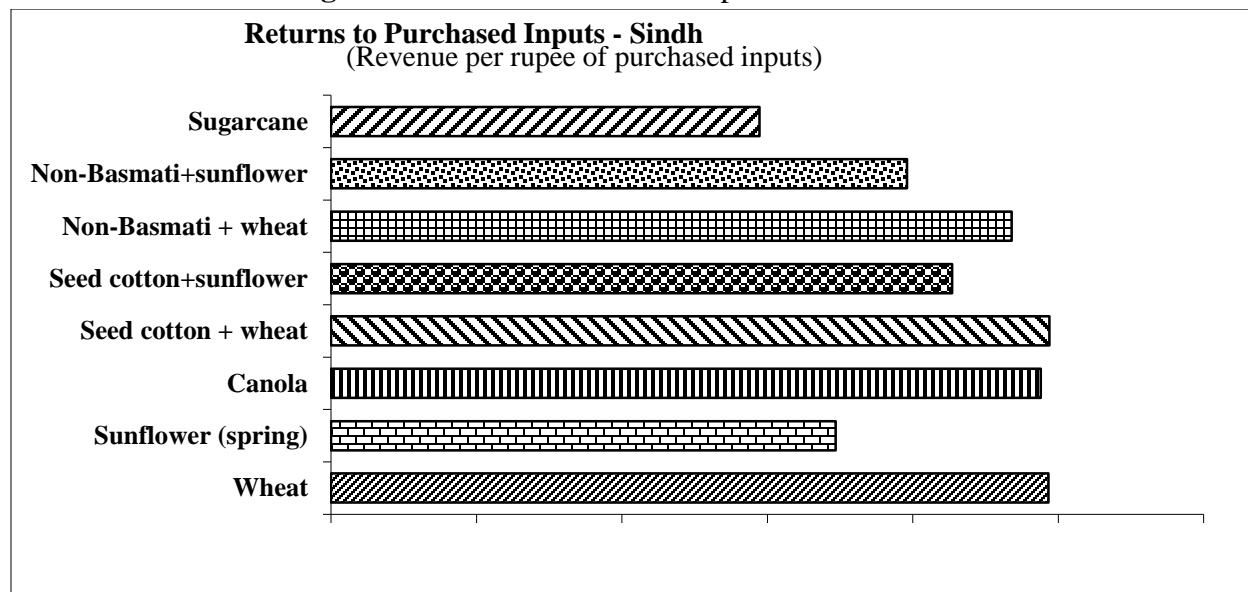
Fig - 11: Returns to Overall Investment in Sindh



54. In case of indirect competition, a mixed situation is being observed across the crop combinations. Certain crops performed better in various indicators but remaining behind in others.

55. Wheat combination with cotton out-performed sugarcane in terms of returns to overall investment, purchased inputs cost, crop duration and irrigation water used. Wheat Rice combination also performed better than sugarcane in terms of crop duration and irrigation water.

Fig - 12: Returns to Purchased Inputs – Sindh



56. In summary, wheat’s performance against competing crops is presenting a positive scenario, particularly gaining edge over oil-seed crops in terms of all the criteria. Similarly, wheat combinations with cotton and rice also performed better than sugarcane comparatively. Oilseeds have also performed better, mainly for better prices fetched during 2022-23 crop season.

57. This situation indicates that growers are getting good price for their produce. Although wheat support price was enhanced considerably by the Government (Rs. 3,900/40 kgs) in Punjab and (Rs. 4,000/40 kgs) in Sindh, however, an increased price of oilseeds was also reported which helped them performing better in some of the factors. Government’s emphasis on crop diversification, besides ensuring food security in the country and to shift gradually to other high value crops including oilseed is appropriate to ensure improved economic conditions of the farming community, without compromising on food security crop.

4.7 Nominal and Real Prices of Wheat

58. 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 2015-16 to 2022-23 have been deflated by the corresponding Consumer Price Index (CPI), the most common measure of inflation in the economy.

4.7.1 Support Prices of Wheat

59. The analysis in terms of nominal and real support prices for the period 2015-16 to 2022-23 is presented in the Table-16.

60. The nominal support price of wheat was Rs. 1,300 per 40 kgs in 2015-16. A stagnant price of wheat in nominal terms i.e. Rs. 1,300 was maintained for the period of next three years. Afterward, the nominal support price has evidenced an increasing trend during the last four years at Rs. 1,400, Rs. 1,800, Rs. 2,200 and Rs. 3,900 per 40 kgs thus giving a Cumulative push of 200% over the base year 2015-16. Higher trend in CPI pushed back the real worth of crop which is illustrated by the declining trend in the real price in a row (Fig-13). The support price increased 77.27 per cent gave the farmer price of commodity worth 54.5% higher in real terms over the last year.

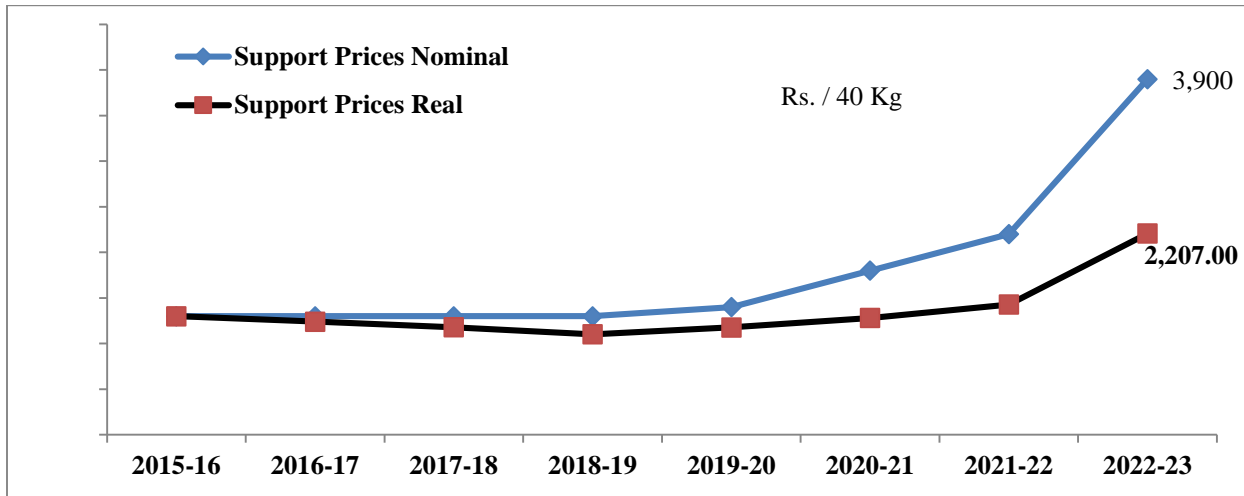
Table-16: Nominal and Real Support Prices of Wheat: 2015-16 to 2022-23

Year	Consumer Price Index (CPI)	Support Prices	
		Nominal	Real
	2015-16=100	Rs/40 Kgs	
1	2	3	4=(3/2)x100
2015-16	100.00	1,300	1,300.0
2016-17	104.81	1,300	1,240.3
2017-18	110.18	1,300	1,179.9
2018-19	117.99	1,300	1,101.8
2019-20	129.99	1,400	1,077.0
2020-21	140.58	1,800	1,280.4
2021-22	154.02	2,200	1,428.4
2022-23	176.71	3,900	2,207.0

Source: Economic Survey of Pakistan: 2022-23

61. It is illustrated in Fig-13 that real worth of the wheat crop is on continuous decline during 2015-16 to 2020-21, after that consecutive two years prices increase than the base year 2015-16. Real support prices has experienced ups and down during the period under review touching the lowest level of Rs.1,102 in 2018-19 and highest of Rs.2,207/40 kg in 2022-23 crop shows an improvement of 70% over the base price in 2015-16.

Fig-13: Nominal and Real Support Price of Wheat.



4.7.2 Market Prices of Wheat

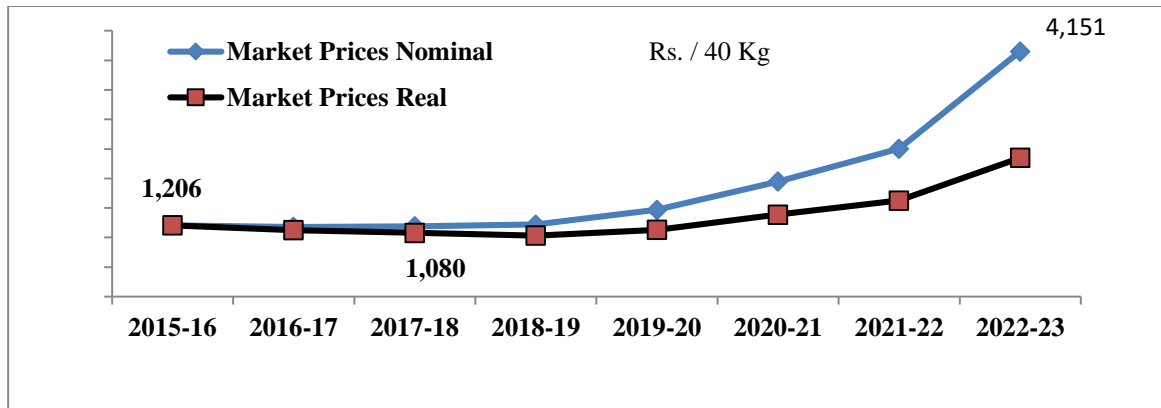
62. The analysis in terms of real and nominal average market prices for the period 2015-16 to 2022-23 is set out in Table-17.

Table-17: Nominal and Real Market Prices of Wheat: 2015-16 to 2022-23

Crop year	Consumer Price Index (CPI)	Market Prices	
		Nominal	Real
	2015-16=100	Rs/ per 40 Kgs	
1	2	3	4=(3/2)x100
2015-16	100.00	1,206	1,206.00
2016-17	104.81	1,180	1,125.85
2017-18	110.18	1,190	1,080.05
2018-19	117.99	1,220	1,033.99
2019-20	129.99	1,468	1,129.32
2020-21	140.58	1,950	1,387.11
2021-22	154.02	2,504	1,625.76
2022-23	176.71	4,151	2,349.04

- Sources:** i) For CPI, Economic Survey of Pakistan: 2022-23. 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) (weighted average).

Fig.14: Nominal and Real Market Prices of Wheat



63. 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 last four years. Also, the nominal market price remained lower than base year during 2016-18, which took an upward trend afterwards and in 2022-23 nominal market price is 4,151/40kg which is higher than the nominal Support price. In 2022-23, the real value of wheat of increased at Rs. 2,349 per 40 kgs. The average nominal market price of wheat has evidenced 244% increase against the base year during the period under review. On the other hand, the real value has increased by 94.77% mainly for the rise in CPI by 76.71% during this period.

64. The real market value of wheat remained below the nominal value during the entire period under study. As depicted in Fig-14, 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 most valued food security commodity of the economy.

4.8 Economic Efficiency in Wheat Production

65. 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.

66. 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)

67. 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.

Table -18: Nominal and Effective Protection Coefficients for Wheat under Import Scenario

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2018-19	0.85	0.78	0.85	0.83
2019-20	0.71	0.62	0.75	0.77
2020-21	0.72	0.63	0.78	0.79
2021-22	0.50	0.41	0.55	0.49
2022-23	0.79	0.72	0.88	0.88

68. Nominal Protection Coefficients (NPCs) 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 during 2018-19 to 2022-23 ranging 0.50 to 0.85. Its main reason is that international price of wheat remained higher during 2018-19 to 2022-23.

69. Similarly, NPC numeric for Sindh province also remained less than one in 2018-19 to 2022-23. It ranged from 0.55 to 0.78. The main reason is that the international price of wheat remained elevated during 2018-19 to 2022-23.

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

Year	NPC	EPC	NPC	EPC
	Punjab		Sindh	
2018-19	1.35	1.46	1.36	2.03
2019-20	1.15	1.15	1.16	1.63
2020-21	1.19	1.19	1.19	1.57
2021-22	0.80	0.71	0.80	0.79
2022-23	0.96	0.89	0.97	1.00

4.8.2 Effective Protection Coefficient (EPC)

70. Dissimilar to 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 distinction 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 latter case the producers are indirectly taxed which depresses domestic production.

71. Table-20 and Table-21 present EPC estimates for wheat. Under the import scenario, EPC coefficients is same situation of the NPC remained less than one for Punjab (which may be due to relatively less increase in input prices as compared with the price of wheat).

72. It is observable from the data in the referred tables that NPC and EPC estimate increased during 2017-18. Its main reason was the decline in the international price of wheat during 2017-18. The international market price of wheat in 2017-18 was US\$ 229/ tonne. 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 change accordingly.

4.8.3 Domestic Resource Cost Coefficient (DRC)

73. 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 a 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 the opportunity cost of non-tradable inputs as well as the social value of output. Based on cost of production of an 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 Annex- XII- XIII.

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

Year	Under the import situation		Under the export situation	
	Punjab [2]	Sindh [3]	Punjab [4]	Sindh [5]
[1]				
2017-18	0.73	0.77	1.38	1.88
2018-19	0.57	0.66	1.05	1.41
2019-20	0.45	0.60	0.84	1.20
2020-21	0.24	0.32	0.42	0.52
2021-22	0.27	0.34	0.48	0.56

74. It is noticeable from data in the Table-20 that under import scenario, Domestic Resource Cost Coefficients (DRCs) are substantially less than one which indicates 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. Therefore, it would be an economic suggestion to invest in wheat production at home rather import.

75. 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

76. The price policy for wheat is being adopted by various countries in varying degrees. Australian Wheat Board deals in part of the produce through Pool Pricing without any state intervention. The data on the minimum guaranteed producer prices of wheat for 2020-21 to 2022-23 crop in main producing countries are given in Table-21 below:

77. The producer prices of wheat in Pakistan is higher than support price of wheat as compared to other countries in Analysis . In Pakistan, the Minimum Support Price has increased by 77 percent over 2021-22, China and Australia is showing a continuous increase in MSP of wheat in both currencies' terms. In India, the crop insurance pricing has increased which is higher to USA and Brazil. Procurement price in Brazil remained lower then MSP in Pakistan during 2022-23.

Table-21: Support Price of Wheat in Selected Countries

Country	Unit	2020-21	2021-22	2022-23
Australia	AUD/t	1,751	2,893	3,219
China	CNY/t	2,973	2,999	3,280
India	INR/t	2,140	2,240	2,584
USA	US\$/bu	1,705	2,576	2,486
Brazil	BRL/60kg	1,289	2,129	2,542
Pakistan	PKR/40kg	1,800	2,200	3,900

Notes:

[1] <https://http://image.info.cargill.com/lib/>

[2] <https://www.fas.usda.gov/data/china->

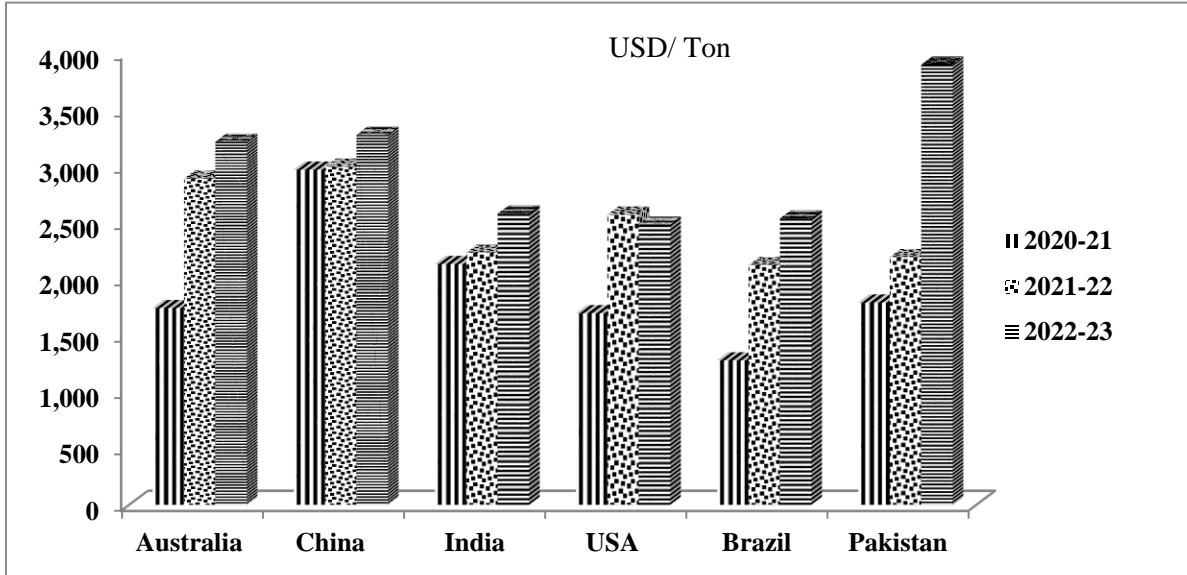
[3] Ministry of Agriculture & Farmers Welfare, Government of India.

[4] <https://www.ag360insurance.com/crop-insurance-pricing/>

[5] <https://www.cepea.org.br>

a) Exchange Rate: \$ 1 = PKR 248.00, 2022-23. AUD/t: 482.00, CNY/t:2300, INR/t: 21.25, US\$/bu :8.83, BRL/60kg:79.17.

Fig-15: Support/ Procurement Price of Wheat in Selected Countries



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

78. 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-XVI, 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

79. The Pakistan Bureau of Statistics (PBS) has estimated changes in CPI as a result of increase in support price of wheat and wheat flour over the existing level of Rs. 3,900 per 40 kgs in 2022-23. 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-23.

80. It is evident from the Table-24 that increase of Rs 500 per 40 kgs over the existing support price of wheat is expected to raise the CPI by 0.68 per cent, other things remaining the constant. In case the support price of wheat is enhanced by Rs. 1000, Rs.1500 and Rs. 2,000 per 40 kgs, the CPI is likely to rise by 2.04, 3.40 and 4.76 percent, respectively.

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

Support price	CPI(Urban)w.r.t corresponding MoM(%)	CPI(Urban)w.r.t corresponding year(%)	Difference in increase in CPI	Increase in annual expenses on the basis of average per capita wheat availability @ 113.15kgs per year**	
				per person	
(Rs per 40 kg)	(Per cent)			----- Rupees -----	
*3900	0.11	27.35	-	-	-
4,400	0.64	28.03	0.68	1,414	8,911
4,900	1.18	28.71	1.36	2,829	17,821
5,400	1.71	29.39	2.04	4,243	26,732
5,900	2.25	30.07	2.72	5,658	35,732
6,400	2.78	30.75	3.40	7,072	44,553
6,900	3.32	31.43	4.08	8,486	53,463
7,400	3.85	32.11	4.76	9,901	62,374

Sources: 1. Pakistan Bureau of Statistics (PBS), Islamabad.
2. Annex-XIV

*Existing Support price for 2022-23 wheat crop.

**HH Size 6.30 as in Population Census 2023.

@ As Recommended by M/o NFS&R

Note: Impact of wheat price has been calculated by assuming incremental charges of Rs.500/- per 40 kg of September 2023

81. According to the above analysis, increase of Rs.500 in the support price of wheat over the existing level of Rs. 3,900 per 40 kgs in 2022-23 would increase the annual expenditure by Rs. 1,414 per person and Rs. 8,911 per average household, other factors remaining constant. While the monthly expenses on wheat consumption due to increase of Rs.500 per 40 kgs in the support price of wheat would rise by Rs. 117.75 per person and Rs. 741.82 per household. Likewise, the increase of Rs. 3,500 per 40 kgs over the existing support price would bring additional expenditure of Rs. 9,901 per capita per year and Rs 62,374 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

82. Annual meeting of the API Committee on wheat was held on 4th September 2023. The meeting was presided by Mr. Khalid Gardazi, Additional Secretary-I, Ministry of National Food Security & Research, Islamabad and 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.

6. PARITY BETWEEN PRICES OF FERTILIZERS AND WHEAT

83. 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 favorable 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).

84. In order to study the overtime changes in the purchasing power of wheat in terms of nitrogen and phosphatic fertilizers, the parity ratios between fertilizer nutrients and wheat have been calculated for the period of 2013-14 to 2022-23.

85. 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 1.35 and 2.77 tonnes during the period under consideration. Similarly, the parity ratios between prices of wheat and those of phosphatic fertilizer have fluctuated from 1.16 to 4.98 units. The ratio dipped to the lowest level of 1.35 in 2021-22. However, the parity ratio jumped to the highest level of 2.77 in 2014-15, a rise of 51 per cent. It implies that the purchasing power of wheat for N fertilizer deteriorated by 51 per cent. However, due to the appreciated market prices of wheat, the position gradually improved in the following five years as compared with the previous year and 1.59 units of wheat were required to buy one unit of N fertilizer during 2022-23.

Table-23: Parity between Market Prices of Fertilizers and Wheat: 2013-14 to 2022-23.

Year	Price of fertilizer		Market price of wheat	Unites of wheat needed to buy one unit of fertilizer	
	N	P		N	P
	----- Rs per tonne -----				
2013-14	78,700	137,330	31,250	2.52	4.39
2014-15	82,043	147,104	29,525	2.77	4.98
2015-16	59,565	97,916	30,162	1.97	3.24
2016-17	59,780	78,780	29,900	2.00	2.63
2017-18	69,560	109,735	59,475	1.84	1.16
2018-19	80,430	93,574	33,295	2.41	2.81
2019-20	83,430	125,048	36,700	2.27	3.40
2020-21	80,780	124,173	47,600	1.69	2.60
2021-22	84,810	276,640	62,675	1.35	4.41
2022-23	165,210	446,913	103,775	1.59	4.30

Sources: i) Directorate 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.

86. The parity ratio for P-wheat prices generally hovered around 4.39 upto 2013-14. In 2014-15, the parity ratio peaked at 4.98 owing to record high prices of P-fertilizer. In the current year 2022-23, prices of P fertilizer and wheat moved in the opposite direction, which again improved the purchasing power of wheat in terms of Phosphatic fertilizer.

7. MAJOR WHEAT VARIETIES AND THEIR YIELD POTENTIAL

87. Seed plays key role in increasing food and fiber production to meet the increasing demands of the people, and is a focus around which strategies to boost crop yields can be built. It is a vital input in crop production. The role of seed in providing sustainable crop production is mainly through new varieties. Seed is the cheapest input in crop production process. Crop status largely depends on the seed materials used for sowing. 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 areas under quality seed production. In this regard, different wheat varieties have been evolved by the wheat research institutions at country level. The list of these varieties describing year of release and yield potential is given at Annex- XVI.

88. The yield potential of major varieties range between 60 to 75 mond per acre. The yield potential varieties of Arooz 2022, Subhani 2021, MH 2021, Dilkash 2020, Akbar 2019 have been

introduced by Wheat Research Institute, Faisalabad. The yield potential varieties of Barani-17, Fateh Jang 16, Ehasn 16 have been introduced by Barani Agriculture Research Institute, Chakwal. The yield potential varieties of Champion 2023, Nishan 2021, Bhakkar Star 2019, Fakhar-e-Bhakkar 2018 have been introduced by Arid Zone Research Institute, Bhakkar. As these varieties are adopted for vast cultivation in their specified areas with recommended production technology and timely supply of inputs and application, the overall yield per hectare would certainly improve at the country level and resultantly production will boost further.

8. WHEAT YIELD AMONG COMPETING COUNTRIES

89. Wheat, the most popular cereal crop of world covers the acreage that no other cereal crop can ever get. Global wheat 123 country occupied an area of around 220.76 million hectares during 2021 crop with a total production of 770.88 million tonnes. The world top 29 producing countries contribute 92.72 per cent of total area and 92.67 per cent of total production as narrated in the following Table-24.

Table-24: Wheat Area in Major Wheat Producing Countries of the World: 2021 Crop

S.No.	Country	Area (million hectare)	% share in world area
1	India	31.61	14.32
2	Russian Federation	27.92	12.65
3	China, mainland	23.57	10.68
4	United States of America	15.04	6.81
5	Kazakhstan	12.72	5.76
6	Australia	12.64	5.73
7	Canada	9.25	4.19
8	Pakistan	9.17	4.15
9	Ukraine	7.10	3.22
10	Turkey	6.62	3.00
11	Iran (Islamic Republic of)	6.47	2.93
12	Argentina	6.39	2.90
13	France	5.28	2.39
14	Germany	2.94	1.33
15	Morocco	2.86	1.30
16	Brazil	2.75	1.25
17	Poland	2.39	1.08
18	Romania	2.18	0.99
19	Spain	2.13	0.96
20	Ethiopia	1.95	0.88
21	Afghanistan	1.83	0.83
22	United Kingdom	1.79	0.81
23	Italy	1.73	0.78
24	Iraq	1.59	0.72
25	Syrian Arab Republic	1.57	0.71
26	Egypt	1.39	0.63
27	Uzbekistan	1.37	0.62
28	Syrian Arab Republic	1.24	0.56
29	Bulgaria	1.21	0.55
Total of 29 Country Area		204.70	92.72
Total of 123 Country World Area		220.76	100.00

Source: FAO Production Year Book 2021

90. In terms of wheat area India is on the top with 31.61 million hectares followed by Russian Federation with 27.92 million hectares, China, mainland with 23.57 million hectares, USA with 15.04 and Pakistan 9.2 million hectares lies at 8th number in this regard with 4 per cent global share.

91. In terms of wheat production, China, mainland with 136.95 million tonnes is on the top followed by India with 109.59, Russian Federation 76.06 million tonnes and USA with 44.79 million tonnes. However, Pakistan 27.46 million tonnes stands at 8th in wheat production of the world (Table- 25).

**Table-25: Wheat Production in Major Wheat Producing Countries of the World:
2021 Crop.**

S.No.	Country	Production (million tons)	% share in world Production
1	China, mainland	136.95	17.76
2	India	109.59	14.22
3	Russian Federation	76.06	9.87
4	United States of America	44.79	5.81
5	France	36.56	4.74
6	Ukraine	32.18	4.17
7	Australia	31.92	4.14
8	Pakistan	27.46	3.56
9	Canada	22.30	2.89
10	Germany	21.46	2.78
11	Turkey	17.65	2.29
12	Argentina	17.64	2.29
13	United Kingdom	13.99	1.81
14	Poland	11.89	1.54
15	Kazakhstan	11.81	1.53
16	Romania	10.43	1.35
17	Iran (Islamic Republic of)	10.09	1.31
18	Egypt	9.00	1.17
19	Spain	8.56	1.11
20	Brazil	7.87	1.02
21	Morocco	7.54	0.98
22	Bulgaria	7.34	0.95
23	Italy	7.29	0.95
24	Uzbekistan	5.98	0.78
25	Hungary	5.29	0.69
26	Ethiopia	5.21	0.68
27	Czechia	4.96	0.64
28	Lithuania	4.25	0.55
29	Iraq	4.23	0.55
30	Morocco	4.03	0.52
Total of 30 Country Production		714.36	92.67
Total World Production		770.88	100.00

Source: FAO Production Year Book 2021

92. In terms of yield per hectare, Ireland with 10076.69 kgs, New Zealand 9,712.22 kgs, Netherlands 8,018.03 kgs, United Kingdom 7,814.53, Belgium 7,788.41 per hectare followed by Denmark 7,526.67 kgs per hectare. It is an alarming situation that Pakistan ranks at **56th** in terms of yield at 2,995.56 kgs per hectare while India lies at **46th position** with 3,466.94 kgs per hectare. However, the world average yield of wheat is 3,491.9 kgs per hectare (Annex-XV).

9. PRODUCTION, PROCUREMENT, MARKET AND SUPPORT PRICES OF WHEAT

93. During 2016-17 to 2022-23, wheat production has ranged between 25.19 to 28.18 million tons. Procurement has been in the range of 4.03 to 6.59 million tons. The wheat procurement by the public sector has varied from 16.00 to 25.88 per cent of the respective production. The Federal Government announced support price of wheat annually which is acceptable for Provinces. However, during 2022-23 crop Sindh has differed with the Federal Government's support price of wheat Rs 3,900/ 40kgs and announced Rs. 4,000/ 40 kgs for Sindh. The average market prices during 2022-23 was higher than support prices in Punjab.

Table-26: Production, Procurement, Market and Support Prices of Wheat: 2016-17 to 2022-23

Crop year (May-April)	Production	Procurement	Procurement as percent of production	Support price	Average market price (May-July)**
	-----Million tons-----		Per cent	----Rupees per 40 kgs----	
2016-17	26.61	6.51	24.46	1,300	1,196
2017-18	25.51	6.10	23.91	1,300	1,186
2018-19	25.19	4.03	16.00	1,300	1,221
2019-20	25.46	6.59	25.88	1,400	1,469
2020-21	27.29	5.83	21.36	1,800	1,858
2021-22	26.39	6.33	23.99	2,200	2,464
2022-23	28.18	5.88	20.87	3,900/ 4,000*	4,135

Notes:

*Federal and Punjab Government announced Rs. 3,900 and Sindh Government announced Rs. 4,000/- support price of wheat for 2022-23 crop.

**Average of Punjab

Source: Pakistan Agricultural Storage and Services Corporation (PASSCO) and Provincial Food Departments.

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| 11. Mr . Muhammad Naeem | Machine Operator |

AREA, YIELD AND PRODUCTION OF WHEAT : 2012-13 TO 2022-23

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA ----- Thousand hectares -----					
2012-13	6,511.3	1,058.4	727.3	363.2	8,660.2
2013-14	6,901.4	1,121.6	776.8	399.5	9,199.3
2014-15	6,979.5	1,106.9	732.5	385.0	9,203.9
2015-16	6,913.9	1,154.5	772.3	382.9	9,223.6
2016-17	6,660.2	1,169.5	748.6	394.1	8,972.4
2017-18	6,559.8	1,089.6	753.4	394.5	8,797.3
2018-19	6,495.9	1,052.7	739.6	389.6	8,677.8
2019-20	6,515.3	1,134.2	727.3	427.9	8,804.7
2020-21	6,746.0	1,202.5	761.8	458.0	9,168.3
2021-22	6,559.8	1,181.7	760.6	474.7	8,976.8
2022-23	6,480.5	1,238.2	778.1	543.7	9,040.5
YIELD ----- kgs per hectare -----					
2012-13	2,855	3,400	1,714	2,115	2,794
2013-14	2,860	3,568	1,755	2,191	2,824
2014-15	2,763	3,318	1,720	2,265	2,726
2015-16	2,824	3,321	1,813	2,276	2,779
2016-17	3,073	3,344	1,824	2,364	2,973
2017-18	2,924	3,340	1,756	2,371	2,850
2018-19	2,829	3,590	1,795	2,221	2,806
2019-20	2,978	3,393	1,554	2,027	2,868
2020-21	3,098	3,362	1,787	2,531	2,996
2021-22	3,054	3,010	1,792	2,648	2,920
2022-23	3,275	3,182	1,920	2,789	3,117
PRODUCTION ----- Thousand tonnes -----					
2012-13	18,587.0	3,598.7	1,246.7	768.0	24,200.4
2013-14	19,738.9	4,002.1	1,363.1	875.3	25,979.4
2014-15	19,281.9	3,672.2	1,259.9	872.0	25,086.0
2015-16	19,526.7	3,834.6	1,400.4	871.3	25,633.0
2016-17	20,466.4	3,910.4	1,365.1	931.8	26,673.7
2017-18	19,178.6	3,639.5	1,322.7	935.4	25,076.2
2018-19	18,377.2	3,778.9	1,327.6	865.3	24,349.0
2019-20	19,401.9	3,848.1	1,130.3	867.2	25,247.5
2020-21	20,900.0	4,043.2	1,361.6	1,159.3	27,464.1
2021-22	20,032.0	3,556.7	1,362.8	1,257.1	26,208.6
2022-23	21,225.0	3,940.2	1,494.1	1,516.2	28,175.5

Sources:

1. For 2012-13 to 2020-21: Wheat Policy Analysis For 2021-22 Crop
2. For 2021-22: Respective Agriculture Provincial Departments.
3. For 2022-23: Respective M/o NFS&R, Islamabad.

AREA, YIELD AND PRODUCTION OF WHEAT : 2012-13 TO 2022-23

Year	Punjab	Sindh	KPK	Balochistan	Pakistan
AREA ----- Thousand acres -----					
2012-13	16,090.1	2,615.4	1,797.1	897.5	21,400.1
2013-14	17,054.0	2,771.6	1,919.6	987.2	22,732.4
2014-15	17,247.0	2,735.3	1,810.1	951.4	22,743.8
2015-16	17,084.9	2,852.9	1,908.4	946.2	22,792.4
2016-17	16,458.0	2,890.0	1,849.9	973.9	22,171.7
2017-18	16,209.9	2,692.5	1,861.7	974.8	21,739.0
2018-19	16,052.0	2,601.3	1,827.6	962.7	21,443.7
2019-20	16,100.0	2,802.7	1,797.2	1,057.4	21,757.3
2020-21	16,670.0	2,971.5	1,882.5	1,131.8	22,655.8
2021-22	16,209.9	2,920.1	1,879.5	1,173.0	22,182.6
2022-23	16,014.0	3,059.7	1,922.8	1,343.5	22,340.0
YIELD ----- kgs per acre -----					
2012-13	1,155	1,376	694	856	1,131
2013-14	1,157	1,444	710	887	1,143
2014-15	1,118	1,343	696	917	1,103
2015-16	1,143	1,344	734	921	1,125
2016-17	1,244	1,353	738	957	1,203
2017-18	1,183	1,352	710	960	1,154
2018-19	1,145	1,453	726	899	1,135
2019-20	1,205	1,373	629	820	1,160
2020-21	1,254	1,361	723	1,024	1,212
2021-22	1,236	1,218	725	1,072	1,181
2022-23	1,325	1,288	777	1,129	1,261
PRODUCTION ----- Thousand tonnes -----					
2012-13	18,587.0	3,598.7	1,246.7	768.0	24,200.4
2013-14	19,738.9	4,002.1	1,363.1	875.3	25,979.4
2014-15	19,281.9	3,672.2	1,259.9	872.0	25,086.0
2015-16	19,526.7	3,834.6	1,400.4	871.3	25,633.0
2016-17	20,466.4	3,910.4	1,365.1	931.8	26,673.7
2017-18	19,178.6	3,639.5	1,322.7	935.4	25,076.2
2018-19	18,377.2	3,778.9	1,327.6	865.3	24,349.0
2019-20	19,401.9	3,848.1	1,130.3	867.2	25,247.5
2020-21	20,900.0	4,043.2	1,361.6	1,159.3	27,464.1
2021-22	20,032.0	3,556.7	1,362.8	1,257.1	26,208.6
2022-23	21,225.0	3,940.2	1,494.1	1,516.2	28,175.5

Source:

1. For 2012-13 to 2020-21: Wheat Policy Analysis For 2021-22 Crop
2. For 2021-22: Respective Agriculture Provincial Departments.
3. For 2022-23: Respective M/o NFS&R, Islamabad.

Annex-II

AREA, YIELD AND PRODUCTION OF WHEAT BY PROVINCE AND BY IRRIGATION: 2020-21 TO 2022-23

Country/ Province	Area			Change over last year	Yield per hectare			Change over last year	Production			Change over last year
	2020-21	2021-22	2022-23		2020-21	2021-22	2022-23		2020-21	2021-22	2022-23	
	000 ha				Kgs				000 tonnes			
IRRIGATED												
PAKISTAN	7,975.6	7,875.1	7,891.3	0.21	3,216	3,116	3,331	6.90	25,651.7	24,536.6	26,283.1	7.12
PUNJAB	5,999.8	5,882.8	5,793.0	-1.53	3,282	3,210	3,446	7.35	19,694.0	18,886.0	19,965.0	5.71
SINDH	1,167.4	1,156.4	1,213.2	4.91	3,400	3,034	3,206	5.70	3,968.7	3,508.0	3,890.1	10.89
KPK	376.4	373.7	371.4	-0.62	2,280	2,407	2,547	5.79	858.1	899.6	945.8	5.14
BALUCHISTAN	432.0	462.2	513.7	11.14	2,618	2,689	2,885	7.29	1,130.9	1,243.0	1,482.2	19.24
UNIRRIGATED												
PAKISTAN	1,192.7	1,101.7	1,149.2	4.31	1,520	1,518	1,647	8.50	1,812.4	1,672.0	1,892.4	13.18
PUNJAB	746.2	677.0	687.5	1.55	1,616	1,693	1,833	8.27	1,206.0	1,146.0	1,260.0	9.95
SINDH	35.1	25.3	25.0	-1.19	2,123	1,925	2,004	4.11	74.5	48.7	50.1	2.87
KPK	385.4	386.9	406.7	5.12	1,306	1,197	1,348	12.61	503.5	463.2	548.3	18.37
BALUCHISTAN	26.0	12.5	30.0	140.00	1,092	1,128	1,133	0.47	28.4	14.1	34.0	141.13
TOTAL												
PAKISTAN	9,168.3	8,976.8	9,040.5	0.71	2,996	2,920	3,117	6.75	27,464.1	26,208.6	28,175.5	7.50
PUNJAB	6,746.0	6,559.8	6,480.5	-1.21	3,098	3,054	3,275	7.25	20,900.0	20,032.0	21,225.0	5.96
SINDH	1,202.5	1,181.7	1,238.2	4.78	3,362	3,010	3,182	5.73	4,043.2	3,556.7	3,940.2	10.78
KPK	761.8	760.6	778.1	2.30	1,787	1,792	1,920	7.17	1,361.6	1,362.8	1,494.1	9.63
BALUCHISTAN	458.0	474.7	543.7	14.54	2,531	2,648	2,789	5.30	1,159.3	1,257.1	1,516.2	20.61

Sources: Respective Agriculture Provincial Departments.

**DISTRICT- WISE AREA, YIELD AND PRODUCTION OF WHEAT
AVERAGE OF 2020-21 TO 2022-23**

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	425.04	1554.73	5.70	3657.81	1	D.I.Khan	60.09	133.52	0.49	2222.14
2	R.Y.Khan	287.72	1052.70	3.86	3658.69	2	Swat	57.79	116.10	0.43	2009.02
3	Bahawalpur	294.88	1042.88	3.82	3536.67	3	Mardan	43.22	99.73	0.37	2307.31
4	Jhang	263.99	882.66	3.24	3343.58	4	Charsadda	38.47	96.83	0.35	2517.38
5	Faisalabad	242.80	828.76	3.04	3413.28	5	Swabi	37.22	88.63	0.32	2381.58
6	Layyah	273.16	811.05	2.97	2969.15	6	Peshawar	35.36	80.66	0.30	2281.35
7	Khanewal	212.19	759.67	2.78	3580.24	7	Mansehra	44.39	71.28	0.26	1605.86
8	Muzaffargarh	244.70	759.59	2.78	3104.19	8	Nowshera	27.49	66.57	0.24	2421.40
9	D.G.Khan	230.67	751.74	2.76	3259.00	9	Bunir	48.30	64.29	0.24	1330.96
10	Sheikhupura	219.20	702.58	2.58	3205.21	10	Dir Lower	28.96	55.28	0.20	1908.90
11	Rajanpur	193.30	667.99	2.45	3455.70	11	Haripur	35.22	54.42	0.20	1545.16
12	Gujranwala	206.52	649.77	2.38	3146.25	12	Bajour AG.	37.35	46.52	0.17	1245.65
13	Vehari	178.06	633.13	2.32	3555.74	13	Kurram AG.	25.03	46.49	0.17	1857.49
14	Multan	172.26	617.37	2.26	3584.00	14	Dir Uper	25.05	45.02	0.17	1797.39
15	Hafizabad	172.39	613.09	2.25	3556.38	15	Kohat	23.45	36.91	0.14	1573.97
16	Lodhran	163.76	597.82	2.19	3650.59	16	Malakand	26.16	36.80	0.13	1406.64
17	Sargodha	201.12	597.47	2.19	2970.66	17	Shanlpar	25.09	35.66	0.13	1420.96
18	Mianwali	200.59	569.79	2.09	2840.64	18	Tank	14.69	31.92	0.12	2173.10
19	Okara	137.99	526.83	1.93	3817.75	19	Bannu	13.52	29.63	0.11	2191.63
20	Sialkot	182.10	506.13	1.86	2779.38	20	Abbottabad	14.20	21.40	0.08	1507.02
21	Bhakkar	177.25	490.94	1.80	2769.77	21	Khyber AG.	11.60	20.32	0.07	1750.73
22	T.T.Singh	140.56	487.85	1.79	3470.81	22	Lakki Marwat	18.06	19.87	0.07	1100.35
23	Nankana Sahib	128.15	456.51	1.67	3562.31	23	Chitral	8.34	15.62	0.06	1871.81
24	Kasur	131.38	439.60	1.61	3345.93	24	Battagram	7.98	12.55	0.05	1572.89
25	Sahiwal	116.15	410.78	1.51	3536.77	25	S.Waziristan	9.04	12.24	0.04	1353.89
26	M.B.Din	130.31	393.16	1.44	3017.19	26	Hangu	8.93	11.39	0.04	1275.17
27	Pakpattan	96.86	351.19	1.29	3625.94	27	Mohmand AG.	7.71	10.79	0.04	1399.57
28	Chiniot	99.15	347.04	1.27	3500.34	28	N.Waziristan	5.26	9.84	0.04	1869.30
29	Gujrat	156.07	342.40	1.26	2193.83	29	F.R.Kohat	4.87	6.93	0.03	1423.21
30	Attock	192.09	339.17	1.24	1765.69	30	F.R.Bannu	4.93	6.53	0.02	1324.28
31	Narowal	121.27	315.20	1.16	2599.19	31	Orakzai AG	4.30	6.45	0.02	1498.47
32	Rawalpindi	161.06	305.56	1.12	1897.11	32	F.R.Peshawar	2.70	5.23	0.02	1932.98
33	Khushab	130.17	289.11	1.06	2221.01	33	F.R.D.I.Khan	3.81	4.69	0.02	1231.15
34	Chakwal	153.23	261.82	0.96	1708.62	34	Karak	6.30	3.28	0.01	521.53
35	Jhelum	81.20	153.99	0.56	1896.33	35	Kohistan	1.95	2.96	0.01	1521.73
36	Lahore	43.84	148.28	0.54	3382.15						
37	Islamabad	34.26	60.54	0.22	1766.88						
Sub Total		6595.45	20718.90	75.94	3141.39	Sub Total		766.83	1406.36	5.15	1833.98
SINDH						BOLUCHISTAN					
1	N.Feroze	104.15	372.80	1.37	3579.58	1	Nasirabad	90.54	266.74	0.98	2946.13
2	Sh. Benazirabad	89.26	358.79	1.32	4019.65	2	Jaffarabad	81.07	236.38	0.87	2915.70
3	Khairpur	110.06	357.20	1.31	3245.36	3	Jhal Magsi	64.82	170.32	0.62	2627.43
4	Sanghar	115.79	342.93	1.26	2961.68	4	Khuzdar	51.25	131.18	0.48	2559.42
5	Ghotki	109.50	317.73	1.16	2901.62	5	Dera Bughti	24.85	60.57	0.22	2437.46
6	Dadu	80.91	267.97	0.98	3312.12	6	Lasbela	19.99	55.52	0.20	2777.83
7	Larkana	55.43	203.66	0.75	3674.12	7	Sibi	17.76	45.75	0.17	2575.72
8	Mirpurkhas	67.50	197.39	0.72	2924.20	8	Barkhan	16.00	42.57	0.16	2660.61
9	Matiari	43.94	188.71	0.69	4294.18	9	Awaran	16.67	39.14	0.14	2347.88
10	Shadadkot	63.49	183.48	0.67	2889.68	10	Kharan	12.11	28.10	0.10	2320.51
11	Sukkur	51.32	157.73	0.58	3073.59	11	Loralai	9.98	26.16	0.10	2622.51
12	Shikarpur	40.44	122.96	0.45	3040.82	12	Kachhi	9.27	25.77	0.09	2779.30
13	Tando Allahyar	33.32	119.21	0.44	3578.03	13	Kohlu	9.32	25.41	0.09	2727.26
14	Umerkot	42.94	112.56	0.41	2621.11	14	Killa Saifullah	8.66	22.41	0.08	2587.63
15	Jamshoro	40.27	110.63	0.41	2746.89	15	Noushki	8.37	20.45	0.07	2443.56
16	Kashmore	38.16	104.97	0.38	2750.83	16	Chaghi	7.72	15.01	0.06	1945.07
17	Jacobabad	31.69	84.45	0.31	2664.56	17	Panjgoor	5.99	12.45	0.05	2079.32
18	Badin	38.51	84.19	0.31	2186.52	18	Zhob	6.07	12.39	0.05	2040.93
19	Hyderabad	15.90	63.31	0.23	3982.78	19	Kalat	4.35	11.39	0.04	2616.24
20	Thatta	17.56	44.48	0.16	2532.67	20	Washuk	4.35	10.41	0.04	2394.70
21	Tando Muhammad	13.44	40.61	0.15	3021.73	21	Mastung	3.80	10.37	0.04	2724.55
22	Tharparkar	2.46	6.97	0.03	2830.04	22	Pishin	4.92	9.69	0.04	1970.30
23	Karachi	1.42	3.96	0.01	2784.36	23	Turbat	3.24	8.69	0.03	2682.11
						24	Quetta	2.82	7.00	0.03	2485.10
						25	Harnai	2.85	6.38	0.02	2240.44
						26	K.Abdullah	2.07	4.54	0.02	2191.96
						27	Musa Khel	1.62	2.84	0.01	1752.93
						28	Sherani	1.05	2.05	0.01	1944.63
						29	Ziarat	0.63	1.20	0.00	1890.60
Sub Total		1207.47	3846.69	14.10	3185.74	Sub Total		492.14	1310.87	4.80	2663.61
						Pak Total		9061.89	27282.83	100.00	3010.72

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

PER CAPITA AVAILABILITY CONSUMPTION OF WHEAT: 2020-21 to 2022-23

S.No	Items	Production	2019-20	2020-21	2021-22
		Consumption	2020-21	2021-22	2022-23
1	Total Population (a) (in Mln)		226.52	232.76	239.21
		000 tons.....		
2	Opening Stocks as on 01-05-2023		636	731	1,805
3	Production of Pakistan		25,228	27,464	26,390
4	Imports (b)*		3,612	2,207	2,678
5	Exports (Wheat and wheat Preparation)*		-	-	-
6	Closing stocks as on 30th April		731	1,805	1,610
7	Total Availability		28,871	28,734	29,068
8	Deduction of seed, feed, and wastage 10 per cent of Production		2,523	2,746	2,639
9	Availability for human consumption		26,348	25,988	26,429
		kgs/annum.....		
10	Per capita availability (Item 10 divided by item 1)		116.32	111.65	110.48
11	Average per capita availability during 2020-21 to 2022-23			112.82	

* Note: Import and Export are upto July-Apr 2022-23

Sources:

a. For Population of Pakistan:

Economic Survey, 2022-23

b. For Imports and Exports:

Pakistan Bureau of Statistics, Karachi.

**INTERNATIONAL PRICES OF US NO-2 HARD RED WINTER, SOFT RED WINTER
AND BLACK SEA: 2012- 13 TO 2022-23**

Year (July-June)	Month	HRW NO-2	SRW NO-2	Black Sea
		--US\$ per tonne--		
2012-13		347	310	–
2013-14		318	265	–
2014-15		266	221	–
2015-16		211	194	–
2016-17		197	170	–
2017-18		230	188	215
2018-19		232	210	210
2019-20		220	222	226
2020-21		269	264	288
2021-22		399	344	355
2022-23		383	334	261
2023-24				
	JULY	349	287	235
	AUGUST	316	240	246
	SEPTEMBER	315	244	246

Source: 1) For HRW, SRW: International Grains Council, London.
2) For Black Sea Prices:
<https://www.barchart.com/futures/quotes/KFF18/historical-prices?orderBy=contractExpirationDate&orderDir=asc>

Annex-VI

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

		2023-24 (Jul-Sept)		2022-23		2020-21 to 2022-23	
		HRW	SRW	HRW	SRW	HRW	SRW
		-----US \$ per tonne-----					
1	Average Fob(Gulf) price	360.00	257.00	389.00	306.00	353.00	304.00
2	Freight charges from Gulf port to Karachi	42.00	42.00	42.00	42.00	42.00	42.00
3	Average c&f (Karachi) price in US \$	402.00	299.00	431.00	348.00	395.00	346.00
4	Exchange rate	291.50	291.50	291.50	291.50	291.50	291.50
	OR	-----Rs per tonne-----					
5	Average c&f (Karachi) price in Pak Rupees	117183	87159	125637	101442	115143	100859
6	Marine insurance charges @0.2% of C & F cost	234	174	251	203	230	202
7	Lc opening charges @0.02% of c&f cost.	23	17	25	20	23	20
8	Stevedoring	1300	1300	1300	1300	1300	1300
9	Provision for unforeseen losses @ 0.5 of C&F cost	586	436	628	507	576	504
10	Survey, Lab Testing Charges, Weightment, wharfage \$ clearing and forwarding charges	37.42	37.42	37.42	37.42	37.42	37.42
11	TCP commission @ 0.75 % of c&f cost	879	654	942	761	864	756
12	KIBOR @22.87 % for 3 months for 30 days	2233	1661	2394	1933	2194	1922
13	Landed cost (item 3 to 8) at Karachi	122476	91438	131215	106204	120367	105601
14	Transport cost from Karachi to Multan	6000	6000	6000	6000	6000	6000
15	Expences from procurement center to Multan	1250	1250	1250	1250	1250	1250
16	Import parity price at procurement center level	127226	96188	135965	110954	125117	110351
17	Import parity prices of wheat	-----Rs per 40 kgs-----					
	i) If consumed at Multan	5089	3848	5439	4438	5005	4414
	ii) If consumed at Karachi	4899	3658	5249	4248	4815	4224

Sources:

- i) For fob (Gulf) prices: International Grain Council, UK.
- ii) For, incidental and transport charges from Karachi to Multan, TCP, Karachi.
- iii) For expenses from procurement centre to Multan: PASSCO, Lahore.

Annex-VII

IMPORT PARITY PRICES OF WHEAT ON THE BASIS OF FUTURE PRICE OF BLACK SEA				
S. No	Item	Oct, 23	Nov,23	Dec,23
		-----US \$ per tonne-----		
1	Average Fob(Gulf) price	243.25	245.25	246.00
2	Freight charges from Gulf port to Karachi	40.00	40.00	40.00
3	Average c&f (Karachi) price in US \$	283.25	285.25	286.00
-----Rs per tonne-----				
4	Exchange rate	291.50	291.50	291.50
5	Average c&f (Karachi) price in Pak Rupees	82567	83150	83369
6	Marine insurance charges @0.2% of C & F cost	165	166	167
7	Lc opening charges @0.02% of c&f cost.	17	17	17
8	Stevedoring	1300	1300	1300
9	Provision for unforeseen losses @ 0.5 of C&F cost	413	416	417
10	Survey, Lab Testing Charges, Weightment, wharfage \$ clearing and forwarding charges	37.42	37.42	37.42
11	TCP commission @ 0.75 % of c&f cost	619	624	625
12	KIBOR @22.87 % for 3 months for 30 days	1574	1585	1589
13	Landed cost (item 3 to 8) at Karachi	86692	87295	87521
14	Transport cost from Karachi to Multan	6000	6000	6000
15	Expences from procurement center to Multan	1250	1250	1250
16	Import parity price at procurement center level	91442	92045	92271
-----Rs per 40 kgs-----				
17	Import parity prices of wheat			
	i) If consumed at Multan	3658	3682	3691
	ii) If consumed at Karachi	3468	3492	3501

Sources:

- i) For fob (Gulf) prices: International Grain Council, UK.
- ii) For, incidental and transport charges, TCP Karachi
- iii) For expenses from procurement centre to Multan: PASSCO Lahore
- iv) Exchange Rate: \$ 1 = PKR 248.00, 2022-23

Annex-VIII

EXPORT PARITY PRICES OF WHEAT ESTIMATED FROM US NO 2 HRW (FOB GULF) QUOTED PRICE							
S.No	Item	2023-24 (Jul-Sept)		2022-23		2020-21 to 2022-23	
		HRW	SRW	HRW	SRW	HRW	SRW
		-----US \$ per tonne-----					
1	Fob(Gulf) price assuming Fob (Karachi) price	360.00	257.00	389.00	306.00	353.00	304.00
2	Exchange rate	291.50	291.50	291.50	291.50	291.50	291.50
	OR	-----Rupees per tonne-----					
3	Fob(Gulf) price assuming Fob (Karachi) price in Pak Rupees	104940	74916	113394	89199	102900	88616
4	Incidental charges: (items i to xi)	8994	7871	9310	8405	8918	8383
	i) Expenses from procurement centre to Multan	1250	1250	1250	1250	1250	1250
	ii) Transport cost from Multan to Karachi including loading and unloading charges	1800	1800	1800	1800	1800	1800
	iii) Cleaning/grading	750	750	750	750	750	750
	iv) Bagging, spillage, loading, unloading & testing	850	850	850	850	850	850
	v) Wharfage, stevedoring, weightment and port charges	70	70	70	70	70	70
	vi) Pre shipment inspection charges	100	100	100	100	100	100
	vii) Export development surcharges @ 0.25% and Withholding tax @ Rs 1.25 of Fob price	1574	1124	1701	1338	1543	1329
	viii) Insurance charges at port 1 % for one month	87	62	94	74	86	74
	ix) Bank commission & charges 0.25 %	262	187	283	223	257	222
	x) KIBOR @22.87 % for 3 months for 30 days	2000	1428	2161	1700	1961	1689
	xi) Miscellaneous charges (Ghati, Wastage, Godown rent)	250	250	250	250	250	250
5	Export parity price of wheat at procurement centre level(item 1- items 2)	95946	67044	104084	80794	93982	80233
		-----Rs per 40kgs-----					
6	Export parity price at procurement center level	3838	2682	4163	3232	3759	3209
Sources: i) For fob (Gulf) International Grain Council							
ii) Incidental and transport charges, TCP, Karachi.							
iii) For expenses from procurement centre and transport charges: PASSCO, Lahore.							

Annex-IX

AVERAGE FARMER COST OF PRODUCTION ESTIMATES OF WHEAT IN PUNJAB: 2023-24 CROP

S #	Operations / Inputs	Unit	2022-23 crop			2023-24 crop			Change over 2022-23
			Avg # of oprs/ units/ acre	Cost per		Avg # of oprs/ units/ acre	Cost per		
				unit	acre		unit	acre	
1	2	3	4	5	6=4X5	7	8	9=7X8	10=9-6
1	Land preparation:								
	1.1 Rotavator OR disc plough	# of operation/acre	0.500	2,500.0	1,250.0	0.500	4,500.0	2,250.0	1,000.0
	1.2 Ploughing & Planking	# of operation/acre	2.500	1,500.0	3,750.0	2.500	2,400.0	6,000.0	2,250.0
	1.3 Laser Leveling	# of operation/acre	0.500	1,800.0	900.0	0.500	3,500.0	1,750.0	850.0
2	Seed and sowing operations:								
	2.1 Seed used	Kg/acre	50.000	85.0	4,250.0	50.000	150.0	7,500.0	3,250.0
	2.2 Labour for seed broadcasting	M.hr/acre	1.000	112.5	112.5	1.000	250.0	250.0	137.5
	2.3 Ploughing after broadcasting	# of Operation/acre	0.250	1,500.0	375.0	0.250	2,400.0	600.0	225.0
	2.4 Planking after broadcasting	# of Operation/acre	0.750	1,000.0	750.0	0.750	1,200.0	900.0	150.0
3	Bund making:								
	3.1 Manual	m.hrs	1.000	112.5	112.5	1.000	250.0	250.0	137.5
	3.2 tractor	Hrs	0.250	1,500.0	375.0	0.250	2,400.0	600.0	225.0
4	Plant protection:								
	4.1 Weedicides/pesticides & application	# & application	1.000	2,000.0	2,000.0	1.000	2,500.0	2,500.0	500.0
5	Irrigation: (Nos)								
	5.1 Canal	# of Irrigation			350.0			350.0	-
	5.2 Tubewell Irrigation	# of Irrigation	3.000	950.0	2,850.0	3.000	2,500.0	7,500.0	4,650.0
	5.3 Mix Irrigation	# of Irrigation	-	-	-	-	-	-	-
6	Labour for irrigation and water course cleaning	M.days/acre	1.000	1,200.0	1,200.0	1.000	1,800.0	1,800.0	600.0
7	Farm Yard Manure & application	#of trolley	0.250	3,200.0	800.0	0.250	3,500.0	875.0	75.0
8	Fertilizers:								
	8.1 DAP	Bags/acre	1.000	12,690.0	12,690.0	1.000	11,766.0	11,766.0	(924.0)
	8.2 Urea	Bags/acre	2.000	2,330.4	4,660.8	2.000	3,800.0	7,600.0	2,939.2
	8.3 NP	Bags/acre	0.050	7,400.0	370.0	0.050	9,370.0	468.5	98.5
	8.4 CAN	Bags/acre	0.075	2,160.0	162.0	0.075	2,000.0	150.0	(12.0)
	8.5 Transport and application	Rs/ acre	3.319	115.0	381.7	3.319	250.0	829.8	448.1
9	Cost of Traded inputs	Rs/ acre			36,989.5			53,589.3	16,599.8
10	Mark up on investment on item 1 to 8 minus 5(1)	For 6 months			3,698.9			5,358.9	1,660.0
11	Harvesting charges	40 kgs/acre	2.500	2,200.0	5,500.0	2.500	3,900.0	9,750.0	4,250.0
12	Threshing charges	40 kgs/acre	2.250	2,200.0	4,950.0	2.250	3,900.0	8,775.0	3,825.0
13	Land rent	For 6 months	0.500	45,000.0	22,500.0	0.500	70,000.0	35,000.0	12,500.0
14	Management Charges	For 6 months	0.500	3,000.0	1,500.0	0.500	3,840.0	1,920.0	420.0
15	Average weighted land tax	Rs/acre/ annum	0.500	132.0	66.0	0.500	132.0	66.0	-
16	Total cost of cultivation	Rs/per acre	-		75,554.4	-		114,809.2	39,254.7
17	17.1 Value of wheat bhoosa	Rs/acre	30.500	300.0	9,150.0	31.000	450.0	13,950.0	4,800.0
	17.2. Subsidy on fertilizers	Rs/acre	-	-	-	-	-	-	
18	Net cultivation cost (item 16-17)	Rs/acre	-	-	66,404.4	-	-	100,859.2	34,454.7
19	Yield	40 Kg/acre	-	-	1,220.0	-	-	1,240.0	20.0
20	20.1. Cost of production at farm level:	Rs/40 kgs			2,177.2			3,253.5	1,076.3
	20.2. Cost of production excluding land rent	Rs/40 kgs			1,439.5			2,124.5	685.0
21	Marketing cost	Rs/40 kgs	-		45.0	-		50.0	5.0
22	Cost of production at market/procurement centre:								
	22.1 Including land rent	Rs/40 kgs	-		2,222.19	-		3,303.52	1,081.3
	22.2 Excluding land rent	Rs/40 kgs	-		1,484.5	-		2,174.5	690.0

Annex-X

AVERAGE FARMER COST OF PRODUCTION ESTIMATES OF WHEAT IN SINDH: 2023-24 CROP

S. No	Operations / Inputs	Unit	Avg # of oprs/ units/ acre	2022-23 crop		Avg # of oprs/ units/ acre	2023-24 crop		Change over 2022- 23
				Cost per unit	Cost per acre		Cost per unit	Cost per acre	
				5	6=4X5		7	8	
1	Land preparation:								
	1.1 Rotavator/disc/5/3hari	# of opration/acre	1.000	2,500.0	2,500.0	1.000	4,260.0	4,260.0	1,760.0
	1.2 Ploughing	# of opration/acre	2.500	1,300.0	3,250.0	2.500	2,500.0	6,250.0	3,000.0
	1.3 Planking	# of opration/acre							-
	1.4 Laser levelling	# of opration/acre	0.750	1,800.0	1,350.0	0.750	3,500.0	2,625.0	1,275.0
2	Seed and sowing operations:								
	2.1 Seed used	Kg/acre	55.000	85.0	4,675.0	55.000	150.0	8,250.0	3,575.0
	2.2 Labour for seed broadcasting	M.hr/acre	1.000	112.5	112.5	1.000	250.0	250.0	137.5
	2.3 Ploughing in case of broadcasting	# of Operation/acre	0.500	1,300.0	650.0	0.500	2,500.0	1,250.0	600.0
	2.4 Planking in case of broadcasting	# of Operation/acre	1.000	1,100.0	1,100.0	1.000	1,250.0	1,250.0	150.0
3	Bund making:								
	3.1 Manual	m.hrs	1.000	112.5	112.5	1.000	250.0	250.0	137.5
	3.2 tractor	Hrs	0.100	1,300.0	130.0	0.100	2,500.0	250.0	120.0
4	Weedicides & application	Rs./ acre	1.000	1,600.0	1,600.0	1.000	3,000.0	3,000.0	1,400.0
5	Irrigation: (Nos)								
	5.1 Canal	# of Irrigations			350.0			350.0	-
	5.2 Tubewell	# of Irrigations	2.000	950.0	1,900.0	2.000	1,500.0	3,000.0	1,100.0
	5.3 Mixed	# of Irrigations							-
	5.3 Lift Pump	# of Irrigations	1.000	950.0	950.0	1.000	1,500.0	1,500.0	550.0
6	Labour for irrigation and water course cleaning	M.days/acre	1.000	1,200.0	1,200.0	1.000	1,600.0	1,600.0	400.0
7	Farm Yard Manure	#of trolley	0.250	3,500.0	875.0	0.250	4,000.0	1,000.0	125.0
8	Fertilizer (bags)								
	8.1 DAP	Bags/acre	1.000	12,690.0	12,690.0	1.000	11,766.0	11,766.0	(924.0)
	8.2 Urea	Bags/acre	2.000	2,330.4	4,660.8	2.000	3,800.0	7,600.0	2,939.2
	8.3 NP	Bags/acre	0.100	7,400.0	740.0	0.100	9,370.0	937.0	197.0
	8.4 Transport and application	Rs./ acre	3.200	130.0	416.0	3.200	250.0	800.0	384.0
	Cost of Traded inputs	Rs./ acre			38,911.8			55,838.0	16,926.2
9	Mark up on investment on item 1 to 8 minus 5(1)	KIBOR+5% per annum for 6			3,891.2			5,583.8	1,692.6
10	Harvesting charges	40 kgs/acre	2.500	2,200.0	5,500.0	2.500	4,000.0	10,000.0	4,500.0
11	Threshing	40 kgs/acre	2.250	2,200.0	4,950.0	2.250	4,000.0	9,000.0	4,050.0
12	Land rent	For 6 months	0.500	45,000.0	22,500.0	0.500	70,000.0	35,000.0	12,500.0
13	Management Charges	For 6 months	0.500	3,000.0	1,500.0	0.500	3,840.0	1,920.0	420.0
14	Land tax	Rs/acre/annum	0.500	200.0	100.0	0.500	200.0	100.0	-
15	Drainage cess	For 6 months			24.0			24.0	-
16	Total cost of Cultivation	Rs/acre	-		77,727.0	-		117,815.8	40,088.8
17	17.1 Value of wheat bhoosa	Rs/acre	33.000	300.0	9,900.0	33.000	550.0	18,150.0	8,250.0
	17.2. Subsidy on fertilizers	Rs/acre	-	-	-	-	-	-	
18	Net cultivation cost (item 16-17)	Kg/acre	-		67,827.0	-		99,665.8	31,838.8
19	Yield	Rs/40 kgs	-		1,320.0	-		1,320.0	-
20	Cost of production at farm level:	Rs/40 kgs			2,055.4			3,020.2	964.8
21	Marketing cost	Rs/40 kgs	-		50.0	-		55.0	5.0
22	Cost of production at market/ procurement	Rs/40 kgs							
23	23.1 Including land rent	Rs/40 kgs	-		2,105.36	-		3,075.18	969.8
	23.2 Excluding land rent	Rs/40 kgs	-		1,423.5	-		2,014.6	591.0

ECONOMICS OF WHEAT AND COMPETING CROPS AT PRICES REALIZED BY THE GROWERS: 2022-23 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 inchesRupees per acre.....						RatioRupees.....	
1	2	3	4	5	6	7=6-5	8=6-4	9=6/4	10=6/5	11=6/2	12=6/3	
<u>Punjab</u>												
1	Wheat	150	12	75,554	27,333	128,100	100,767	52,546	1.70	4.7	854	10,675
2	Seed Cotton	210	22	98,321	38,544	162,770	124,226	64,449	1.66	4.2	775	7,399
3	Basmati paddy	180	58	82,111	44,739	124,600	79,861	42,489	1.52	2.8	692	2,148
4	IRRI paddy	180	62	78,764	38,878	124,000	85,122	45,236	1.57	3.2	689	2,000
5	Sunflower (spring)	120	22	91,416	36,774	141,100	104,326	49,684	1.54	3.8	1176	6,414
6	Canola	180	13	64,888	19,210	125,113	105,902	60,225	1.93	6.5	695	9,624
7	Seed cotton + wheat	360	34	173,875	65,877	290,870	224,994	116,995	1.67	4.4	808	8,555
8	Seed cotton + sunflower	390	44	189,737	75,317	303,870	228,553	114,133	1.60	4.0	779	6,906
9	Basmati paddy+wheat	330	70	157,666	72,072	252,700	180,628	95,034	1.60	3.5	766	3,610
10	Basmati paddy+sunflower	360	80	173,528	81,513	265,700	184,187	92,172	1.53	3.3	738	3,321
11	IRRI paddy + wheat	330	74	154,319	66,211	252,100	185,889	97,781	1.63	3.8	764	3,407
12	IRRI paddy+sunflower	360	84	170,181	75,652	265,100	189,448	94,919	1.56	3.5	736	3,156
13	Sugarcane	394	48	170,988	68,618	212,800	144,183	41,812	1.24	3.1	540	4,433
<u>Sindh</u>												
1	Wheat	150	12	77,727	28,766	141,900	113,134	64,173	1.83	4.9	946	11,825
2	Seed cotton	210	18	104,133	36,312	179,531	143,219	75,398	1.72	4.9	855	9,974
3	IRRI paddy	180	56	76,679	30,927	137,450	106,523	60,771	1.79	4.4	764	2,454
4	Sunflower (spring)	120	22	69,596	30,520	105,750	75,230	36,154	1.52	3.5	881	4,807
5	Canola	180	13	62,716	18,530	90,275	71,745	27,559	1.44	4.9	502	6,944
6	Seed cotton + wheat	360	30	181,860	65,077	321,431	256,353	139,571	1.77	4.9	893	10,714
7	Seed cotton+sunflower	390	40	173,729	66,832	285,281	218,448	111,552	1.64	4.3	731	7,132
8	IRRI paddy + wheat	360	68	154,406	59,692	279,350	219,658	124,944	1.81	4.7	776	4,108
9	IRRI paddy+sunflower	360	78	146,275	61,447	243,200	181,753	96,925	1.66	4.0	676	3,118
10	Sugarcane	488	71	168,655	65,117	191,760	126,643	23,105	1.14	2.9	393	2,701

Notes for Annex - XI:

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2022-23 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, 2022-23 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 2022-23 crops. To incorporate the escalations in input prices, which occurred during the growing period of 2022-23 crops, some marginal revisions/updates have been incorporated.
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 support price of Wheat i.e Rs 3,900 per 40 kgs, as maintained by the Punjab and Rs. 4,000 per 40 kgs in Sindh for 2022-23 crop, has been adopted for the current analysis.
 - 4.2 The wholesale market prices of basmati paddy and kainat paddy during the post-harvest period in major producer area markets have averaged at Rs. 3,000 and Rs. 2,400 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs. 2,450 per 40 kgs.
 - 4.3 The wholesale market prices of seed cotton during the post-harvest months of 2022-23 in the main producer area markets have averaged at Rs. 7,985 per 40 kgs in the Punjab and Rs. 7,646 in Sindh.
 - 4.4 The average market price of Sunflower and Canola crops has been reported hovering around Rs 7,000/40 kgs during 2022-23.
 - 4.5 The average market prices of sugarcane as realized by the farmers are taken for the analysis i.e. Rs. 300 per 40 kgs in the Punjab and Rs. 302 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. 20 and 21 per 40 kgs in Punjab and Sindh for sugarcane, Rs 45 for seed cotton in Punjab and Sindh, Rs 60 for rice paddy in Punjab and Sindh, and for wheat and oilseeds, Rs 45 in Punjab and Rs 50 in Sindh.

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

**ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN PUNJAB
POLICY ANALYSIS MATRIX (PAM)**

Based on Import parity prices and Export Parity Prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
Import Parity Prices	----- Rupees per acre -----			
2018-19				
Private Prices	46,500	18,355	26,850	1,295
Social Prices	53,433	17,117	26,564	9,752
Transfers	-6,933	1,238	286	-8,456
2019-20				
Private Prices	50,919	21,328	27,287	2,303
Social Prices	67,637	19,613	27,180	20,843
Transfers	-16,718	1,715	107	-18,540
2020-21				
Private Prices	60,400	23,619	30,019	6,762
Social Prices	66,728	21,566	25,854	19,308
Transfers	-6,328	2,053	4,165	-12,546
2021-22				
Private Prices	74,980	26,915	32,451	15,614
Social Prices	140,560	24,383	28,285	87,892
Transfers	-65,580	2,532	4,166	-72,278
2022-23				
Private Prices	128,100	36,203	39,752	52,146
Social Prices	159,973	31,792	34,630	93,550
Transfers	-31,873	4,411	5,121	-41,404
Export Parity Prices				
2018-19				
Private Prices	46,500	18,355	26,850	1,295
Social Prices	36,333	17,117	26,564	-7,348
Transfers	10,167	1,238	286	8,644
2019-20				
Private Prices	50,919	21,328	27,287	2,303
Social Prices	45,389	19,613	27,180	-1,405
Transfers	5,530	1,715	107	3,708
2020-21				
Private Prices	60,400	23,619	30,019	6,762
Social Prices	45,532	21,566	25,854	-1,888
Transfers	14,868	2,053	4,165	8,650
2021-22				
Private Prices	74,980	26,915	32,451	15,614
Social Prices	91,720	24,383	28,285	39,052
Transfers	-16,740	2,532	4,166	-23,438
2022-23				
Private Prices	100,650	36,203	39,752	24,696
Social Prices	104,158	31,792	34,630	37,735
Transfers	-3,508	4,411	5,121	-13,039

Note: The calculation are based on the analysis of data from the respective cost of production and Import Parity Prices estimates made in the previous price policy analysis reports of API, Islamabad

**ECONOMIC EFFICIENCY OF RESOURCE USE IN WHEAT PRODUCTION IN SINDH
POLICY ANALYSIS MATRIX (PAM)**

Based on Import parity prices and Export Parity Prices

Description	Revenues	Traded cost	Domest Factor cost	Profits
Import Parity Prices	----- Rupees per acre -----			
2018-19				
Private Prices	44,813	20,100	22,531	2,182
Social Prices	48,014	18,392	22,823	6,800
Transfers	-3,202	1,708	-292	-4,618
2019-20				
Private Prices	53,185	22,733	26,238	4,214
Social Prices	60,489	20,693	26,298	13,498
Transfers	-7,304	2,039	-60	-9,284
2020-21				
Private Prices	63,900	25,737	28,855	9,308
Social Prices	60,329	23,070	29,032	8,226
Transfers	3,572	2,666	-177	1,082
2021-22				
Private Prices	80,500	29,543	33,229	17,728
Social Prices	130,665	26,343	33,533	70,789
Transfers	-50,165	3,200	-304	-53,061
2022-23				
Private Prices	141,900	37,832	39,853	64,216
Social Prices	150,905	32,932	39,543	78,431
Transfers	-9,005	4,900	310	-14,215
Export Parity Prices				
2018-19				
Private Prices	44,813	20,100	22,531	2,182
Social Prices	30,558	18,392	22,823	-10,657
Transfers	14,254	1,708	-292	12,838
2019-20				
Private Prices	53,185	22,733	26,238	4,214
Social Prices	39,407	20,693	26,298	-7,584
Transfers	13,778	2,039	-60	11,798
2020-21				
Private Prices	63,900	25,737	28,855	9,308
Social Prices	39,802	23,070	29,032	-12,300
Transfers	24,098	2,666	-177	21,609
2020-21				
Private Prices	80,500	29,543	33,229	17,728
Social Prices	90,723	26,343	33,533	30,847
Transfers	-10,223	3,200	-304	-13,118
2022-23				
Private Prices	108,900	37,832	39,853	31,216
Social Prices	103,715	32,932	39,543	31,241
Transfers	5,185	4,900	310	-25

Note: The calculation are based on the analysis of data from the respective cost of production and Import Parity Prices estimates made in the previous price policy analysis reports of API, Islamabad

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

Proposed support price	Expenditure on wheat at average per capita @ 113.15 kgs per year **		Rise in annual per capita expenditure	
	Per Person	Per household	Per Person	Per household
Rs per 40 kgs		--- Rupees per year ----		
3,900*	11,032	69,502	-	-
4,400	12,447	78,413	-1,414	-8,911
4,900	13,861	87,324	-2,829	-17,821
5,400	15,275	96,234	-4,243	-26,732
5,900	16,690	105,145	-5,658	-35,642
6,400	18,104	114,055	-7,072	-44,553
6,900	19,518	122,966	-8,486	-53,463
7,400	20,933	131,876	-9,901	-62,374
7,900	22,347	140,787	-11,315	-71,285

Sources: 1. Pakistan Bureau of Statistics (PBS), Islamabad.

*Existing Support price for 2022-23 wheat crop.

**HH Size 6.30 as in Population Census 2023.

@ As Recommended by M/o NFS&R

Note: Impact of wheat price has been calculated by assuming incremental charges of Rs.500 /- per 40 kg of September ,2023.

**YIELD PER HECTARE OF MAJOR WHEAT PRODUCING COUNTRIES IN THE
WORLD: 2021 CROP**

S.No.	Country	Yield per Hactare in Kgs	S.No.	Country	Yield per Hactare in Kgs
1	Ireland	10,076.69	29	Japan	4,986.36
2	New Zealand	9,712.22	30	Poland	4,975.30
3	Netherlands	8,018.03	31	Uzbekistan	4,824.51
4	United Kingdom	7,814.53	32	Romania	4,796.95
5	Belgium	7,788.41	33	Bosnia and Herzegovina	4,788.83
6	Denmark	7,526.67	34	Kuwait	4,592.50
7	Germany	7,301.53	35	Republic of Moldova	4,579.29
8	France	6,928.43	36	Ukraine	4,533.24
9	Zambia	6,790.53	37	Lithuania	4,500.09
10	Saudi Arabia	6,700.01	38	Latvia	4,481.11
11	Croatia	6,696.04	39	South Africa	4,311.76
12	Egypt	6,453.66	40	Italy	4,224.79
13	Czechia	6,321.43	41	Norway	4,191.16
14	Sweden	6,319.37	42	Uruguay	4,182.22
15	Bulgaria	6,087.76	43	Albania	4,130.52
16	Namibia	6,059.81	44	Estonia	4,090.39
17	Mexico	5,994.41	45	Spain	4,023.84
18	Chile	5,982.14	46	India	3,466.94
19	Hungary	5,925.40	47	North Macedonia	3,462.98
20	Luxembourg	5,916.08	48	Belarus	3,360.87
21	China, mainland	5,810.58	49	Bangladesh	3,299.61
22	Slovenia	5,765.21	50	Finland	3,235.22
23	Serbia	5,749.30	51	Oman	3,231.75
24	Slovakia	5,608.99	52	Azerbaijan	3,210.13
25	Austria	5,529.91	53	Tajikistan	3,101.02
26	Switzerland	5,107.73	54	Montenegro	3,089.90
27	Zimbabwe	5,075.89	55	Mali	3,000.00
28	Republic of Korea	5,000.00	56	Pakistan	2,995.56
World Average					3,491.9

Source: FAO Production Year Book 2021

WHEAT VARIETIES

WHEAT RESEARCH INSTITUTE, FAISALABAD

S. No	Varieties	Year of Release	Sowing Time	Yield Potential (Maund/Acre)	Recommended Areas
1.	Arooj 2022	2022	1st November-20th November	76	All Irrigated and Barani Areas of Punjab
2.	Subhani 2021	2021	5th November-20th November	70	All Irrigated Areas of Punjab
3.	MH 2021	2021	1st November-20th November	70	All Irrigated Areas of Punjab
4.	Dilkash 2020	2020	5th November-20th November	71	All Irrigated Areas of Punjab
5.	Akbar 2019	2019	1st November-10th December	76	All Irrigated Areas of Punjab
6.	Anaj 2017	2017	1st November-10th December	76	All Irrigated Areas of Punjab
7.	Ujala 2016	2016	1st November-20th December	68	All Irrigated Areas of Punjab
8.	Galaxy 2013	2013	1st November-10th December	80	All Irrigated Areas of Punjab
9.	AARI 2011	2011	1st November-10th December	67	All Irrigated Areas of Punjab
10.	Punjab 2011	2011	1st November-10th December	70	All Irrigated Areas of Punjab
11.	Millat 2011	2011	1st November-10th December	64	All Irrigated Areas of Punjab
12.	Lasani 2008	2008	1st November-10th December	62	All Irrigated Areas of Punjab
13.	FSD. 08	2008	1st November-10th December	68	All Irrigated Areas of Punjab

Source: Wheat Research Institute, Faisalabad

BARANI AGRICULTURAL RESEARCH INSTITUTE, CHAKWAL

Sr. No.	Varieties	Year of Release	Sowing Time	Yield Potential (Maund/Acre)	Recommended Areas	Salient Features
1	Barani-17	2017	20th October-20th November	75.35	Barani areas of Punjab	<ul style="list-style-type: none"> • Disease Tolerant • High Yielding • Drought Tolerant • High Protein
2	Fateh Jang	2016	20th October-	75.12	Barani areas of	<ul style="list-style-type: none"> • Disease Tolerant

	16		20th November		Punjab	<ul style="list-style-type: none"> • High Yielding • Drought Tolerant • Reddish Grain
3	Ehsan 16	2016	20th October-20th November	74.94	Barani areas of Punjab	<ul style="list-style-type: none"> • Disease Tolerant • High Yielding • Drought Tolerant
4	Dharabi-11	2011	20th October-20th November	60.32	Barani areas of Punjab	<ul style="list-style-type: none"> • Tall variety • Ug-99 Race Resistant • High Yielding • White Grain
5	Bars-09	2009	20th October-20th November	48.53	Barani areas of Punjab	<ul style="list-style-type: none"> • Disease Tolerant • High Yielding
6	Chakwal-50	2008	20th October-20th November	105.13	Barani areas of Punjab	<ul style="list-style-type: none"> • Disease Resistant • High Tillering • High Yielding • Lodging Resistant • Excellent Chapati Making Quality

Source: Barani Agricultural Research Institute, Chakwal

ARID ZONE RESEARCH INSTITUTE, BHAKKAR

Sr. No.	Varieties	Year of Release	Sowing Time	Yield Potential (Maund/Acre)	Recommended Areas	Salient Features
1	Champion	2023	1 st fortnight of Nov	73	All Districts of Punjab	<ul style="list-style-type: none"> • Terminal Heat Stress, • Thick stem wall, • Bold seeded, High yielding
2	Nishan	2021	1 st fortnight of Nov	74	Bhakkar, Layyah, Mianwali, D.G. Khan R. Y. Khan, Khanewal Faisalabad, Ali Pur	<ul style="list-style-type: none"> • Terminal Heat Stress, • Thick stem wall, Bold seeded, High yielding
3	Bhakkar Star	2019	1 st fortnight of Nov	75	All Districts of Punjab	<ul style="list-style-type: none"> • Terminal Heat Stress, • Thick stem wall, Bold seeded, High yielding
4	Fakhar-e-	2018	1 st fortnight of	62	Bhakkar,	<ul style="list-style-type: none"> • Thick stem wall,

	Bhakkar		Nov		Layyah, Mianwali, D.G. Khan R. Y. Khan, Khanewal Faisalabad, Ali Pur	Lax ear <ul style="list-style-type: none"> • Anthocyanin on auricles of flag leaf and awns, Bold seeded, High yielding
5	Bhakkar-2002	2002	2 nd fortnight of Nov.	70		<ul style="list-style-type: none"> • Short stature • Bold seeded • Brown chaff

CONVERSION FACTORS**Weights**

One pound (16. Oz)	=	0.45359 Kgs	=	0.48609 Seer.
One hundred weight(112 lbs)	=	50.80208 Kgs	=	1.361 Maunds.
One ton (2240 lbs)	=	1.01605 M.tons	=	27.22 Maunds.
			=	5.60/5.71 bales
			=	of jute/cotton
One tonne	=	0.984 Tons	=	26.792 Maunds.
Cotton bale(375 Lbs)	=	170.09 Kgs	=	4.5571 Maunds
			=	0.1674 Long ton
1 Bushel per acre	=	67.253 Kgs. per hectare		
1 Bushel	=	0.73 Maund.		
	=	29.17 Seers.		
	=	60.00 Lbs.		

Length

One inch	=	25.3999 Millimeters
One foot (12 inches)	=	0.3048 Meter
One yard (3 feet)	=	0.9144 Meter
One mile (1760 yards)	=	1.60934 Kilometers

Square Measures

One square yard	=	Nine Square Feet	=	0.83613 Square Meter
One acre	=	4840 Square Yards	=	0.40468 Hectares
One square mile	=	640 Acres	=	258.99842 Hectare
One square kilometer	=		=	0.3861 Square Mile
One Hectare	=		=	2.4711 Acres
One Cubic Meter	=		=	2.4711 Acres/ (35.3147 Cubic Feet)

Liquid

One imperial gallon	=	4.5461 liters or 1.2 U.S gallons
One U.S. gallon	=	3.7853 liters.

GENERAL CONVERSIONS

<u>Divide</u>	<u>By Factor</u>	<u>To obtain</u>
Acres	2.4711	Hectares
Long ton	0.9842	M.tons
Cotton bales (375 lbs)	5.973	Long tons
Cotton bales (375 lbs)	5.879	M.tons
Maunds	26.79	M.tons
Price per 40 kgs.	1.0716	Price/maund
Yield kgs per hect.	92.2313	Yield maunds/acre.
Rice	0.666	Paddy
Cotton Lint	0.333	Seed Cotton

N.B. In case of vice-versa multiply with the factor.