



RICE PADDY POLICY ANALYSIS FOR 2015-16 CROP



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

October, 2015

S.No.	Contents	Page No.
	List of Tables	i
	List of Figures	i
	Annexes	ii
	Acronyms and Abbreviations	iii
	Summary of Findings and Recommendations	iv to xi
1.	Introduction	1
2.	Sowing & Transplanting of Rice Paddy	2
3.	Review of 2014-15 Crop	3
	3.1 Provincial Shares in Area and Production	3
	3.2 Important Rice Producing Districts	5
	3.3 Changes in Area, Yield and Production	5
	a. Long terms changes: 2004-05 to 2014-15	5
	b Short-terms changes: 2013-14 vs 2014-15	7
	3.4 Targets Vs Achievements: 2014-15 Crop	9
4.	Domestic Demand, Supply and Price Situation of Rice	10
	4.1 Domestic Demand and Supply of Rice	10
	4.2 Domestic Prices of Rice Paddy	10
5.	Cost of Production of Rice Paddy	13
	5.1 Average Farmers' Cost of Production of Rice Paddy: 2014-15 and 2015-16 Crops	14
	5.2 Cost of Major Operations/Inputs	16
6.	Economics of Rice Paddy and Competing Crops	17
7.	Nominal and Real Market Prices of Basmati and Irri Paddy: 2007-08 to 2014-15	20
	i. Basmati Paddy (Punjab)	21
	ii. IRRI Paddy (Sindh)	22
8.	World Supply, Demand, Stocks, Trade and Prices Situation of Milled Rice	23
	8.1 World Supply, Demand, Stocks, and Trade Situation	23
	8.2 Export Parity Prices of Rice Paddy	24
9.	Rice Export from Pakistan	25
10.	Economic Efficiency in Rice Production	26
	10.1 Nominal Protection Coefficient (NPC) under Export Situation	26
	10.2 Effective Protection Coefficient (EPC) under Export Situation	28
	10.3 Domestic Resource Cost Coefficient (DRC) under Export Situation	29
	10.4 Cost of Earning Foreign Exchange	30
11.	Rice Yield Among Competing Countries	31
12.	Major Rice Varieties and Their Yield Potential in Pakistan	31
13.	Improved Seed Availability of Rice Paddy	33
14.	Acknowledgements	35

S.No.	Tables	Page No.
1.	Sowing Times of Rice Crop in Pakistan	2
2.	Provincial Shares in Area and Production of Rice: Average of 2012-13 to 2014-15 Crops	3
3.	Average Annual Growth Rates of Area, Yield and Production of Rice: 2004-05 to 2014-15	6
4.	Area, Yield and Production of Rice by Variety: 2013-14 and 2014-15 Crop	7
5.	Targets and Estimated Achievements of Area, Yield and Production of Rice: 2014-15 Crop	9
6.	Monthly Average Wholesale Prices of Basmati Paddy in Major Producer Area Markets of the Punjab: 2014-15 crop	12
7.	Monthly Average Wholesale Prices of IRRI-6 Paddy in Major Producer Area Markets of the Punjab and Sindh during 2014-15	13
8.	Average Farmers' Cost of Production of Rice Paddy: 2014-15 and 2015-16 Crops	14
9.	Cost of Major Operations/inputs of Rice Paddy: 2014-15 and 2015-16 Crops	16
10.	Economics of Rice and Competing Crops at Prices Realized by the Growers in the Punjab: 2014-15 Crops	18
11.	Economics of IRRI Paddy and Competing Crops at Prices Realized by the Growers in Sindh: 2014-15 Crops	19
12.	Nominal and Real Market Prices of Basmati and IRRI-6 Paddy: 2007-08 to 2014-15	21
13.	World Supply, Demand, Stocks and Trade in Rice: 2013-14 to 2015-16	24
14.	Export Parity Prices of Basmati and IRRI Paddy	25
15.	Per Cent Change in Export of Basmati and Coarse Rice in 2013-14 Over 2012-13	25
16.	Economic Efficiency Coefficients for Rice in Pakistan	27
17.	Major Rice Varieties and Their Yield Potential	32
18.	Variety wise Certified Seed of Paddy Supplied by Public and Private Sectors for 2014-15 Crop	34
Figures		
1.	Varietal Shares in Production of Rice: Average of 2012-13 to 2014-15	4
2.	Provincial Shares in Production of Rice: Average of 2012-13 to 2014-15	4
3.	Province-Wise Target and Achievement in Production of Rice: 2014-15 Crop	11
4.	Target and Achievement at National Level in Varietal Production of Rice: 2014-15 Crop	11
5.	Output-input Ratio in Punjab for Rice Paddy 2014-15 crop	18
6.	Output-input Ratio in Sindh for Rice Paddy 2014-15 crop	20
7.	Nominal and Real Market price of Basmati Paddy in the Punjab: 2007-08 to 2014-15	22
8.	Nominal and Real Market price of IRRI-6 Paddy in the Sindh: 2007-08 to 2014-15	23

S. No.	Annexes	Page No
1.	Area, Yield and Production of Rice by Variety and Province: 2004-05 to 2014-15	36
1-A	Area, Yield and Production of Rice by Variety and Province: 2004-05 to 2014-15	37
2.	District-Wise Production of Rice by Variety: Average of 2012-13 to 2014-15	38
3.	Per Capita Availability Consumption of Rice: 2011-12 to 2013-14 (October-September)	39
4.	Average Farmers' Cost of Production of Basmati Paddy in the Punjab: 2014-15 and 2015-16 Crops	40
5.	Average Farmers' Cost of Production of Irri Paddy in the Punjab: 2014-15 and 2015-16 Crops	41
6.	Average Farmers' Cost of Production of Irri Paddy in Sindh: 2014-15 and 2015-16 Crops	42
7.	Economics of Rice Paddy and Competing Crops at Prices Realized by the Growers: 2014-15 Crops	44
8.	Export Parity Prices of Basmati Paddy on the Basis of FOB (Karachi) Price	47
9.	Export Parity Price of Irri Paddy on the Basis of FOB (Karachi) Price	48
10.	Region Wise Export of Basmati and Coarse Rice during : 2012-13 and 2013-14	49
11.	Economic Efficiency of Resource Use in Basmati (Paddy) Production in Punjab	50
12.	Economic Efficiency of Resource Use in Irri (Paddy) Production in Punjab	51
13.	Economic Efficiency Of Resource Use In Irri (Paddy) Production In Sindh	52
14.	Area and Production of Major Rice Producing Countries in the World : 2013 Crop	53
15.	Yield Per Hectare of Major Rice Producing Countries in the World: 2013 Crop	54
16.	Availability of Certified Seed of Rice Paddy: 2009-10 to 2014-15	55

ACRONYMS AND ABBREVIATIONS

API	Agriculture Policy Institute
BMR	Balancing Modernization Replacement
COP	Cost of Production
CPI	Consumer Price Index
DR	Dokri Research
DRC	Domestic Resource Cost
E&M	Economics and Marketing
ECC	Economic Coordination Committee(of the cabinet)
EPC	Effective Protection Coefficient
FAO	Food and Agriculture Organization
FAQ	Fair Average Quality
FCA	Federal Committee on Agriculture
FOB	Free on Board
FMI	Farm Machinery Institute
FSC&RD	Federal Seed Certification and Registration Department
FYM	Farm Yard Manure
GAP	Good Agriculture Practise
GST	General Sales Tax
IPM	Integrated Pest Management
IRRI	International Rice Research Institute
KS	Kala Shah Kaku
NFS&R	M/o National Food Security and Research
NARC	National Agricultural Research Centre
NIAB	Nuclear Institute for Agriculture and Biology
NPC	Nominal Protection Coefficient
PARC	Pakistan Agricultural Research Council
PASSCO	Pakistan Agricultural Storage and Services Corporation
PBS	Pakistan Bureau of Statistics
PSC	Punjab Seed Corporation
RRI	Rice Research Institute
SSC	Sindh Seed Corporation
WBPH	White Back Plant Hopper
WTO	World Trade Organization

RICE POLICY ANALYSIS FOR 2015-16 CROP

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Findings:

1. Area and Production

- ❖ Overall rice production at country level during the decade ending 2014-15 has increased @ 2.2 per cent per annum owing to 0.4 per cent expansion in area and 1.8 per cent improvement in yield.
- ❖ The total production of rice for 2014-15 crop is estimated at 7.003 million tonnes at country level, higher by 3 per cent than the 6.798 million tonnes in 2013-14.
- ❖ Basmati rice is produced in the Punjab only.
- ❖ Sindh plays an imperative role in total production of IRRI rice, contributing 55 percent in area and 56 per cent in production while the shares of the Punjab and Balochistan are 28 and 18 per cent in area and 24 and 20 per cent in production respectively.
- ❖ Shares of the Punjab, Sindh and Khyber Pakhtunkhwa in production of 'other' varieties of rice are 43, 52 and 5 per cent respectively.

2. Domestic Prices

- Monthly average wholesale market prices of super basmati paddy during 2014-15 crop ranged between Rs. 1375 and Rs. 1541/40 kgs during the post harvest in major rice producing area markets.
- In Sindh, the monthly average wholesale market prices of IRRI paddy in major rice producing area markets ranged from Rs. 805 to Rs.859/40 kgs during the post harvest period.

3. Cost of Production

- ❖ The cost of cultivation of basmati paddy in the Punjab for 2015-16 crop is estimated at Rs. 38,449 per acre.
- ❖ While the cost of production of basmati paddy at market level is estimated around Rs. 1506 per 40 kgs, including marketing cost.
- ❖ The cost of cultivation of IRRI paddy in Punjab is estimated at Rs. 36,851 per acre.
- ❖ While the cost of production of IRRI paddy in Punjab is estimated at Rs. 1021 per 40 kgs.
- ❖ The cost of cultivation of IRRI paddy in Sindh for 2015-16 crop is estimated at Rs. 33,627 per acre.
- ❖ The market level cost of production of IRRI paddy in Sindh would come to Rs. 716 per 40 kgs.

4. Economics of Rice Paddy and Competing Crops

- Rice being a major kharif crop competes with cotton for land, water and other farm resources in the areas where cultivation of both crops is technically feasible.
- Basmati performance in Punjab remained significantly lower than cotton in all terms of returns i.e. output-input ratio, rupee of purchased inputs, days of crop duration and acre-inch of irrigation water used .
- IRRI paddy in the Punjab also could not perform well against cotton in any of the economic indicators analyzed.
- In Sindh, IRRI cultivation surpassed seed cotton only in terms of output-input ratio marginally while lagged behind in all other terms of return.

5. Real Prices

- The real market prices of basmati paddy in the Punjab witnessed mixed trend during 2007-08 to 2014-15 crops years. In three years it remained higher than the base year's price of Rs. 920/40 kgs while in other four years it stood less than the base year price.
- In Sindh, in the reference period, the base year real market price remained higher except two years i.e. 2009-10 and 2010-11.

6. World Situation

- World rice production in 2014-15 is estimated at 476 million tonnes, lower by 0.42 percent than last year production and 1.03 percent from the forecasted rice production of 481 million tonnes in 2015-16.
- The world rice trade during 2014-15 is reported at 42 million tonnes, showing 2.3 percent decrease over last year.
- The world rice trade in 2015-16 is forecasted at 42 million tonnes, equal to estimated trade of 2014-15.

7. Export Parity Prices

- International prices of basmati rice during 2014-15 are reported at US \$ 1077 to 1238 per tonne while the export parity prices of paddy ranged between Rs. 2236 to 2601 per 40 kgs.
- International prices of IRRI rice in the referred period ranged at US \$ 447 to 491 per tonne and the export parity prices of IRRI paddy ranged between Rs.748 to Rs. 836 per 40 kgs.

8. Economic Efficiency

- Economic efficiency of resources use in rice production has been evaluated by estimating the Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost (DRC).
- NPC value for basmati paddy remained less than one during the entire period of 2009-14 except 2013-14, implying that rice producers have not received the economic price for their produce.
- Similarly EPC value for basmati paddy in the Punjab also remained less than one throughout the referred period except two years i.e. 2012-13 and 2013-14.
- In case of IRRI rice in Sindh, the NPCs and EPCs both immensely fluctuated and remained more than one, showing some implicit protection to the IRRI growers in the country.
- DRC indicates the opportunity cost of domestic resource used in the production of a commodity. The DRC less than one indicate a commodity system having comparative advantage and vice versa.

- DRCs for basmati have been less than one during the period under review, implying that Pakistan has comparative advantage in basmati production.
- The DRCs for IRRI paddy in Sindh remained less than one during the period under review, indicating comparative advantage for Sindh in producing IRRI rice for export.

9. World Comparison

- Pakistan is the 10th & 11th largest rice producer in terms of area and production respectively but holds 61st position in terms of yield in the world.
- In terms of area, India is on the top with 43.50 million hectares, followed by China with 30.23 and Indonesia with 13.84 million hectares.
- In terms of rice production, China is on the top with 135.53 million tonnes, followed by India with 106.13 million tonnes and Indonesia with 47.52 million tonnes.
- In terms of yield per hectare, Australia lies on the top with 6812 kgs/hectare, followed by Egypt with 6429 and USA with 5749 kgs/hectare.

10. Policy Options

- Based on the analysis of relevant factors covered in the main text of the Report, the likely policy options for rice paddy 2015-16 crop are presented below:

Base		Worked back price of Rice paddy at mill-gate (Rupees per 40 kgs)
A.	Export parity prices based on actual Fob (Karachi) prices of Pakistani basmati and IRRI rice:	
	i) Basmati	
	▪ May, 2015	2601
	▪ 2014-15	2236
ii) IRRI	▪ May, 2015	491
	▪ 2014-15	447
B.	Domestic market prices of rice paddy During Oct-Dec 2014-15	
	i) Basmati Punjab	1444
	ii) IRRI-6 Sindh	828
C.	Cost of production at market level for 2014-15 Crops	
	i) Basmati (Punjab)	1506
	ii) IRRI (Punjab)	1021
	iii) IRRI (Sindh)	716

Recommendations

In view of the field information, consultations with the stakeholders in the API's Annual Committee meeting on rice paddy and analysis of the relevant factors, following recommendations are made regarding the intervention price and improving productivity, quality and marketing of rice paddy.

a. Intervention Price of Rice Paddy: 2015-16 Crop

- i. In view of the relevant analysis and high input costs, the API is of the view that the Government may like to consider for announcement of Intervention Price for Rice paddy 2015-16 crop around Rs.1800 per 40 kgs for basmati and Rs.850 per 40 kgs for IRRI paddy, in case of need.
- ii. It should provide remunerative margin of returns over the cost of production which would help Productivity Enhancement Programme of the Government through balanced input use, better management and optimal technology adoption.
- iii. It provides a reference point for intervention by the public sector agency, if needed.
- iv. The API strongly feels that greater attention and emphasis should be given by the government on improving quality of rice for boosting exports.
- v. In view of free market and active role of private sector, the actual incentive to paddy growers should come through the market forces.
- vi. The government policy of encouraging the role of private sector in marketing of rice may be further strengthened.
- vii. The PASSCO should be designated as implementing agency for procurement of rice paddy at the intervention price if announced by the government.
- viii. PASSCO equipped with pre-requisites for procuring rice paddy should enter well in time in the field keeping in view the harvesting times of rice (paddy) in different agro-ecological areas especially in Sindh province where the harvesting starts early.

b. Improving Productivity

- i. Use of Certified seed should be encouraged. While approving the Hybrid Rice Varieties, the Provincial Seed Councils should also be kept on board. Unapproved varieties should be either got approved according to procedure or be banned.
- ii. Government should put the hybrid seeds in the system by approval according to the proper procedure to avoid fluctuation in yield.
- iii. Price of Hybrid seed should be rationalized. Inbred lines of Hybrid seed should be encouraged while importing seed. Extra vigilance should be exercised to control GMO paddy seed.
- iv. Irrigation water is getting scarce over-time. The Research Institutes should make efforts for evolving varieties which consume less water. Research Institutes may also evolve technologies for dry sowing of rice.
- v. Timely availability of fertilizer may be ensured at the time of crop sowing.
- vi. To ensure quality of inputs especially, fertilizer and pesticides, Provincial Agriculture Departments may enhance monitoring by using mobile labs.
- vii. To regulate the prices of fertilizer and avoid black marketing, retail price along with manufacturing and expiry date should be printed on fertilizer bags and the Provincial Agriculture Departments should ensure effective implementation of a strong monitoring system.
- viii. To resolve the issue of non-availability of desired farm machinery, the Cooperative System should be encouraged for arranging farm machinery on rental basis to growers.
- ix. To improve quality of rice for better price at farm gate, Portable dryers for small farmers may be introduced at subsidized rate.
- x. Certified seed of IRRI-6, KS-282 and other high yielding varieties in sufficient quantity should be made available at reasonable prices.
- xi. Provincial Agriculture Research Institutes/ NARC may be facilitated for production of local hybrid varieties, if economical.
- xii. Prices of certified seed, both local/imported, should be strictly controlled at competitive level.
- xiii. According to Rice Pest Control Act, rice nursery cannot be sown before May 20. This needs to be strictly implemented. This will facilitate in harvesting of monsoon rain water resulting in reduction of production cost.

- xiv. Balanced use of fertilizers according to Agriculture Extension Department's recommendations should be advocated. Pure zinc sulphate should also be made available to growers.
- xv. Pest Scouting activities should be strengthened through creating awareness and training. Indiscriminate use of pesticides should be avoided. Lesser use of pesticides will not only reduce cost of production but also resolve the issue of pesticide residual.
- xvi. Majority of rice growers are small or medium farmers and unaware of Global GAP. To create awareness among farming community, awareness campaign should be launched by federal/ provincial governments.
- xvii. To encourage the Breeder, awards should be insured for new HYV varieties.

c. **Improving Quality and Marketing**

- i. Import as well as local manufacturing of rice harvesters need to be encouraged and should be provided to growers at subsidized rates to discourage premature harvesting of paddy.
- ii. To improve quality of paddy, paddy dryers need to be installed at each rice mill through incentive by the public sector.
- iii. Par boiled steaming of rice technology should be encouraged under the supervision of qualified technician for standardization of rice quality.
- iv. Projects like Supply Chain System of the Punjab Government should be encouraged in other provinces also in collaboration with private sector for improving the quality and marketing of rice.
- v. Although Crop Reporting Service (CRS) is efficiently working on yield estimation and crop production but is suffering from the shortage of employees, there is need of capacity building of the CRS and to provide conveyance to Crop Reporters and Statistical Officer for timely completion of crop estimates.
- vi. The efficiency of CRS needs to be enhanced by providing mini threshers portable for crop yield estimation of rice crop.
- vii. To safeguard the interest of farmers, India is providing substantial amount of subsidy in agriculture sector, as a result of which production cost of Indian rice is more competitive.

- viii. If rice is eliminated from negative list of traded commodities with India, Pakistan cannot compete with India. So the rice should be mentioned in negative list.
- ix. Processing units and warehouses of exporters may be got HACCP certified to meet international Food Laws.
- x. Issue of Aflatoxin (fungal attack on rice) is surging. To overcome this issue, import of dryer and silos may be allowed at zero tariffs.
- xi. To avoid Kapra Betal infestation, a separate location should be assigned in port area to avoid transfer of pest from wheat to rice.
- xii. Rice should be stored in separate godowns. Use of used jute bags should be strictly banned. Poly propylene bags are more useful to avoid Kapra Betal infestation.
- xiii. Rice godowns should be strictly monitored for sanitation on regular basis.
- xiv. Fumigation of the rice consignment with methyl bromide and aspirator may be treated prior to shipment. Separator may also be used to separate the dead insect.

(Dr. Muhammad Aslam)
Director General, API

October, 2015

RICE POLICY ANALYSIS FOR 2015-16

1. INTRODUCTION

1.1 Rice plays an assorted role in Pakistan's agrarian economy. It is second staple food and meets more than 2 million tonnes of national food requirement. Rice industry is an important source of employment and income for rural people. It also contributes in the country's foreign exchange earnings of the *exchequer*. Rice accounts for 3.2 percent of the value added in agriculture and 0.7 percent of GDP (Economic Survey 2014-15). The cropped area under rice is 2.9 million hectares. Rice production in the country consists of Basmati, IRRI and 'Other' varieties. All of them have sufficient export demand as well as they are consumed domestically.

1.2 Basmati is long grain aromatic variety entirely produced in the Punjab. Sindh leads in IRRI production and Punjab in 'Others' varieties production. However, rice is cultivated in all four provinces at varying levels of production. The crop also provides feed to livestock in the form of rice straw and husk. It is also used as a raw material for the manufacturing industry.

1.3 Rice production was at its low at 4.823 million tonnes in 2010-11. In 2010-11 onward, rice production has shown a mixed trend and stood at 7.003 million tonnes in 2014-15. During 2014-15, rice was cultivated on the area of 2891 thousand hectares, 3.6 percent higher than last years area of 2789 thousand hectares. The production stood at 7003 thousand tonnes against the target of 6806 thousand tonnes, showing a growth of 2.9 percent against the target. If compared to the corresponding period of last year production i.e 6798 thousand tonnes, a healthy increase of 3.0 percent was witnessed. The production increased due to increase in area while yield remained not impressive due to flood and excessive rain in cultivated areas. Food group as a whole witnessed a decline of around 2 percent during July-April 2014-15 as compared to corresponding last year. Major decline within food group came from the export of Basmati rice which witnessed a decline of 22.5 percent in quantity term. Export of rice as a whole grew negatively by 5.5 percent. Therefore overall net effect on value of export of rice remained negative by 56.6 percent (Pakistan Economic Survey 2014-15).

1.4 There is a dire need to protect Pakistani rice exports and invest in research, pest eradication, storage, improvement in yield, develop international demanded varieties and have to keep it up by having GAP (Good Agriculture Practise) certification at farm level. The efforts should be made that our rice markets remain intact.

2. SOWING & TRANSPLANTING OF RICE PADDY

2.1 Rice crop in Pakistan is mostly sown by transplanting of seedlings raised in nurseries. Direct seeding is also practised on a limited scale in areas where weed is not a problem. The sowing time of nurseries and transplanting differ by variety and region. The recommended sowing time of nurseries and their transplanting in various regions are given in **Table-1**.

Table-1: Sowing Times of Rice Crop in Pakistan

Province	Variety	Time for	
		Sowing nursery	Transplanting
Punjab	Super Basmati	20 May to 7 June	20 June to 7 July
	Other Basmati	1 June to 20 June	1 July to 31 July
	IRRI	20 May to 7 June	20 June to 7 July
Sindh			
Upper Sindh	IRRI-6, Sada Hayat	8 May to 15 June	8 June to 15 July
	DR-82/92	23 May to 30 June	23 June to 31 July
	DR-83	16 June to 15 July	16 July to 15 August
Lower Sindh	IRRI-6, Sada Hayat	16 April to 15 May	16 May to 15 June
	DR-82/92	8 May to 22 June	8 June to 22 July
	DR-83	1 June to 7 July	1 July to 8 August
KPK			
Plains	All varieties	1 May to 31 May	1 June to end of June
Hilly areas	All varieties	1 May to 20 May	3 rd week of May to end of June
Balochistan	All varieties	20 May to 30 June	20 June to 30 July

Sources:

- i) For Punjab: Rice Research Institute, Kalashah Kaku.
- ii) For Sindh: Rice Research Institute, Dokri, Sindh.
- iii) For KPK and Balochistan: Rice Coordinator, NARC, Islamabad.

3. REVIEW OF 2014-15 CROP

3.1 Provincial Shares in Area and Production

3.1.1 Average annual production of rice during 2012-13 to 2014-15 worked out at 6.446 million tonnes from average area of 2.663 million hectares (6.580 million acres). Varietal break-up of rice production (Table-2) shows that Punjab having best suited agro climate conditions in production of basmati rice, is the sole producer of basmati in the country. In the total production of IRRI rice; Punjab, Sindh, and Balochistan are contributing 24.1, 56.0 and 19.9 per cent, respectively. In 'Others' varieties of rice, respective shares of Punjab, Sindh and Khyber Pakhtunkhwa are 43.0, 52.0 and 5.0 per cent.

Table-2: Provincial Shares in Area and Production of Rice: Average of 2012-13 to 2014-15 Crops

Variety	Pakistan		Punjab	Sindh	KPK	Balochistan
Area (000 hectares)	Per cent	-----Per cent-----				
Total	2662.9 (6580.3)	100.0	67.6	25.5	2.0	4.9
Basmati	1169.2 (2889.3)	43.9	100.0	-	-	-
IRRI	723.1 (1786.9)	27.2	27.5	54.5	-	18.0
Other	770.6 (1904.2)	28.9	56.0	37.1	7.0	-
Production (000 tonnes)	Percent	-----Per cent-----				
Total	6445.6	100.0	54.9	36.8	1.7	6.6
Basmati	2050.8	31.8	100.0	-	-	-
IRRI	2141.9	33.2	24.1	56.0		19.9
Other	2252.9	35.0	43.0	52.0	5.0	-

Note: Figures in parenthesis are in thousand acres.

Source: Worked out from data in Annex-I

3.1.2 Provincial shares of Punjab, Sindh, Khyber Pukhtoonkhwa and Balochistan in area of rice are 67.6, 25.5, 2.0 and 4.9 per cent, respectively. Basmati carries 43.9 per cent of the total area while IRRI and 'Others' varieties are grown on 27.5 and 28.9 per cent of the area cultivated with rice. Province-wise and variety-wise shares in rice production are given in Fig-1 and Fig-2.

Fig-1: VARIETAL SHARES IN PRODUCTION OF RICE: AVERAGE OF 2012-13 TO 2014-15

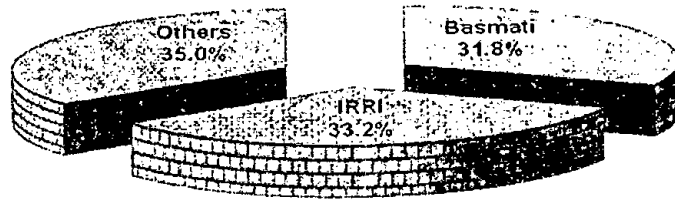
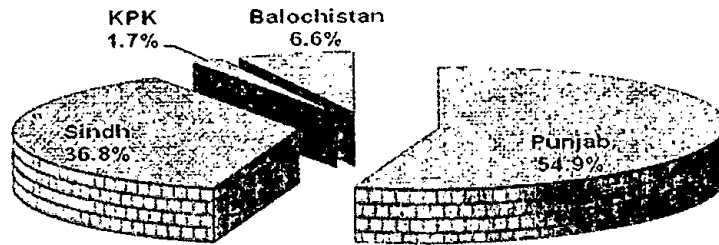


Fig-2: PROVINCIAL SHARES IN PRODUCTIN OF RICE: AVERAGE OF 2012-13 TO 2014-15



3.2 Important Rice Producing Districts

3.2.1 Districts producing more than 50 thousand tonnes of rice include Gujranwala, Sheikhupura, Okara, Sialkot, Hafizabad, Nankana Sahib, Kasur, M.B. Din, Narowal, Bahawalnagar, Pakpattan, Jhang, Sargodha, D.G. Khan, Lahore, Gujrat, T.T. Singh, Chiniot, Muzaffargarh, Faisalabad and Sahiwal, from the Punjab, Badin, Larkana, Shikarpur, Qamber, Kashmore, Jacobabad, Thatta, Dadu Ghotki and T.M. Khan from Sindh and Jafarabad and Nasirabad from Balochistan. These 33 districts collectively produced 92.4 per cent of total production of rice. Main basmati producer districts which contributes about 54.3 per cent of the total basmati are Gujranwala, Sheikhupura, Sialkot, Hafizabad, Nankana Sahib, M.B. Din and Narowal While 69 per cent of the total IRRI rice is contributed by Okara, Larkana, Shikarpur, Qamber, Thatta, Dadu, Nasirabad and Jafarabad, these districts are above 100 thousand tonnes producers. Districts, based on 2012-13 to 2014-15 average, are arranged in descending order of rice production, with varieties break-up in **Annex-II**.

3.3 Changes in Area, Yield and Production

3.3.1 The area under rice crop during 2004-05 to 2014-15 has ranged between 2.31 and 2.96 million hectares (5.71 to 7.32 million acres) and production oscillated between 4.82 and 7.00 million tonnes (**Annex-I & I-A**). The yield during this period fluctuated between 1994 to 2437 kgs per hectare (807 to 986 kgs per acre). Long and short terms changes in area, yield and production of rice are discussed below:

a. Long terms changes: 2004-05 to 2014-15

3.3.2 During the decade ending 2014-15, production of rice at country level is estimated to have increased @ 2.2 per cent per annum as a cumulative effect of increase in yield by 1.8 per cent and expansion in area by 0.4 per cent. The changes in area, yield and production by provinces and by variety-wise during 2004-05 to 2014-15 are given in **Table-3**.

Table-3: Average Annual Growth Rates of Area, Yield and Production of Rice: 2004-05 to 2014-15

Country/Province	Variety	Area	Yield	Production
		-----Per cent per annum-----		
Pakistan	All varieties	0.4	1.8	2.2
	Basmati	-2.9	0.5	-2.4
	IRRI	-1.7	0.3	-1.4
	Others	14.3	5.1	20.1
Punjab	All varieties	0.3	1.3	1.5
	Basmati	-2.9	0.5	-2.4
	IRRI	5.5	1.2	6.7
	Others	15.2	0.0	15.3
Sindh	All varieties	1.5	2.5	4.1
	IRRI	-3.8	0.0	-3.8
	Others	20.3	15.2	38.6
KPK	All varieties	-1.7	0.1	-1.6
Balochistan	All varieties	-4.1	1.6	-2.6

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

3.3.3 Annual growth of rice production in the Punjab during the period 2004-05 to 2014-15 remained higher by 1.5 per cent as result of 1.3 per cent per annum increase in yield and 0.3 per cent per annum in area. The production of basmati rice has decreased by 2.4 per cent per annum, resultantly area decrease @ 2.9 per cent per annum, although Yield increased by 0.5 per cent per annum, The production of IRRI rice has increased by 6.7 per cent annually due to 5.5 and 1.2 percent per increase in area and yield. The production of 'Other' varieties has increased by 15.3 per cent per annum because of 15.2 per cent expansion in area as no change in yield occurred.

3.3.4 In Sindh, where only coarse varieties are cultivated, rice production during the period under reference is estimated to have increased @ 4.1 per cent annually due to 1.5 per cent expansion in area and 2.5 per cent rise in yield.

3.3.5 In the Khyber Pakhtun Khwa, the production of rice has decreased by 1.6 per cent annually due to 1.7 per cent per annum decrease in area while the yield was slightly increased by 0.1 percent per annum.

3.3.6 In Balochistan, rice production during the period under reference has recorded average annual reduction of 2.6 per cent due to decrease in area by 4.1 percent whereas rice yield increased by 1.6 percent.

b. Short-terms changes: 2013-14 vs 2014-15

3.3.7 According to the Final estimates, rice production estimated at 7.003 million tonnes in 2014-15 is 3.01 per cent higher than last year's production of 6.798 million tonnes. The production has increased @ 3.01 per cent mainly based upon in the increases of area by 3.64 per cent while yield decreased by 0.6 per cent. The changes in area yield and production by province and by variety in 2014-15 in relation to 2013-14 are given in Table-4.

Table-4: Area, Yield and Production of Rice by Variety: 2013-14 and 2014-15 Crop

Country/ Pakistan	Area		Change	Yield		Change	Production		Change
	2013-14	2014-15		2013-14	2014-15		2013-14	2014-15	
	000 hectares		Percent	Kgs/hectare		Percent	000 tonnes		Percent
Pakistan	2789.2	2890.6	3.64	2437	2423	-0.60	6798.1	7002.8	3.01
Basmati	1192.6	1320.0	10.68	1725	1771	2.65	2057.1	2337.2	13.62
IRRI	795.7	794.4	-0.16	2980	2815	-5.55	2371.2	2236.0	-5.70
Others	800.9	776.2	-3.08	2959	3130	5.79	2369.8	2429.6	2.52
Punjab	1808.9	1877.7	3.80	1924	1943	0.96	3481.0	3648.0	4.80
Basmati	1192.6	1320.0	10.68	1725	1771	2.65	2057.1	2337.2	13.62
IRRI	189.4	196.7	3.85	2625	2559	-2.53	497.2	503.3	1.23
Others	426.9	361.0	-15.44	2171	2237	3.04	926.7	807.5	-12.86
Sindh	745.5	781.7	4.86	3511	3393	-3.34	2617.3	2652.6	1.35
IRRI	426.8	423.4	-0.80	3013	2743	-8.96	1286.1	1161.5	-9.69
Others	318.7	358.3	12.43	4177	4162	-0.37	1331.2	1491.1	12.01
KPK	55.3	56.9	2.89	2024	2302	13.78	111.9	131.0	17.07
Balochistan	179.5	174.3	-2.90	3275	3277	0.06	587.9	571.2	-2.84

Source: Annex-I.

3.3.8 In the Punjab, overall production of rice has shown increase of 4.8 per cent during 2014-15 as compared to 2013-14. The increase in production occurred mainly because of increase in area and yield by 3.8 and 1.0 per cent. Production of basmati increased by 13.6 percent because of increase in area by 10.7 per cent and 2.7 per cent in yield. IRRI varieties have shown an increase of 1.2 per cent in production due to increase by 3.9 per cent in area wherever 2.5 per cent decrease in yield. Production of 'Other' rice has decreased by 12.86 per cent mainly because of decrease 15.44 percent in area wherever 3.04 per cent increase in yield.

3.3.9 In Sindh, overall production of rice has increased by 1.35 per cent mainly due to increase in area by 4.86 per cent whereas yield decreased by 3.34 per cent compare to the last year. Production of IRRI decreased by 9.69 mainly due to decrease in area and yield by 0.8 and 8.96 per cent respectively. Production of "Others" rice has increased by 12.01 per cent due to increase in area by 12.43 per cent and slightly decreased by 0.37 per cent in yield.

3.3.10 In the Khyber Pakhtunkhwa rice production increased by 17.07 percent due to increase in area by 2.89 percent and yield by 13.78 percent as compared to 2013-14 crop.

3.3.11 In Balochistan, where IRRI varieties of rice are grown, production of rice has decreased by 2.84 per cent due to decrease in area of rice by 2.90 per cent and yield is slightly increased by 0.06 per cent in 2014-15 as compared to 2013-14.

3.3.12 Agriculture Department of Punjab and Sindh has provided following reasons regarding change in area and production of rice for 2014-15 crop:

Punjab

Area

1. Lucrative market prices induced the growers to increase the rice acreage.
2. Shifting of some sugarcane and maize crops area into rice crop particularly Faisalabad, T.T. Singh, Jhang, Chiniot, Kasur, Okara, Sahiwal, Pakpattan and Bahawalnagar districts.

Production

1. Corresponding increase in area.
2. Comparative better yield of basmati varieties enhanced the production of the rice crop.

Sindh

Area

- Increase in area due to timely availability of Irrigation water & inputs.

Production

- Production increased only on account of increase in area whereas yield has decreased.

3.4 Targets Vs Achievements: 2014-15 Crop

3.4.1 The Federal Committee on Agriculture (FCA) meeting held on 14-10-2014 in Islamabad has fixed rice area and production target for 2014-15 crop at 2.786 million hectares and 6.806 million tonnes. As per final estimates provided by Provincial Agricultural Departments, the area and production estimated at 2.891 million hectares and 7.003 million tonnes, higher than the target by 3.8 and 2.9 per cent respectively (Table-5).

Table-5: Targets and Estimated Achievements of Area, Yield and Production of Rice: 2014-15 Crop

Country/ Province	Area		Deviation from Target	Yield		Deviation from Target	Production		Deviation from Target
	Target	Achieve Ment		Target	Achieve Ment		Target	Achieve Ment	
	000 hectares		Percent	kgs per hectare		Percent	000 tonnes		Percent
Pakistan	2786.0	2890.6	3.8	2442.9	2422.6	-0.8	6806.0	7002.8	2.9
Punjab	1800.0	1877.7	4.3	1944.4	1942.8	-0.1	3500.0	3648.0	4.2
Sindh	750.0	781.7	4.2	3466.7	3393.4	-2.1	2600.0	2652.6	2.0
KPK	51.0	56.9	11.6	1960.8	2302.3	17.4	100.0	131.0	31.0
Balochistan	185.0	174.3	-5.8	3275.7	3277.1	0.0	606.0	571.2	-5.7

- Sources:**
1. For targets: Minutes of the Federal Committee on Agriculture (FCA) meeting held on 14-10-2014 in Islamabad.
 2. For achievements: Annex-I.

3.4.2 Area targets have been over achieved in the Punjab, Sindh, and KPK by 4.3., 4.2 and 11.6 per cent respectively while in Balochistan it remained under achieved by 5.8 percent. The Production of Punjab, Sindh, and KPK also remained higher the target by 4.2, 2.0 and 31.0 per cent respectively while production in Balochistan remained below the target by 5.7 percent. Yield of KPK has surpassed the target by 17.4 per cent but in the Punjab and Sindh remained below the target by 0.1 and 2.1 per cent respectively. Targets and achievements of area, yield and production of rice by provinces and varieties are depicted in Fig-3 and Fig-4.

4. DOMESTIC DEMAND, SUPPLY AND PRICE SITUATION OF RICE

4.1 Domestic Demand and Supply of Rice

4.1.1 Based on annual per capita availability of rice averaging at 13.67 kgs during the period 2011-12 to 2013-14 (Annex-III), the domestic consumption requirement in 2014-15 for population of 199.12 million has been estimated at 2722 thousand tonnes. Against this requirement, total production of rice in the country from 2014-15 crop has been reported at 7003 thousand tonnes. Taking the allowance for seed and wastage @ 6 per cent of the production (420 thousand tonnes), the net available rice for consumption and trade comes to 6583 thousand tonnes. Thus Pakistan has an export surplus of 3861 thousand tones, after accounting for domestic requirement of 2722 thousand tones during 2014-15.

4.2 Domestic Prices of Rice Paddy

4.2.1 The wholesale market prices of basmati paddy as presented in Table-6 have ranged between Rs 1650 per 40 kgs in Okara market during October 2014 and Rs 1332 per 40 kgs in Pakpattan market during December 2014. The seasonal average prices of basmati in the Punjab have ranged between Rs 1385 and Rs 1536 per 40 kgs.

PROVINCE-WISE TARGET AND ACHIEVEMENT IN PRODUCTION OF RICE: 2014-15 CROP

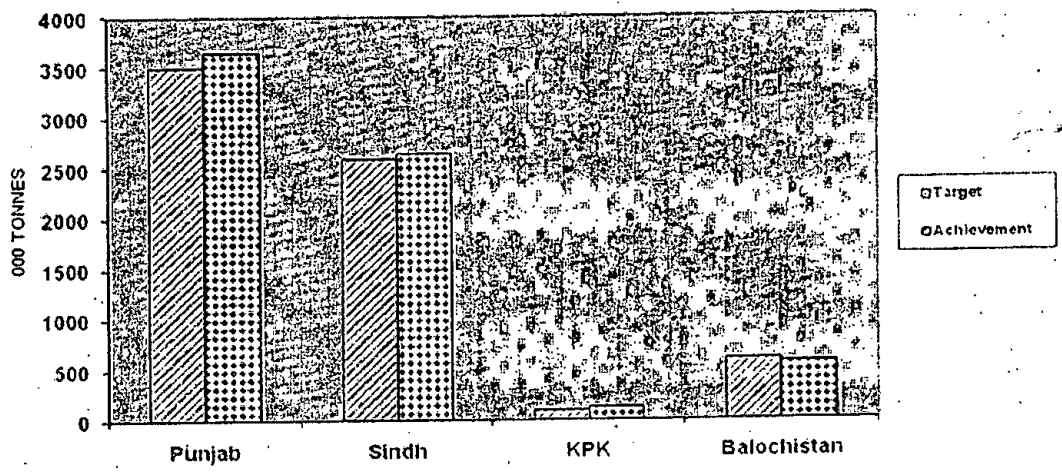


Figure-3

TARGET AND ACHIEVEMENT AT NATIONAL LEVEL IN VARIETAL PRODUCTION OF RICE: 2014-15 CROP

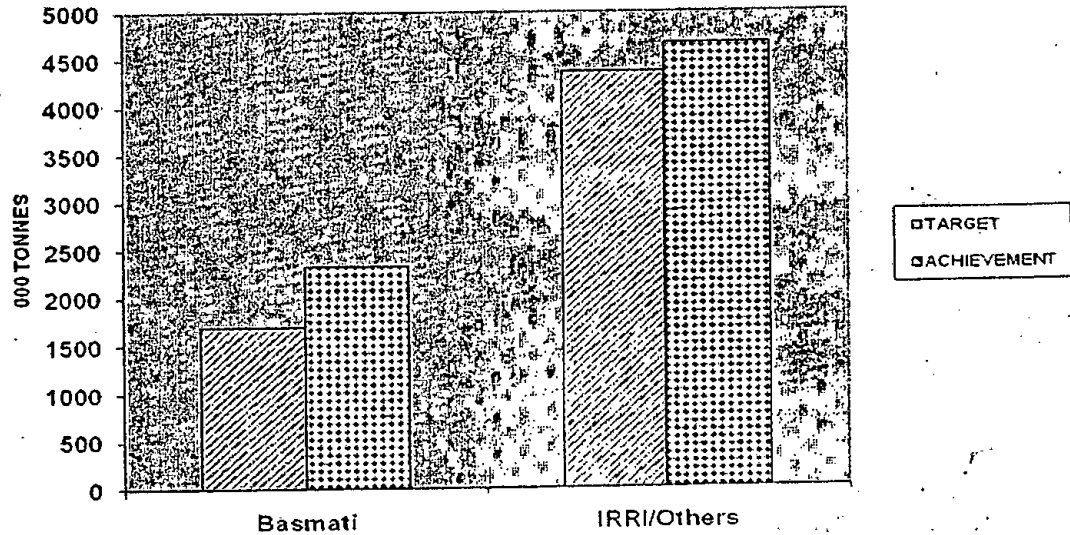


Figure-4

Table-6: Monthly Average Wholesale Prices of Basmati Paddy in Major Producer Area Markets of the Punjab:2014-15 crop

Markets	Oct	Nov	Dec	Average
	-----Rupees per 40 kgs.-----			
Sialkot	1485	1411	1350	1415
Sheikhupura	-	1495	1386	1440
Gujranwala	1580	1522	1419	1507
M.B Din	-	1453	1381	1417
Hafizabad	-	1434	1339	1386
Nankana	-	1494	1373	1433
Narowal	-	1464	1403	1434
Kasur	1570	1479	1344	1465
Sahiwal	1538	1459	1404	1467
Okara	1650	1562	1396	1536
Pakpattan	1425	1397	1332	1385
Average	1541	1470	1375	1444

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

4.2.2 The monthly average wholesale market prices of IRRI Paddy in different markets of Punjab and Sindh are presented in **Table-7**. The market price in Punjab ranged between Rs 787 in Pakpattan market during November 2014 and Rs 813 in Sahiwal market during December 2014.

4.2.3 Like, Punjab, the average whole sale price of IRRI-6 paddy ranged between Rs.754 in Larkana market during October 2014 and Rs 930 in Dadu market during November 2014.

Table-7: Monthly Average Wholesale Prices of IRRI-6 Paddy in Major Producer Area Markets of the Punjab and Sindh during 2014-15

Markets	Oct	Nov	Dec	Jan	Average
-----Rupees per 40 kgs.-----					
Punjab					
Pakpattan	795	787	-	-	791
Sahiwal	797	800	813	-	803
Okara	810	799	794	-	801
Average	801	795	803	-	798
Sindh					
Badin	859	844	853	-	762
T.M Khan	872	871	777	777	824
Thatta	842	874	838	810	841
Dadu	-	930	778	772	827
Larkana	754	848	803	815	805
Shikarpur	822	852	778	813	816
Jacobabad	885	881	826	826	855
Kashmore K.Kot	866	828	800	790	821
Qambar Shahdad Kot	770	872	843	820	826
Ghotki	873	875	780	800	832
Sukkur	816	778	779	850	806
Average	836	859	805	807	828

Source: Market Committees, Sindh.

5. COST OF PRODUCTION OF RICE PADDY

5.1 The cost of production (COP) is one of the important factors in making price suggestion for farm commodities. However, its empirical estimation involves a number of intangible problems and practical difficulties. Wide variations in the use level of inputs, technology adoption and diverse farming resulting in varying yield levels further add to the problem.

5.2 The cost of production estimates in the Punjab and Sindh for various varieties groups of rice paddy for the 2015-16 crop have been updated by adopting the input-output parameters as used in the Price Policy Report for Rice Paddy, 2014-15 crop in conjunction with the latest prices and rates of field operations. The prices of inputs and custom hiring rates of field operations were updated with the information provided by the participants in the meeting of API's Standing Committee Meeting, held on 20th April 2015 at Islamabad and mini field surveys

conducted by the API in the important rice growing areas of the Punjab and Sindh during Jan-Feb 2015. The COP estimates for rice paddy for the Punjab and Sindh are detailed in Annex-IV to VI, while the summary of these is shown in Table-8.

5.1 Average Farmers' Cost of Production of Rice Paddy: 2014-15 and 2015-16 Crops

5.1.1 The expected cost of production estimates of basmati and IRRI in the Punjab and IRRI in Sindh during 2014-15 and 2015-16 crops are summarized and presented in Table- below.

Table-8: Average Farmers' Cost of Production of Rice Paddy: 2014-15 and 2015-16 Crops

Item	Unit	Cost estimates		Increase in 2015-16 over 2014-15
		2014-15 crop	2015-16 crop	
Punjab		Basmati		
1. Net cost of cultivation	Rs/acre	39616	38449	- 1167
2. Yield	Kgs/acre	1053	1053	-
3. Cost of production at farm level	Rs/40 kgs	1505	1461	- 44
4. Marketing cost i.e. loading, transport, commission etc.	"	45	45	-
5. Cost of production at market level	"	1550	1506	- 44
		IRRI		
1. Net cost of cultivation	Rs/acre	36618	36851	232
2. Yield	Kgs/acre	1510	1510	-
3. Cost of production at farm level	Rs/40 kgs	970	976	6
4. Marketing cost i.e. loading, transport, commission etc.	"	45	45	-
5. Cost of production at market level	"	1015	1021	6
Sindh		IRRI		
1. Net cost of cultivation	Rs/acre	33508	33627	119
2. Yield	Kgs/acre	2004	2004	-
3. Cost of production at farm level	Rs/40 kgs	669	671	2
4. Marketing cost i.e. loading, transport, commission etc.	"	45	45	-
5. Cost of production at market level	"	714	716	2

Source: Annex-IV to VI.

Punjab

- Basmati

5.1.2 The cost of growing one acre of basmati paddy at the current inputs prices and custom hiring rates in the Punjab, during 2015-16 crop year is anticipated at Rs 38449, inclusive of land rent. Based on the average yield of 1053 kgs per acre, the farm level cost of production works out to Rs 1461 per 40 kgs. Adding marketing cost @ Rs 45 per 40 kgs, the cost of production to harvest and deliver the rice paddy at the market/sheller level would be Rs 1506 per 40 kgs, lesser by Rs 44 per 40 kgs (2.9 per cent) of the last year's corresponding cost estimated at 1550 per 40 kgs.

- IRRI

5.1.3 The likely cost of cultivating one acre of IRRI paddy in the Punjab during 2015-16 is outlined at Rs 36851, inclusive of land rent. The farm level cost of production comes to Rs 976 per 40 kgs, basing on the average yield of 1510 kgs per acre. Taking into account marketing charges @ Rs 45 per 40 kgs, the cost of IRRI paddy at the market/sheller level would be Rs 1021 per 40 kgs, higher by Rs 6 per 40 kgs (0.6 per cent) the corresponding cost estimates of the 2014-15 crop of Rs 1015 per 40 kgs.

- Sindh

5.1.4 In Sindh, cultivating one acre of IRRI paddy during 2015-16 crop's year is expected to cost at Rs 33627, inclusive of land rent. Based on average yield of 2004 kgs per acre, the cost of production at farm level would be Rs 671 per 40 kgs. Taking marketing expenses @ Rs 45 per 40 kgs, the cost of produce to deliver at sheller/market would be Rs 716 per 40 kgs, exceeding the corresponding cost of Rs 714 per 40 kgs of the 2014-15 crop by Rs 2 (0.3 per cent).

5.1.5 The intensification in COP of rice paddy in both provinces have been mainly on account of higher prices of fertilizer, pesticides, weedicides and land rental charges. However, depressed market prices of rice paddy as kind payment for harvesting, threshing etc and increase in value of paddy straw have partially off set the increase in the cost of rice production in both provinces.

5.2 Cost of Major Operations/Inputs

5.2.1 The break up of various field operations and farm inputs in the total cost of cultivation of rice paddy in the Punjab and Sindh during 2014-15 and 2015-16 crops along-with percentage changes therein is presented in **Table-9**.

Table-9: Cost of Major Operations/inputs of Rice Paddy: 2014-15 and 2015-16 Crops

Operations/inputs	2014-15 Crop	2015-16 Crop	Shares in increased cost
	(Rs/acre)		(Per cent)
Punjab			
Basmati			
1. Land preparation	5500 (12)	5500 (12)	-
2. Nursery/uprooting and transplanting	4141 (9)	4194 (10)	4.63
3. Weeding	624 (1)	642 (1)	1.57
4. Plant protection	551 (1)	590 (1)	3.57
5. Irrigation	11389 (24)	11389 (25)	-
6. Fertilizer including FYM	5254 (11)	5400 (12)	12.48
7. Land rent	11000 (23)	11500 (25)	42.84
8. Harvesting and threshing etc	4944 (10)	2960 (7)	-170.06
9. Others	3213 (7)	3273 (7)	5.17
10. Total cost	46616 (100)	45449 (100)	100.00
Sindh			
IRRI			
1. Land preparation	5050 (12)	5050 (12)	-
2. Nursery/uprooting and transplanting	4026 (10)	4073 (10)	20.22
3. Weeding	861 (2)	894 (2)	14.09
4. Plant protection	568 (1)	609 (1)	17.46
5. Irrigation	6676 (16)	6676 (16)	-
6. Fertilizer including FYM	6945 (18)	7089 (18)	62.183
7. Land rent	11000 (24)	11250 (27)	107.54
8. Harvesting and threshing etc	3029 (7)	2686 (7)	-147.67
9. Others	2963 (7)	3024 (7)	26.18
10. Total cost	41118 (100)	41351 (100)	100.00

- Notes:**
1. Others include mark-up, management, land tax, land revenue and drainage cess.
 2. Figures in parenthesis are percent shares in total cost of cultivation.
 3. Rounding off figures may result in a slight difference.

Punjab

- Basmati

5.2.2 In the Punjab, land rent and irrigation are the significant components of the total cost of cultivation of basmati paddy for 2015-16 crop, accounting for 25 per cent each. The other major constituents are: land preparation and Fertilizers including FYM (12 % each), Nursery and related operation (10 %) and harvesting/threshing operations (7%).

- IRRI

5.2.3 During 2015-16 crop year, land rent is the leading component of the cost of cultivation of IRRI paddy in the Punjab, accounting for 27 per cent. The other chief constituents are: Fertilizer including FYM (18 %), Irrigation (16 %), land preparation (12 %), Nursery and related operations (10 %) and Harvesting/threshing (7 %).

Sindh

5.2.4 The land rent is the core component of the cost of cultivation of IRRI paddy during 2015-16 crop year in Sindh, contributing 24 per cent. The other chief components are: land preparation (19 %), Fertilizers including FYM (16 %), Nursery and related operations (14 %), Harvesting/threshing operations (9 %) and Irrigation (6 %).

6. ECONOMICS OF RICE PADDY AND COMPETING CROPS

6.1 Resource allocation among competing enterprises is primarily guided by economic considerations as reflected in their gross cost, gross income, gross margin, net income, output-input ratio, etc. Rice, a major 'kharif' crop, competes with cotton for land, water and other farm resources in the areas where cultivation of both crops is technically feasible. The coarse and fine varieties of rice may also compete among themselves. Rice also faces indirect competition from sugarcane, an annual crop, which occupies the land over the year.

6.2 The economics of rice and competing crops has been analyzed in terms of input-output prices paid and received by the growers for the 2014-15 crops. A summary of the relevant economic indicators emerging from the analysis is presented in **Table-10** for the Punjab and **Table-11** for Sindh. Also, the Output-Input ratios have been graphically presented in **Fig-5** and **Fig-6** for both the provinces. Details of the analysis are provided in **Annex-VII**.

Punjab:

6.3 Basmati's performance in Punjab in terms of returns to overall investment has been significantly lower than cotton. Similarly, in terms of purchased inputs, crop duration and irrigation water, Basmati's returns to farmer for investment were much lower than the cotton.

Table-10: Economics of Rice and Competing Crops at Prices Realized by the Growers in the Punjab: 2014-15 Crops

Crop/crop combination	Output-input ratio	Gross revenue per		
		rupee of purchased inputs cost	day of crop duration	acre-inch of irrigation water used
----- Rupees -----				
1. Basmati paddy	0.87	1.95	227	704
2. IRRI paddy	0.80	1.84	184	533
3. Cotton	1.03	3.06	239	2602
4. Basmati+wheat	0.96	2.33	229	1176
5. Basmati+sunflower	0.93	2.15	226	1015
6. IRRI+wheat	0.92	2.30	207	1007
7. IRRI+sunflower	0.90	2.11	204	874
8. Sugarcane	1.25	3.96	237	1943

Source: Annex-VII.

6.4 IRRI paddy in Punjab also could not perform against cotton in any of the economic indicators analyzed and cotton out-competed the earlier comprehensively. Not only that both Basmati and IRRI paddy were out performed by cotton, the crops even couldn't gain break-even and their returns to overall investment i.e output-input ratio, was below than 1, which indicates that farmer stood in loss in cultivating Irri paddy.

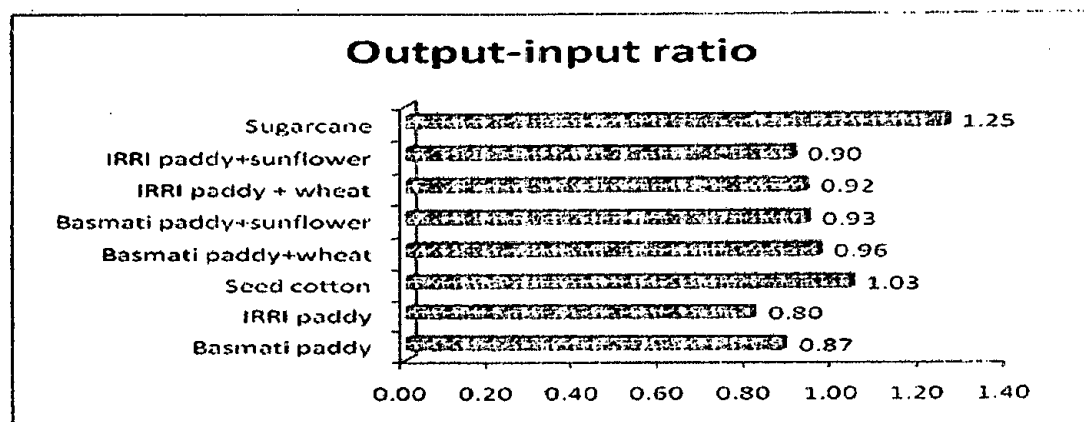


Fig-5: Output-input Ratio in Punjab for Rice Paddy 2014-15 crop

6.5 In case of indirect competition, the Basmati combinations with Wheat and Sunflower show better returns against sugarcane in terms of output-input ratio and crop duration, while sugarcane performed better, against the earlier, in terms of purchased inputs and irrigation water. IRRI combinations remained considerably lower in respect of all the economic indicators tested in this analysis.

Sindh

6.6 In Sindh, rice farming has shown relatively better result in output-input ratio compared to the cotton crop. Whereas in other return's parameters, rice performance remained worse than cotton (Table-11).

Table-11: Economics of IRRI Paddy and Competing Crops at Prices Realized by the Growers in Sindh: 2014-15 Crops

Crop/crop combination	Output-input ratio	Gross revenue per		
		rupee of purchased inputs cost	day of crop duration	acre-inch of irrigation water used
----- Rupees -----				
1. IRRI paddy	1.18	3.29	249	800
2. Cotton	1.16	3.71	250	3332
3. IRRI+wheat	1.12	3.16	236	1249
4. IRRI+sunflower	1.07	2.85	237	1092
5. Sugarcane	1.28	3.89	232	1597

Source: Annex-VII.

6.7 In context of indirect competition with sugarcane, the economic position of IRRI+ wheat rotation is weaker than sugarcane in all the criteria adopted for the current analysis, except crop duration. However, the performance of IRRI + sunflower combination has been at par with the sugarcane in terms of overall investment and significantly better in the crop duration. This combination remained below in terms of purchased inputs and irrigation water, both very important indicators.

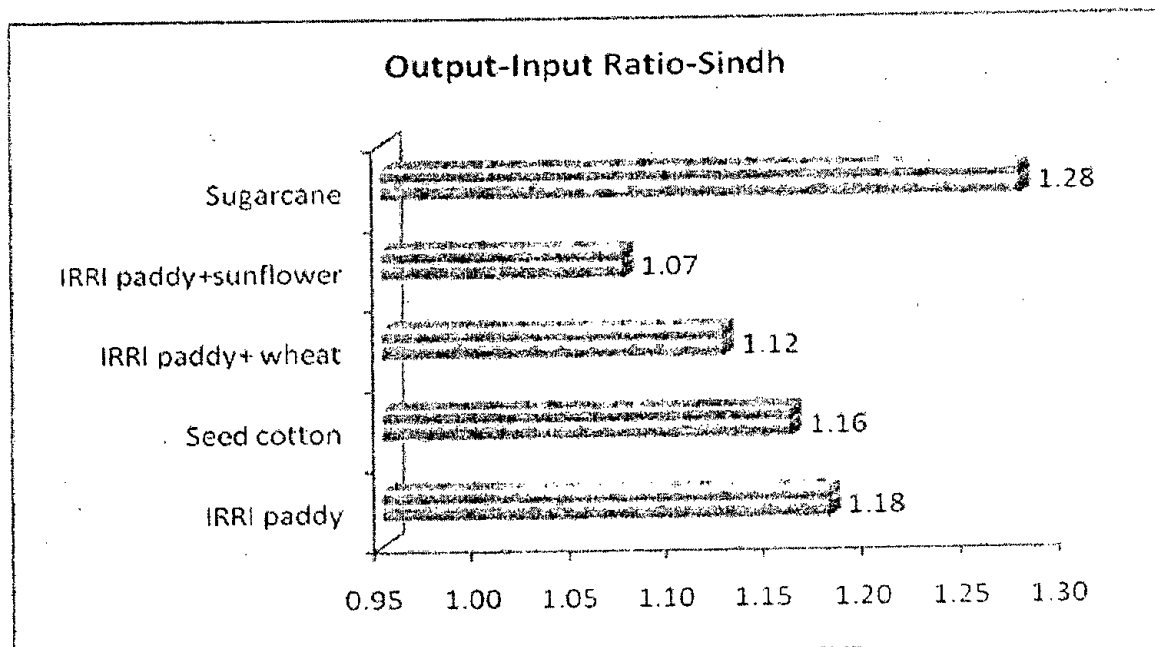


Fig-6: Output-input Ratio in Sindh for Rice Paddy 2014-15 crop

7. NOMINAL AND REAL MARKET PRICES OF BASMATI AND IRRI PADDY: 2007-08 TO 2014-15

7.1 To analyse the overtime changes in the purchasing power of basmati (Punjab) and IRRI paddy (Sindh), the nominal and real market prices of rice paddy for the period 2007-08 to 2014-15 crops were deflated by the Consumer Price Index (CPI), the most common measures of inflation in the economy. The results are given in Table-12 and also depicted in Figs-7 and 8.

Table-12: Nominal and Real Market Prices of Basmati and IRRI-6 Paddy: 2007-08 to 2014-15

Crop year	Nominal Market Prices		Consumer Price Index (CPI)	Real Market Prices	
	Basmati (Punjab)	IRRI-6 (Sindh)		Basmati	IRRI-6
1	2	3	4	5=(2/4)*100	6=(3/4)*100
	Rs per 40 kgs		2007-08	Rs per 40 kgs	
2007-08	920	509	100.00	920	509
2008-09	1183	585	117.03	1,011	500
2009-10	1097	666	128.85	851	517
2010-11	1325	935	146.45	905	638
2011-12	1424	798	162.57	876	491
2012-13	1653	875	174.53	947	501
2013-14	2260	890	189.58	1,192	470
2014-15	1444	828	198.69	727	418

Note: The market prices are the average wholesale prices prevailed during the post harvest season in the main producer area markets of the Punjab for basmati and of Sindh for IRRI paddy.

Sources:

- i) Economic Survey of Pakistan, 2014-15.
- ii) Directorate of Agriculture, (E&M), Lahore, Punjab.
- iii) Directorate of Agriculture Farms and Major Crops Development, Hyderabad, Sindh.

7.2 It is important to note from the above analysis that due to increasing trend of general inflation in the economy, the gap between nominal and real prices, both of Basmati and IRRI paddy is widening every year. It shows the deterioration of the purchasing power of the commodity overtime in real terms. Variety-wise detail of basmati and IRRI paddy is discussed in the following paragraphs.

i) Basmati Paddy (Punjab)

7.3 The data in Table-12 reveals that the nominal market price of Basmati paddy has evidenced 57 per cent overall increase against the base year during the period under review while its real value decreased by 21 per cent. The major reason for this slow increasing trend in the real purchasing power of the crop is the 99 per cent general inflation observed in the economy during the same period.

7.4 For the entire period under review, the real market price remained above the base year level for three times only for example 2008-09, 2012-13 and 2013-14. The market prices fell down in 2014-15 @ 36 per cent as compared to the previous year. The farmer's concern for low prices of their produce has built-up and more importantly the quantum of trade is low for the last couple of years consistently, mainly for global slump.

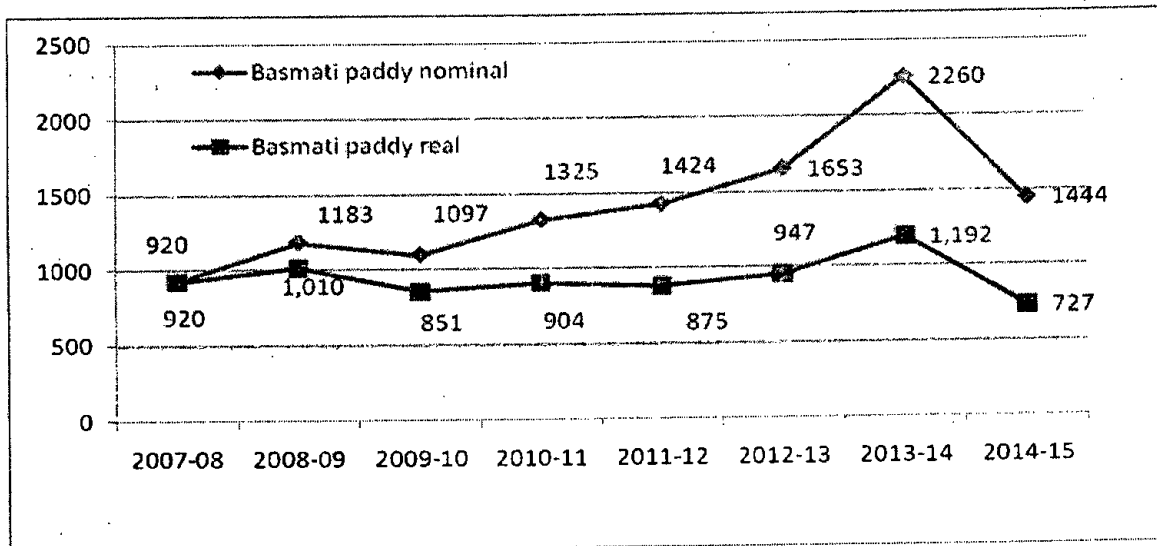


Fig-7: Nominal and Real Market price of Basmati Paddy in the Punjab: 2007-08 to 2014-15

ii) IRRI Paddy (Sindh)

7.5 It may be seen from Table-12, that the nominal market price of IRRI paddy in Sindh averaging at Rs 509/- per 40 kgs during the post harvest season of 2007-08 has increased to Rs 828/- per 40 kgs in 2013-14, indicating overall increase of 62.7%. For the rise in CPI by 99 per cent, the consequent decrease in the real market price of IRRI paddy is estimated at 18 per cent from Rs 509/- in base year to Rs 417/- per 40 kgs in 2014-15.

7.6 The data also reveals that during the whole period in question, the real market prices of IRRI paddy fluctuations occurs during the period under review. However, the year 2010-11 was the best crop season for rice growers as they received the highest real price of Rs 638/- per 40

kgs. However, during 2014-15 IRRI (paddy) price slightly fell down the base year level. The real value of the crop remained below the base year level throughout the period under review except 2009-10 and 2010-11.

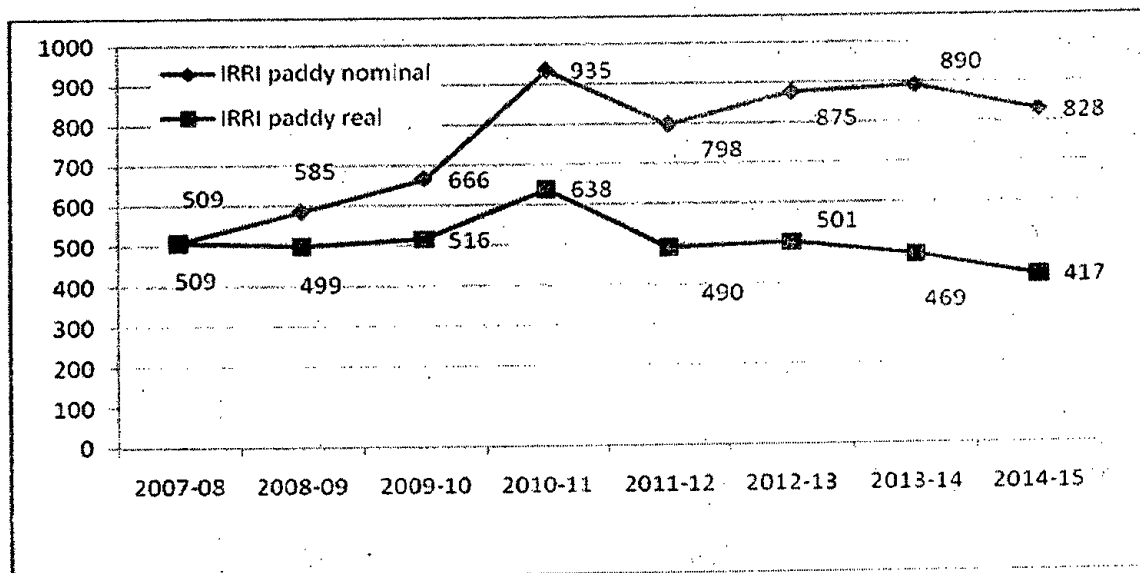


Fig-8: Nominal and Real Market price of IRRI-6 Paddy in the Sindh: 2007-08 to 2014-15

8. WORLD SUPPLY, DEMAND, STOCKS, TRADE AND PRICES SITUATION OF MILLED RICE

8.1 World Supply, Demand, Stocks, and Trade Situation

8.1.1 The data regarding the world balance sheet of rice from 2013-14 to 2015-16 are presented in **Table-13**.

8.1.2 The world production of rice in 2014-15 is estimated at 476 million tonnes, 2 million tonnes or (0.42 per cent) lower than that in 2013-14. Adding the opening stocks of 112 million tonnes, total supply works to 588 million tonnes (0.51 per cent) lower than in 2013-14.

8.1.3 Rice production in 2015-16 is forecast to increase to 481 million tonnes, 5 million tonnes higher than in 2013-14. With the addition of opening stocks of 103 million tonnes, total supply is expected at 584 million tonnes, 4 million tonnes lower than in 2014-15 due to significant

decrease in opening stock. The global consumption is forecast to rise from 484 million tonnes in 2014-15 to 489 million tonnes in 2015-16. The end year stocks have decreased to 96 million tonnes. However, the global trade in rice reported at 42 million tonnes in 2014-15 is forecast to remain at same level in 2015-16. Due to persistent decrease in stocks, the prices may rise.

Table -13: World Supply, Demand, Stocks and Trade in Rice: 2013-14 to 2015-16

S.No	Item	2013-14	2014-15 Estimate	2015-16 Forecast
		-----Million tones-----		
1.	Opening stocks	113	112	103
2.	Production	478	476	481
3.	Total supply (Items 1+2)	591	588	584
4.	Consumption/disappearance	479	484	489
5.	Closing stocks	112	103	96
6.	Trade	43	42	42

Source: International Grain Council, Market Report June, 2015.

8.2 Export Parity Prices of Rice Paddy

8.2.1 To ascertain export competitiveness of Pakistani rice in the international market, export parity prices have been calculated on the basis of actual export prices of both fine and coarse rice. The details of these calculations are presented in **Annexes-VIII and IX** and a summary has been provided in **Table-14**.

Table-14: Export Parity Prices of Basmati and IRRI Paddy

Items	May 2015	2014-15	Average 2011-14
A) Export Parity Price of Basmati Paddy			
Average fob Karachi prices of rice (US\$/ton)	1238	1077	964
Exchange Rate (Rs/US\$)	101.78	101.78	101.78
Average fob Karachi prices of rice (Rs/40Kgs)	5040	4385	3925
Mill-gate price of rice paddy (Rs/ 40 kgs)	2601	2236	1980
B) Export Parity Price Of IRRI Paddy			
Average fob (Karachi) prices of rice (US\$/ton)	491	447	513
Exchange Rate (Rs/US\$)	101.78	101.78	101.78
Average fob Karachi prices of rice (Rs/40Kgs)	1999	1820	2089
Mill-gate price of rice paddy (Rs/40 kgs)	836	748	880

9. RICE EXPORT FROM PAKISTAN

9.1 Pakistan has been a major exporter of rice with its share in global trade at 8.87 per cent during 2013-14. Export of basmati rice has declined by 0.97 per cent in 2013-14 over 2012-13, while the export of coarse rice has increased by 12.48 percent (Table-15).

Table-: 15 Per Cent Change in Export of Basmati and Coarse Rice in 2013-14 Over 2012-13

Region	Quantity		Value		% share in total export			
	Basmati Rice	Coarse Rice	Basmati Rice	Coarse Rice	Basmati Rice		Coarse Rice	
	-----percent change-----				2012-13	2013-14	2012-13	2013-14
Asia	-10.27	-1.67	5.50	-0.61	72.83	65.99	38.62	33.76
Oceania	-1.95	-54.69	11.37	-54.02	2.97	2.94	0.07	0.03
Europe	58.05	-18.66	74.13	-20.54	11.29	18.02	1.20	0.87
Africa	19.18	25.47	31.10	18.24	4.37	5.26	52.00	58.01
America	12.17	-19.28	31.33	-27.03	4.45	5.04	5.18	3.72
CIS	-33.43	39.04	-40.61	23.31	4.08	2.74	2.92	3.61
Total	-0.97	12.48	14.79	7.61	100.00	100.00	100.00	100.00

Source: Annex- X

9.2 The table- 15 reveals that total export of basmati rice declined by 0.97 per cent in 2013-14 over 2012-13. The 58 percent of Pakistani Basmati destined to Europe and major decreased observed in CIS countries i.e 33.43 per cent. The export of basmati towards Asia and Oceania also declined by 10.27 and 1.95 per cent respectively. While it increased by 19.18 and 12.17 per cent to Africa and America regions respectively. The total export of coarse rice has expanded by 12.48 per cent in 2013-14 against the last year. The export of coarse rice decreased by 1.67, 54.69, 18.66 and 19.28 per cent to Asia, Oceania, Europe and America respectively. While it improved by 25.47 and 39.04 per cent to Africa and CIS countries in 2013-14 over the last year. Pakistan has improved its export of course rice to CIS countries significantly during 2013-14.

10. ECONOMIC EFFICIENCY IN RICE PRODUCTION

10.1. Economic efficiency in rice production has been evaluated by estimating most frequently used economic parameters i.e Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Domestic Resource Cost Coefficient (DRC). To assess the impact of price policy changes on rice producers and Pakistan's comparative advantage in rice production, the analysis is conducted from 2009-10 through 2014-15. The NPC, EPC and DRC estimates are produced in **Table-16** and background analyses given in **Annex XI to XIII**.

10.1 Nominal Protection Coefficient (NPC) under Export Situation

10.1.1 NPC is a measure of protection or taxation to the producers of a crop in lieu of open market price of the crop. In this calculation open market price is numerator while social price is denominator. By definition, social price is the export parity price minus marketing cost incurred in shifting the commodity from farm gate to the market.

10.1.2 The NPC, EPC and DRC coefficients are separately calculated for Basmati and IRRI varieties of rice and produced in **Table-16**.

Table-16: Economic Efficiency Coefficients for Rice in Pakistan Under Export Situation

Province/ Year	NPC	EPC	DRC	Resources spent to earn Forex US \$ 1	US\$ 1 = Pak Rs
Punjab					
Basmati					
2009-10	0.74	0.61	0.50	45.7	85.00
2010-11	0.91	0.78	0.61	57.3	85.87
2011-12	0.67	0.66	0.53	58.9	96.63
2012-13	0.99	1.14	0.63	76.1	98.52
2013-14	1.09	1.29	0.64	78.5	98.75
2014-15	0.61	0.56	0.68	68.7	101.0
IRRI					
2009-10	1.11	1.07	0.89	84.6	85.00
2010-11	1.40	1.51	0.94	92.5	85.87
2011-12	0.76	0.63	0.52	105.0	96.63
2012-13	1.18	1.16	1.15	150.1	98.52
2013-14	1.24	1.24	1.30	178.2	98.75
2014-15	1.20	1.16	1.44	145.44	101.0
Sindh					
IRRI					
2009-10	1.11	1.09	0.68	61.9	85.00
2010-11	1.40	1.47	0.75	69.9	85.87
2011-12	1.66	1.57	0.36	61.0	96.63
2012-13	1.18	1.18	0.72	76.7	98.52
2013-14	1.23	1.25	0.85	90.9	98.75
2014-15	1.20	1.21	0.96	96.96	101.00

10.1.3 It is observed from the data in the above **Table** that for Basmati (Punjab), NPC values are less than one throughout the analysis period except 2013-14. It indicates that Basmati prices are not stable.

10.1.4 The decisive rule is that if NPC is smaller than one, local producers get price less than the corresponding export parity price and thus are implicitly taxed and vice versa.

10.1.5 The NPC data in the referred **Table** reflect that Basmati growers in Pakistan have been implicitly taxed. This situation discourages development of the crop. However, NPC value for 2013-14 is above one which implies incentive for Basmati growers to invest more in the crop which is to increase its production in the country.

10.1.6 For IRRI paddy in Sindh, NPC coefficients are fluctuating, however, these have been continuously above one both for Punjab and Sindh during the period under study. It means that on the whole, IRRI paddy growers are protected through the output price policy which induces producers for promotion of the crop.

10.2 Effective Protection Coefficient (EPC) under Export Situation

10.2.1 Effective Protection Coefficient unlike NPC includes both input and output prices in its calculation. Thus it captures the cumulative effect of both inputs' costs and the crop price on the producers of the crop. However, it needs to be mentioned that EPC does not consider all input costs rather considers only traded inputs' costs – those inputs which are purchased with cash. These are seed, fertilizer, tube well water, machinery (tractor etc). As a general principle if EPC is greater than one, the producers of the concerned crop are protected and if it is less than one, they are implicitly taxed. In the former situation farmers are induced to produce more of the crop while in later situation development of the crop discouraged.

10.2.2 Review of the EPC values for Basmati paddy produced in **Table-16** indicate that the Basmati growers in Punjab remained implicitly taxed till 2011-12 because EPCs were less than one during this period. From 2012-13 onward EPC value significantly increased. In 2012-13 it

increased to the level 1.14 against 0.66 in 2011-12. Its main reason is big jump in domestic price of Basmati paddy in 2013 against the 2011-12 price. In 2011-12 it was Rs 1424/40 Kg while in 2012-13 it increased to Rs. 1968/ 40 Kg.

10.2.3 In EPC calculation, difference of the crop revenue and traded inputs' cost at private price is numerator and the difference of the crop revenue and the traded inputs' cost at social price is denominator. As the numerator in 2012-13 relatively increased more than the denominator, EPC coefficient significantly increased. In other words, during 2012-13 basmati growers got a price higher than the corresponding export parity price. EPC value for the same reasons further increased in 2013-14 to the level 1.29 because basmati paddy price was Rs. 1968/40 Kg in 2012-13 which increased to Rs. 2323/ 40 Kg in 2013-14. Both NPC and EPC values dropped for 2014-15 because domestic price drastically dropped in 2014-15 against 2013-14.

10.2.4 For IRRI paddy, both in Punjab and Sindh values of EPC coefficients have moved in the same direction and not consistent with the NPCs. EPC coefficients for the reference period are found higher than one. It means, on the whole input output pricing policy favors IRRI paddy growers in the country which will increase its production in the country.

10.3 Domestic Resource Cost Coefficient (DRC)

Basmati paddy

10.3.1 Domestic Resource Cost Coefficient (DRC) is a measure of opportunity cost of domestic resources used per unit of the value added in the production of a crop. DRC value less than one indicates a country's comparative advantage in a commodity and the vice versa. In this calculation numerator is the total non-traded inputs' cost at social prices and denominator is the difference of the crop revenue and the traded inputs' cost at social prices. As a principle, if DRC coefficient is greater than one, country does not have comparative advantage in the concerned crop and if it is less than one, it has comparative advantage in that

crop. In other words, the crop is efficiently produced in that country and cost of resources employed in its production is less than its import cost.

10.3.2 The DRC values for Basmati and IRRI are produced in **Table-16**. For Basmati paddy, DRC coefficient is found always less than one during the analysis period which indicate Pakistan's comparative advantage in Basmati production.

IRRI paddy

10.3.3 For IRRI paddy, DRC coefficients for Sindh, most of the time has been less than one which indicate that IRRI production in Sindh province is efficient. The finding supports that Pakistan has comparative advantage in IRRI rice only in the Sindh.

10.4 Cost of Earning Foreign Exchange

10.4.1 It is already mentioned that DRC coefficient is a measure of the opportunity cost of the domestic resources (family labour, interest on capital, management charges, canal water charges, etc) used in the production of a crop. Thus DRC coefficient may be used to determine cost of foreign exchange earning in terms of domestic resources. The foreign exchange earning cost estimates are presented in **Table-16**.

10.4.2 It is observed from column 4 in the referred table that we spend less to earn forex through Basmati than IRRI export because cost of domestic resources to earn one dollar are consistently less in Basmati than IRRI. Furthermore, these costs are relatively more stable and consistent in Basmati than IRRI paddy.

11. RICE YIELD AMONG COMPETING COUNTRIES

11.1 Global rice during 2013 occupied an area of 164.722 million hectares with total production of 497.140 million tonnes. The world top 29 producing countries contribute 95.80 per cent of total area and 96.53 per cent of total production (**Annex-XIV**).

11.2 In terms of rice **area**, India is on the top with 43.5 million hectares followed by China with 30.226 million and Indonesia with 13.835 million hectares. Pakistan lies at 10th number in this regard with area of 2.800 million hectares.

11.3 In terms of rice **production**, China is on the top with 135.527 million tonnes followed by India with 106.133 million and Indonesia with 47.520 million tonnes. Pakistan lies at 11th position with 6.533 million tonnes rice production of the world.

11.4 In terms of **yield per hectare**, Australia lies at the top with 6812 kgs per hectare followed by Egypt with 6429 and USA with 5749 kgs per hectare. It is very an amazing situation that **Pakistan** ranks at 61st in terms of yield while **India** falls at 59th position (**Annex-XV**). It implies that there is a lot of potential to raise rice productivity per hectare in Pakistan.

12. MAJOR RICE VARIETIES AND THEIR YIELD POTENTIAL IN PAKISTAN

12.1 In Pakistan, rice is an important food and cash crop. It is the 2nd most important crop that brings economic prosperity of the growers as well as earns billion of rupees through its export. The yield potential of rice of different varieties being sown in Punjab and Sindh, the major producing provinces of Pakistan, are presented in **Table-17** below:

Table-17: Major Rice Varieties and Their Yield Potential

Variety	Yield Potential		Shares in the total area of rice paddy
	Rice Paddy		
	(Maund/acre)	(Kgs/acre)	(Per cent)
Punjab			
a) Basmati			
Basmati-385	55	2600	6.05
Super Basmati	65	2600	70.72
b) IRRI			
IRRI-6	80	3200	4.86
Niab- IRRI-9	80	3000	1.95
KS-282	100	3200	2.28
Sindh			
a) IRRI-8	80	3200	80
IRRI-6	70	2800	
DR-82	70	2800	
DR-83	50-55	2100	
IRRI-92	70	2800	
Khanewal 95	50-55	2100	
Sada Hayat	60-65	2500	
Shaheen	80	3200	
Lateefy (Aromatic)	40	1600	
b) In Pipe Line			
DR-57	80	3200	
DR-58	85	3400	
DR-65 (Aromatic)	40-45	1700	

Sources: i) Nuclear Institute for Agriculture & Biology (NIAB), Faisalabd.
ii) Rice Research Institute (RRI), Dokri Sindh.

12.2 Pakistan is a major rice exporting country in the World. However, the national realized yield at farmers' farm level is low though yield potential exists in the country. According to the Provincial Agriculture Departments, based on last three years (2012-13 to 2014-15) the average yield of rice paddy of different varieties for the Punjab and Sindh, is

1065 kgs per acre for Basmati, 1576 kgs for IRRI and 1360 kgs for "others", in the Punjab. In Sindh, average yield level of IRRI paddy is 1867 kgs per acre and 2468 kgs for other varieties. These yields are much below than the existing potential yield. To meet the ever growing domestic food and export requirements for foreign exchanges, there is a need to take solid efforts to get the existing yield potential realized at the farm level. The yield potential of important rice varieties is presented in **Table-17**.

13. IMPROVED SEED AVAILABILITY OF RICE PADDY

13.1 Seed is deemed as a nucleus of plant and plays a vital role in increasing yield, thus it is necessary to use quality seed of recommended varieties. In the self-pollinated crop like rice, the experts recommended seed should be replaced at least every year, implying that at least 20 per cent area of rice should be brought under fresh certified seed every year.

13.2 In order to review the overtime progress regarding coverage of quality seed, the annual gross and replacement of certified seed of rice and its availability during the period from 2009-10 to 2014-15 have been presented in **Annex-XVI**.

13.3 It may be seen in Annex mentioned above that the supply of certified seed has shown an asymmetrical trend. The availability of certified seed at the country level during referred period augmented and remained approximately at 48.23 thousand tones in 2014-15 higher by 4.74 percent than the available certified seed of 46.046 thousand during 2013-14.

13.4 The varietal breakup of the supply of certified seed of rice both in public and private sector for the crop year 2014-15 is presented in **Table-18**.

Table-18: Variety wise Certified Seed of Paddy Supplied by Public and Private Sectors for 2014-15 Crop

Province/ variety	Seed availability (Tonnes)			Area sown 000 ha.	Seed requirement Tonnes	Seed enough for area %
	Public sect.	Pvt. sect.	Total			
Punjab	3815	34508	38323	1878	29783	129
Basmati (Fine)	1967	11852	13819	1320	15840	87.24
IRRI & others	1848	22656	24504	558	13950	56.93
Sindh (IRRI+Others)	397	6647	7044	746	18650	37.77
KPK.(Others)	55	179	234	57	1425	16.42
Balochistan.(IRRI)	-	2627	2627	174	4350	60.39
All Pakistan						
Basmati	1967	11852	13819	1320	15840	87.24
IRRI + other	2300	32109	34409	1535	38375	89.67
Total	4267	43961	48228	2855	54215	88.77

Source: FSC&RD, Islamabad

13.5 The provincial variety - wise data presented in the table above shows that in all provinces the major source of supply of certified seed is private sector. The shares of private sector in the respective provincial total seed availability are as: Punjab (86 %), Sindh (94 %), Khyber pakhtunkhwa (76 %), Balochistan (100 %) and at country level (91 %). It is commendable to point out that keeping in view 20 % annual seed replacement, all provinces have surplus certified rice paddy seed with the expectation of Khyber pakhtunkhwa

14. ACKNOWLEDGEMENTS

14.1 In preparing this Report, the following officers and officials have put a lot of effort and hard work which is appreciated.

Officers

1	Mr. Abdul Rauf Chaudhry	Ex-Chairman
2	Mr. Sohail Muhammad Khan	Chief
3	Mr. Sherzada Khan	Chief
4	Mr. Sardar Ali Khan (Coordinator)	Chief
5	Mr. Abdul Karim	Deputy Chief
6	Mr. Muhammad Ijaz Ahmed	Deputy Chief
7	Mr. Hussain Ali Turi (Deputy Coordinator)	Assistant Chief
8	Mr. Muhammad Amin	Assistant Chief
9	Syed Riaz Ali Shah	Assistant Chief
10	Miss Kanwal Saleem	Research Officer
11	Mrs. Shahgufta Tasleem	Research Officer

Other Staff

1	Mr. Muhammad Altaf	APS
2	Mr. Hafeez Ahmed	APS
3	Mr. Shamir Ahmed	APS
4	Mr. Muhammad Naeem	DMO

Director General
Agriculture Policy Institute

**AREA, YIELD AND PRODUCTION OF RICE BY VARIETY AND PROVINCE:
2004-05 TO 2014-15**

Year	PUNJAB				SINDH			KPK Total (Others)	Baloch. Total (IRRI)	Pakistan			
	Basmati	IRRI	Others	Total	IRRI	Others	Total			Basmati	IRRI	Others	Total
----- Thousand hectares -----													
2004-05	1466.5	108.1	179.7	1754.3	484.9	58.9	543.8	59.9	161.5	1466.5	754.5	298.5	2519.4
2005-06	1534.9	131.9	95.6	1762.4	527.4	65.8	593.2	59.4	206.4	1534.9	865.7	220.8	2621.4
2006-07	1474.2	138.8	115.4	1728.4	534.3	63.8	598.1	60.8	193.9	1474.2	867.0	240.0	2581.2
2007-08	1377.1	159.8	186.6	1723.5	531.1	62.9	594.0	61.7	136.2	1377.1	827.1	311.2	2515.4
2008-09	1548.3	202.3	227.0	1977.6	560.3	173.2	733.5	61.3	190.1	1548.3	952.7	461.5	2962.5
2009-10	1414.0	218.9	298.6	1931.5	518.9	188.8	707.7	53.8	190.1	1414.0	927.9	541.2	2883.1
2010-11	1333.8	182.5	250.5	1766.8	274.7	86.5	361.2	46.1	191.2	1333.8	648.4	383.1	2365.3
2011-12	1121.0	183.3	409.9	1714.2	405.3	230.5	635.8	50.1	171.1	1121.0	759.7	690.5	2571.2
2012-13	995.1	210.0	506.3	1711.4	331.6	179.5	511.1	48.8	37.5	995.1	579.1	734.6	2308.8
2013-14	1192.6	189.4	426.9	1808.9	426.8	318.7	745.5	55.3	179.5	1192.6	795.7	800.9	2789.2
2014-15	1320.0	196.7	361.0	1877.7	423.4	358.3	781.7	56.9	174.3	1320.0	794.4	776.2	2890.6
----- kgs per hectare -----													
2004-05	1601	2188	2204	1699	2946	1209	2758	2057	2611	1601	2765	1978	1994
2005-06	1721	2387	2333	1804	3109	1239	2901	1978	2563	1721	2869	1911	2116
2006-07	1691	2409	2145	1779	3121	1475	2946	2021	2466	1691	2861	1935	2107
2007-08	1781	2593	2243	1907	3232	1609	3060	2079	2433	1781	2977	2083	2212
2008-09	1680	2559	2307	1842	3479	3393	3459	2091	3386	1680	3265	2686	2347
2009-10	1751	2431	2362	1922	3331	3677	3423	1903	3393	1751	3131	2775	2387
2010-11	1773	2443	2287	1915	3347	3594	3406	1701	683	1773	2307	2512	2039
2011-12	1685	2491	2272	1912	3570	3528	3555	1890	3089	1685	3202	2663	2396
2012-13	1767	2607	2316	2032	3471	3860	3608	1922	3205	1767	3140	2667	2398
2013-14	1725	2625	2171	1924	3013	4177	3511	2024	3275	1725	2980	2959	2437
2014-15	1771	2559	2237	1943	2743	4162	3393	2302	3277	1771	2815	3130	2423
----- Thousand tonnes -----													
2004-05	2347.9	236.4	396.0	2980.3	1428.4	71.2	1499.6	123.2	421.6	2347.9	2086.4	590.4	5024.7
2005-06	2641.8	314.8	223.0	3179.6	1639.5	81.5	1721.0	117.5	529.1	2641.8	2483.4	422.0	5547.2
2006-07	2493.6	334.4	247.5	3075.5	1667.7	94.1	1761.8	122.9	478.2	2493.6	2480.3	464.5	5438.4
2007-08	2453.1	414.4	418.5	3286.0	1716.5	101.2	1817.7	128.3	331.4	2453.1	2462.3	648.0	5563.4
2008-09	2601.6	517.7	523.7	3643.0	1949.3	587.7	2537.0	128.2	643.7	2601.6	3110.7	1239.6	6951.9
2009-10	2475.4	532.2	705.4	3713.0	1728.2	694.2	2422.4	102.4	645.0	2475.4	2905.4	1502.0	6882.8
2010-11	2365.2	445.8	573.0	3384.0	919.4	310.9	1230.3	78.4	130.6	2365.2	1495.8	962.3	4823.3
2011-12	1889.1	456.6	931.3	3277.0	1447.1	813.0	2260.1	94.7	528.6	1889.1	2432.3	1839.0	6160.4
2012-13	1758.1	547.4	1172.5	3478.0	1151.0	692.9	1843.9	93.8	120.2	1758.1	1818.6	1959.2	5535.9
2013-14	2057.1	497.2	926.7	3481.0	1286.1	1331.2	2617.3	111.9	587.9	2057.1	2371.2	2369.8	6798.1
2014-15	2337.2	503.3	807.5	3648.0	1161.5	1491.1	2652.6	131.0	571.2	2337.2	2236.0	2429.6	7002.8

Note:- The varieties of basmati grown in the KPK are of different characteristics than those in the Punjab, therefore, area and production of basmati varieties of this province have not been included with data of basmati of Punjab. Instead data of all varieties of rice in the KPK have been included under "Others" in the province as well as on overall basis. Rice grown in Balochistan has been considered as of IRRI variety as variety-wise breakup is not available.

- Sources**
1. For 2004-05 to 2012-13, Agricultural Statistics of Pakistan 2012-13, MINFA Islamabad.
 2. For 2013-14 : Final estimates provided by concerned Provincial Agriculture Departments.
 3. For 2014-15 : Final estimates provided by concerned Provincial Agriculture Departments.

**AREA, YIELD AND PRODUCTION OF RICE BY VARIETY AND PROVINCE:
2004-05 TO 2014-15**

Year	PUNJAB				SINDH			KPK Total (Others)	Baloch. Total (IRRI)	Pakistan			
	Basmati	IRRI	Others	Total	IRRI	Others	Total			Basmati	IRRI	Others	Total
----- Thousand acres -----													
2004-05	3623.9	267.0	444.0	4335.1	1198.2	145.5	1343.8	148.0	399.1	3623.9	1864.3	737.6	6225.8
2005-06	3792.9	325.9	236.2	4355.1	1303.3	162.6	1465.9	146.8	510.0	3792.9	2139.2	545.6	6477.7
2006-07	3642.9	343.0	285.2	4271.0	1320.3	157.7	1478.0	150.2	479.1	3642.9	2142.4	593.1	6378.4
2007-08	3403.0	394.9	461.0	4258.8	1312.4	155.4	1467.8	152.5	336.6	3403.0	2043.8	768.9	6215.7
2008-09	3826.0	499.9	560.9	4886.8	1384.6	428.0	1812.6	151.5	469.8	3826.0	2354.2	1140.4	7320.6
2009-10	3494.1	540.9	737.9	4772.9	1282.3	466.5	1748.8	132.9	469.8	3494.1	2292.9	1337.4	7124.4
2010-11	3296.0	451.0	619.0	4365.9	678.8	213.8	892.6	113.9	472.5	3296.0	1602.3	946.7	5844.9
2011-12	2770.1	453.0	1012.9	4236.0	1001.5	569.5	1571.1	123.8	422.8	2770.1	1877.3	1706.2	6353.6
2012-13	2459.0	518.9	1251.1	4229.0	819.4	443.6	1263.0	120.6	92.7	2459.0	1431.0	1815.3	5705.3
2013-14	2947.0	468.0	1054.9	4470.0	1054.7	787.5	1842.2	136.7	443.6	2947.0	1966.3	1979.1	6892.4
2014-15	3261.9	486.1	892.1	4640.0	1046.3	885.4	1931.7	140.6	430.7	3261.9	1963.0	1918.1	7143.0
----- kgs per acre -----													
2004-05	648	885	892	687	1192	489	1116	832	1056	648	1119	800	807
2005-06	697	966	944	730	1258	501	1174	800	1037	697	1161	773	856
2006-07	685	975	868	720	1263	597	1192	818	998	685	1158	783	853
2007-08	721	1049	908	772	1308	651	1238	841	985	721	1205	843	895
2008-09	680	1036	934	745	1408	1373	1400	846	1370	680	1321	1087	950
2009-10	708	984	956	778	1348	1488	1385	770	1373	708	1267	1123	966
2010-11	718	989	926	775	1354	1454	1378	688	276	718	934	1016	825
2011-12	682	1008	919	774	1445	1428	1439	765	1250	682	1296	1078	970
2012-13	715	1055	937	822	1405	1562	1460	778	1297	715	1271	1079	970
2013-14	698	1062	878	779	1219	1690	1421	819	1325	698	1206	1197	986
2014-15	717	1035	905	786	1110	1684	1373	932	1326	717	1139	1267	980
----- Thousand tonnes -----													
2004-05	2347.9	236.4	396.0	2980.3	1428.4	71.2	1499.6	123.2	421.6	2347.9	2086.4	590.4	5024.7
2005-06	2641.8	314.8	223.0	3179.6	1639.5	81.5	1721.0	117.5	529.1	2641.8	2483.4	422.0	5547.2
2006-07	2493.6	334.4	247.5	3075.5	1667.7	94.1	1761.8	122.9	478.2	2493.6	2480.3	464.5	5438.4
2007-08	2453.1	414.4	418.5	3286.0	1716.5	101.2	1817.7	128.3	331.4	2453.1	2462.3	648.0	5563.4
2008-09	2601.6	517.7	523.7	3643.0	1949.3	587.7	2537.0	128.2	643.7	2601.6	3110.7	1239.6	6951.9
2009-10	2475.4	532.2	705.4	3713.0	1728.2	694.2	2422.4	102.4	645.0	2475.4	2905.4	1502.0	6882.8
2010-11	2365.2	445.8	573.0	3384.0	919.4	310.9	1230.3	78.4	130.6	2365.2	1495.8	962.3	4823.3
2011-12	1889.1	456.6	931.3	3277.0	1447.1	813.0	2260.1	94.7	528.6	1889.1	2432.3	1839.0	6160.4
2012-13	1758.1	547.4	1172.5	3478.0	1151.0	692.9	1843.9	93.8	120.2	1758.1	1818.6	1959.2	5535.9
2013-14	2057.1	497.2	926.7	3481.0	1286.1	1331.2	2617.3	111.9	587.9	2057.1	2371.2	2369.8	6798.1
2014-15	2337.2	503.3	807.5	3648.0	1161.5	1491.1	2652.6	131.0	571.2	2337.2	2236.0	2429.6	7002.8

Note:- The varieties of basmati grown in the KPK are of different characteristics than those in the Punjab, therefore, area and production of basmati varieties of this province have not been included with data of basmati of Punjab. Instead data of all varieties of rice in the KPK have been included under "Others" in the province as well as on overall basis. Rice grown in Balochistan has been considered as of IRRI variety as variety-wise breakup is not available.

- Sources**
1. For 2004-05 to 2012-13, Agricultural Statistics of Pakistan 2011-12, MINFA Islamabad.
 2. For 2013-14 : Final estimates provided by concerned Provincial Agriculture Departments.
 3. For 2014-15 : Final estimates provided by concerned Provincial Agriculture Departments.

DISTRICT-WISE PRODUCTION OF RICE BY VARIETY: AVERAGE OF 2012-13 TO 2014-15

"000" tonnes

S.No	Province/ District	Basmati	IRRI	Others	Total	Percent	S.No	Province/ District	Basmati	IRRI	Others	Total	Percent
Punjab							Khyber Pukhtoonkhwa						
1	Gujranwala	149.5	0.0	365.4	514.9	8.0	1	D.I.Khan	-	-	23.7	23.7	0.4
2	Sheikhupura	251.9	0.0	111.6	363.5	5.6	2	Swat	-	-	15.0	15.0	0.2
3	Okara	78.0	212.1	38.1	328.2	5.1	3	Kurram AG.	-	-	12.3	12.3	0.2
4	Sialkot	203.2	0.0	67.2	270.4	4.2	4	Malakand	-	-	10.5	10.5	0.2
5	Hafizabad	134.0	0.0	125.9	259.9	4.0	5	Dir Lower	-	-	8.5	8.5	0.1
6	Nankana Sahib	123.5	0.0	82.1	205.6	3.2	6	Dir Upper	-	-	8.5	8.5	0.1
7	Kasur	68.2	53.2	37.7	159.1	2.5	7	Bajour AG.	-	-	6.9	6.9	0.1
8	M.B.Din	123.5	0.0	23.9	147.5	2.3	8	Mansehra	-	-	5.4	5.4	0.1
9	Narawal	127.6	0.0	7.8	135.5	2.1	9	Bannu	-	-	4.2	4.2	0.1
10	Bahawalnagar	80.9	27.4	16.0	124.3	1.9	10	Battagram	-	-	3.5	3.5	0.1
11	Pakpattan	59.2	59.1	0.3	118.7	1.8	11	Chitral	-	-	3.5	3.5	0.1
12	Jhang	90.9	0.7	6.7	98.3	1.5	12	Shangla	-	-	3.4	3.4	0.1
13	Sargodha	57.8	4.4	11.2	73.3	1.1	13	Mardan	-	-	3.0	3.0	0.0
14	D.G.Khan	1.4	68.8	0.0	70.1	1.1	14	Swabi	-	-	0.7	0.7	0.0
15	Lahore	40.3	3.9	23.5	67.7	1.0	15	Peshawar	-	-	0.7	0.7	0.0
16	Gujrat	56.3	0.0	9.7	66.0	1.0	16	Bunir	-	-	0.5	0.5	0.0
17	T.T.Singh	61.3	0.0	4.5	65.8	1.0	17	Hangu	-	-	0.3	0.3	0.0
18	Chiniot	44.9	13.6	5.8	64.2	1.0	18	Charsadda	-	-	0.3	0.3	0.0
19	Muzaffargarh	18.5	36.6	4.7	59.7	0.9	19	Orakzai AG	-	-	0.3	0.3	0.0
20	Faisalabad	31.9	0.7	21.2	53.8	0.8	20	Nowshera	-	-	0.2	0.2	0.0
21	Sahiwal	46.8	2.9	0.7	50.4	0.8	21	Kohistan	-	-	0.2	0.2	0.0
22	Vehari	45.9	2.5	0.3	48.7	0.8	22	Tank	-	-	0.1	0.1	0.0
23	Khanewal	43.5	0.3	0.3	44.1	0.7	23	Kohat	-	-	0.1	0.1	0.0
24	R.Y.Khan	22.5	19.1	0.0	41.6	0.6	24	N.Waziristan	-	-	0.1	0.1	0.0
25	Khushab	31.6	0.0	0.0	31.6	0.5	25	Lakki Marwat	-	-	0.1	0.1	0.0
26	Multan	15.6	4.8	4.2	24.6	0.4	26	F.R.D.I.Khan	-	-	0.1	0.1	0.0
27	Layyah	13.1	0.0	0.0	13.1	0.2	27	Haripur	-	-	0.0	0.0	0.0
28	Bahawalpur	8.8	2.6	0.0	11.3	0.2	28	Khyber AG.	-	-	0.0	0.0	0.0
29	Lodhran	9.7	0.0	0.0	9.7	0.1	29	Karak	-	-	0.0	0.0	0.0
30	Mianwali	6.8	0.0	0.0	6.8	0.1	30	Abbottabad	-	-	0.0	0.0	0.0
31	Rajanpur	0.0	3.4	0.0	3.4	0.1	31	Mohmand AG.	-	-	0.0	0.0	0.0
32	Jhelum	2.1	0.0	0.0	2.1	0.0	32	S.Waziristan	-	-	0.0	0.0	0.0
33	Bhakkar	1.5	0.0	0.0	1.5	0.0	33	F.R.Peshawar	-	-	0.0	0.0	0.0
34	Attock	0.0	0.0	0.0	0.0	0.0	34	F.R.Kohat	-	-	0.0	0.0	0.0
35	Rawalpindi	0.0	0.0	0.0	0.0	0.0	35	F.R.Bannu	-	-	0.0	0.0	0.0
36	Islamabad	0.0	0.0	0.0	0.0	0.0							
37	Chakwal	0.0	0.0	0.0	0.0	0.0							
Sub Total		2050.8	516.0	968.9	3535.7	54.9	Sub Total		0.0	0.0	112.2	112.2	1.7
Sindh							Balochistan						
1	Badin	-	96.8	247.9	344.7	5.3	1	Jaffarabad	-	258.1	-	258.1	4.0
2	Larkana	-	255.1	71.5	326.6	5.1	2	Nasirabad	-	162.6	-	162.6	2.5
3	Shikarpur	-	122.2	191.1	313.3	4.9	3	Khuzdar	-	2.3	-	2.3	0.0
4	Qambar	-	196.1	63.9	260.0	4.0	4	Turbat	-	2.3	-	2.3	0.0
5	Kashmore	-	63.3	170.0	233.3	3.6	5	Awaran	-	0.5	-	0.5	0.0
6	Jacobabad	-	46.0	173.9	219.9	3.4	6	Jhal Magsi	-	0.2	-	0.2	0.0
7	Thatta	-	164.8	31.4	196.3	3.0	7	Lasbella	-	0.2	-	0.2	0.0
8	Dadu	-	107.5	48.5	156.1	2.4	8	Sibi	-	0.1	-	0.1	0.0
9	Ghotki	-	41.8	91.1	132.9	2.1	9	Dera Budghti	-	0.1	-	0.1	0.0
10	T.M.Khan	-	21.8	30.1	52.0	0.8	10	Punjoor	-	0.0	-	0.0	0.0
11	Nawabshah	-	21.9	10.0	31.9	0.5							
12	N.Feroze	-	18.9	10.2	29.1	0.5							
13	Khairpur	-	15.9	5.1	21.0	0.3							
14	Sanghar	-	10.5	7.4	17.9	0.3							
15	Sukkur	-	5.5	10.7	16.2	0.3							
16	Mirpurkhas	-	4.5	5.0	9.5	0.1							
17	Matlari	-	3.5	0.0	3.5	0.1							
18	Hyderabad	-	0.8	2.7	3.5	0.1							
19	Tando Allahyar	-	2.2	0.1	2.2	0.0							
20	Jamshoro	-	0.3	0.9	1.2	0.0							
Sindh Total		-	1189.5	1171.7	2371.3	36.8	Balochistan Total		-	426.4	-	426.4	6.8
Pakistan Total		2050.8	2141.9	2252.9	6445.6	100.0	Pakistan Total		2050.8	2141.9	2252.9	6445.6	100.0

Notes:

1. Data have been arranged in descending order on the basis of total production of rice in each district.
2. Percentage share calculated on the basis of country total.
3. Rounding may result in slight differences in figures.

Source:

Respective Provincial Agriculture departments.

PER CAPITA AVAILABILITY CONSUMPTION OF RICE: 2011-12 to 2013-14 (October - September)

S.No	Items	2011-12	2012-13	2013-14
		-----Thousands tonnes-----		
	Production	6160	5536	6798
2	Deduction for seed, feed and wastage @ 6 percent for production	370	332	408
3	Export	3002	2821	3717
4	Net availability	2788	2383	2673
		-----Millions-----		
5	Population*	187.58	191.31	195.43
		-----Kgs-----		
6	Per capita availability (consumption)	14.87	12.46	13.68
7	Average per capita availability			
	Average (2011-12 to 2013-14)		13.67	

Notes: * Population of AJ&K, NAs and Afghan refugees(registred and Non registred). have also been included.

Sources:

- | | |
|--------------------------------------|--|
| 1 For Imports and Exports: | Pakistan Bureau of Statistics (PBS), Karachi. |
| 2 For Population of Pakistan: | Economic Survey, 2014-15. |
| 3 For Population of AJ&K and NAs: | Population Census Organization, Islamabad. |
| 4 For Population of Afghan refugees: | Kasmir Affairs and Northern Areas and States and Frontier Regions Division, Government of Pakistan, Islamabad. |

**AVERAGE FARMERS' COST OF PRODUCTION OF BASMATI PADDY IN THE
PUNJAB: 2014-15 AND 2015-16 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2014 -15 crop		2015 - 16 crop		Change in 2015-16 over 2014-15
			Rate per unit	Cost per acre	Rate per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
---Rupees---							
1.	Land preparation:						
	1.1 dry ploughing	4.000	700.00	2800.00	700.00	2800.00	0.00
	1.2 wet ploughing	2.000	900.00	1800.00	900.00	1800.00	0.00
	1.3 wet planking	2.000	450.00	900.00	450.00	900.00	0.00
2.	Nursery used (marlas)	3.390	-	1396.00	-	1450.00	54.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2400.00	-	2400.00	0.00
4.	Labour for bund making etc. (m.day)	0.984	350.00	344.40	350.00	344.40	0.00
5.	Weeding:						
	5.1 manual (m.day)	1.154	350.00	403.90	350.00	403.90	0.00
	5.2 weedicides (No)	0.367	600.00	220.20	650.00	238.55	18.35
6.	Plant protection including application	0.786	700.00	550.20	750.00	589.50	39.30
7.	Farm yard manure including transport and application (50%)	0.200	2300.00	230.00	2500.00	250.00	20.00
8.	Fertilizer (bags)						
	8.1 DAP	0.585	3574.00	2090.79	3717.00	2174.45	83.65
	8.2 NP	0.195	2535.00	494.33	2559.00	499.01	4.68
	8.3 Urea	1.146	1854.00	2124.68	1859.00	2130.41	5.73
	8.4 Zinc Sulphate	0.316	600.00	189.60	700.00	221.20	31.60
9.	Fertilizer transport and application	2.270	55.00	124.85	55.00	124.85	0.00
10.	Irrigation * (Nos)						
	10.1 Canal	10.776	-	95.72	-	95.72	0.00
	10.2 Private tubewell	8.321	1100.00	9153.10	1100.00	9153.10	0.00
11.	Labour used for irrigation and water course cleaning (man days)	6.116	350.00	2140.47	350.00	2140.47	0.00
12.	Mark up on investment @ 15.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	2052.19	-	2071.49	19.30
13.	Harvesting, threshing and winnowing (kgs/acre)	89.280	55.38	4944.33	33.15	2959.63	-1984.69
14.	Management charges for 6 months	-	-	1090.00	-	1131.00	41.00
15.	Land rent for 6 months (Rs/acre/annum)	-	22000.00	11000.00	23000.00	11500.00	500.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Average land tax @ Rs 132/acre/annum for 6 months	-	132.00	66.00	132.00	66.00	0.00
18.	Gross cost (item 1 to 17)	-	-	46615.75	-	45448.67	-1167.08
19.	Value of straw	-	-	7000.00	-	7000.00	0.00
20.	Net cost of cultivation (item 18-19)	-	-	39615.75	-	38448.67	-1167.08
	20.1 with land rent	-	-	39615.75	-	38448.67	-1167.08
	20.2 without land rent	-	-	28615.75	-	26948.67	-1667.08
21.	Yield per acre (kgs)	-	-	1053.00	-	1053.00	0.00
22.	Cost of production at farm (Rs/40 kgs)						
	22.1 with land rent	-	-	1504.87	-	1460.54	-44.33
	22.2 without land rent	-	-	1087.02	-	1023.69	-63.33
23.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	45.00	-	45.00	0.00
24.	Cost of production at market level (Rs/40 kgs)						
	24.1 with land rent	-	-	1549.87	-	1505.54	-44.33
	24.2 without land rent	-	-	1132.02	-	1068.69	-63.33

* hrs/irrigation: Canal 1.96, Private tube-well = 2.38

**AVERAGE FARMERS' COST OF PRODUCTION OF IRRI PADDY IN THE
PUNJAB: 2014-15 AND 2015-16 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2014 -15 crop		2015 - 16 crop		Change in 2015-16 over 2014-15
			Rate per unit	Cost per acre	Rate per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
---Rupees---							
1.	Land preparation:						
	1.1 dry ploughing	4.000	700.00	2800.00	700.00	2800.00	0.00
	1.2 wet ploughing	2.000	900.00	1800.00	900.00	1800.00	0.00
	1.3 wet planking	1.000	450.00	450.00	450.00	450.00	0.00
2.	Nursery used (marlas)	3.494	-	1223.00	-	1270.00	47.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2400.00	-	2400.00	0.00
4.	Labour for bund making etc. (man day)	1.150	350.00	402.50	350.00	402.50	0.00
5.	Weeding:						
	5.1 manual (m.day)	1.338	350.00	468.30	350.00	468.30	0.00
	5.2 weedicides (No)	0.655	600.00	393.00	650.00	425.75	32.75
6.	Plant protection including application	0.812	700.00	568.40	750.00	609.00	40.60
7.	Farm yard manure including transport and application (50%)	0.196	2200.00	215.60	2500.00	245.00	29.40
8.	Fertilizer (bags)						
	8.1 DAP	0.702	3574.00	2508.95	3717.00	2609.33	100.39
	8.2 NP	0.303	2535.00	768.11	2559.00	775.38	7.27
	8.3 Urea	1.498	1854.00	2777.29	1859.00	2784.78	7.49
	8.4 Zinc Sulphate	0.818	600.00	490.80	600.00	490.80	0.00
9.	Fertilizer transport and application	3.337	55.00	183.54	55.00	183.54	0.00
10.	Irrigation * (Nos)						
	10.1 Canal	15.905	-	95.72	-	95.72	0.00
	10.2 Private tubewell	4.493	1000.00	4493.00	1000.00	4493.00	0.00
11.	Labour used for irrigation and water course cleaning (man days)	5.964	350.00	2087.40	350.00	2087.40	0.00
12.	Mark up on investment @ 15.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	1802.24	-	1822.11	19.87
13.	Harvesting, threshing and winnowing (kgs/acre)	134.100	22.59	3029.32	20.03	2686.02	-343.30
14.	Management charges for 6 months	-	-	1090.00	-	1131.00	41.00
15.	Land rent for 6 months (Rs/acre/annum)	-	22000.00	11000.00	22500.00	11250.00	250.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Average land tax @ Rs 132/acre/annum for 6 months	-	132.00	66.00	132.00	66.00	0.00
18.	Gross cost (item 1 to 17)	-	-	41118.16	-	41350.63	232.47
19.	Value of straw	-	-	4500.00	-	4500.00	0.00
20.	Net cost of cultivation (item 18-19)	-	-	36618.16	-	36850.63	232.47
	20.1 with land rent	-	-	25618.16	-	25600.63	-17.53
	20.2 without land rent	-	-	1510.00	-	1510.00	0.00
21.	Yield per acre (kgs)	-	-	1510.00	-	1510.00	0.00
22.	Cost of production at farm (Rs/40 kgs)	-	-	970.02	-	976.18	6.16
	22.1 with land rent	-	-	678.63	-	678.16	-0.46
	22.2 without land rent	-	-	45.00	-	45.00	0.00
23.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	45.00	-	45.00	0.00
24.	Cost of production at market level (Rs/40 kgs)	-	-	1015.02	-	1021.18	6.16
	24.1 with land rent	-	-	723.63	-	723.16	-0.46
	24.2 without land rent	-	-	291.39	-	298.02	6.63

* hrs/irrigation: Canal = 1.96, Private tube-well = 2.22

**AVERAGE FARMERS' COST OF PRODUCTION OF IRRI PADDY IN SINDH:
2014-15 AND 2015-16 CROPS**

Sr. No.	Operations/inputs	Average No./oprs/units/acre	2014 -15 crop		2015 - 16 crop		Change in 2015-16 over 2014-15
			Rate per unit	Cost per acre	Rate per unit	Cost per acre	
1	2	3	4	5=3*4	6	7=3*6	8=7-5
-----Rupees-----							
1.	Land preparation:						
	1.1 dry ploughing	5.000	1100.00	5500.00	1100.00	5500.00	0.00
	1.2 dry planking	1.000	550.00	550.00	550.00	550.00	0.00
	1.3 levelling (tractor hour)	1.000	1100.00	1100.00	1100.00	1100.00	0.00
2.	Nursery (ghunta)	1.000	-	1875.00	-	1950.00	75.00
3.	Uprooting, transporting and transplanting (contract)	-	-	2700.00	-	2700.00	0.00
4.	Labour for bund making etc. (man day)	2.000	350.00	700.00	350.00	700.00	0.00
5.	Manual weeding (m.day)	2.435	350.00	852.25	350.00	852.25	0.00
6.	Plant protection						
	6.1 granular pesticides	0.733	600.00	439.80	650.00	476.45	36.65
	6.2 formulated spray	0.076	700.00	53.20	750.00	57.00	3.80
7.	Farm-yard manure including transport and application (50%)	0.028	2200.00	30.80	2500.00	35.00	4.20
8.	Fertilizer (bags)						
	8.1 DAP	0.947	3483.00	3298.40	3633.00	3440.45	142.05
	8.2 Urea	1.384	1826.00	2527.18	1836.00	2541.02	13.84
	8.3 Zinc sulphate	0.051	600.00	30.60	600.00	30.60	0.00
9.	Fertilizer transport and application	2.384	55.00	131.12	55.00	131.12	0.00
10.	Irrigation (Nos)						
	10.1 canal	17.939	-	88.78	-	88.78	0.00
	10.2 private tubewell	0.522	750.00	391.50	750.00	391.50	0.00
11.	Labour used for irrigation and water course cleaning (man days)	5.595	350.00	1958.14	350.00	1958.14	0.00
12.	Mark up on investment @ 15.0 % per annum for 6 months on item 1 to 11 minus item 10.1	-	-	1660.35	-	1681.01	20.67
13.	Harvesting and threshing etc. (kgs/acre)	185.250	21.13	3914.33	18.60	3445.65	-468.68
14.	Management charges for 6 months	-	-	1090.00	-	1131.00	41.00
15.	Land rent for 6 months (Rs/acre/annum)	-	18000.00	9000.00	18500.00	9250.00	250.00
16.	Land revenue, local rate, pachotra etc.	-	-	5.00	-	5.00	0.00
17.	Land tax @ Rs 200/acre/annum for 6 months	-	200.00	100.00	200.00	100.00	0.00
18.	Drainage cess @ Rs 24/acre/annum for 6 months	-	24.00	12.00	24.00	12.00	0.00
19.	Gross cost (item 1 to 18)	-	-	38008.45	-	38126.98	118.52
20.	Value of straw	-	-	4500.00	-	4500.00	0.00
21.	Net cost of cultivation (item 19-20)	-	-	33508.45	-	33626.98	118.52
	21.1 with land rent	-	-	24508.45	-	24376.98	-131.48
	21.2 without land rent	-	-	2004.00	-	2004.00	0.00
22.	Yield per acre (kgs)	-	-	2004.00	-	2004.00	0.00
23.	Cost of production at farm (Rs/40 kgs)						
	23.1 with land rent	-	-	668.83	-	671.20	2.37
	23.2 without land rent	-	-	489.19	-	486.57	-2.62
24.	Marketing charges i.e. Loading, transport, commission, weighment (Rs/40 kgs)	-	-	45.00	-	45.00	0.00
25.	Cost of production at market level (Rs/40 kgs)						
	25.1 with land rent	-	-	713.83	-	716.20	2.37
	25.2 without land rent	-	-	534.19	-	531.57	-2.62

* hrs/irrigation: Canal = 1.56, Private tube-well = 1.48

Notes for Annex-IV to VI

1. The input-output parameters for estimating cost of production for Rice Paddy, 2015-16 Crop were adopted from the Price Policy Report of Rice Paddy, 2014-15 Crop, API Series No. 251.
2. The farm inputs prices, hiring rates of field operations, wage rate, land rentals, value of straw and marketing cost have been revised in the light of the information provided by the Provincial Agriculture Departments, Farmers' Associations and Kissan/Abadgar Boards in the meeting of the API's Standing Committee on Rice, held on April 20, 2015 at the Committee room of the Agriculture Policy Institute, Islamabad and field surveys conducted in the Punjab and Sindh during Jan-Feb 2015 and other sources as:
3. The prices of chemical fertilizers have been revised in light of the fertilizers prices published by the Federal Bureau of Statistics, Islamabad for the week ending on June 4, 2015.
4. The cost of supplementary irrigation has been kept on the last year level in light of discussion made in the standing committee meeting. It was concluded that though the prices of diesel have decreased considerably but hiring rates of agriculture tube-well have not decreased and are more or less at last year level.
5. The tentative management charges for a manager looking after a 25-acre farm and devoting one-fourth of his time to the managerial activities have been worked out at Rs 18843 per month for a Field Assistant at the 15th stages in BPS-6 as per revised scale of July 2015.
6. The kind payments were valued at the post-harvest markets prices of paddy prevailed during 2014-15 @ Rs 1326 per 40 kgs for basmati, Rs 801 for IRRI in the Punjab and Rs 838 for IRRI in Sindh. The marketing cost of Rs 45 per 40 kgs has been deducted from the market prices to bring at the farm level.
7. The land rent in both provinces, Punjab and Sindh is one of the most important constituent in cost of cultivation of rice paddy. It is affected by several parameters and substantially varies from region to region. To update land rent, there is no precise measure. However, keeping in view the discussion made by the representatives of the rice paddy farmers in the aforesaid meetings, land rentals have been adjusted accordingly.

**ECONOMICS OF RICE PADDY AND COMPETING CROPS AT
PRICES REALIZED BY THE GROWERS: 2014-15 CROPS**

S #	Province/crops/ crop combination	Crop durat ion	Water used	Gross cost	Cost of purchase d inputs	Gross revenu e	Gross margin	Net income	Output- input ratio	Revenue per		
		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
Punjab												
1	Basmati paddy	180	58	46676	20973	40828	19855	-5848	0.87	1.95	227	704
2	IRRI paddy	180	62	41128	17999	33039	15040	-8089	0.80	1.84	184	533
3	Seed cotton	240	22	55529	18683	57240	38557	1711	1.03	3.06	239	2602
4	Wheat	180	12	39490	14438	41510	27072	2020	1.05	2.88	231	3459
5	Sunflower (spring)	180	22	40792	16768	40400	23633	-392	0.99	2.41	224	1836
6	Seed cotton + wheat	420	34	95019	33122	98750	65628	3731	1.04	2.98	235	2904
7	Seed cotton+ sunflower	420	44	96321	35451	97640	62189	1319	1.01	2.75	232	2219
8	Basmati paddy +wheat	360	70	86166	35411	82338	46927	-3828	0.96	2.33	229	1176
9	Basmati paddy+ sunflower	360	80	87467	37740	81228	43487	-6240	0.93	2.15	226	1015
10	IRRI paddy + wheat	360	74	80618	32437	74549	42112	-6069	0.92	2.30	207	1007
11	IRRI paddy +sunflower	360	84	81920	34767	73439	38672	-8481	0.90	2.11	204	874
12	Sugarcane	394	48	74550	23533	93250	69717	18700	1.25	3.96	237	1943
Sindh												
1	IRRI paddy	180	56	38008	13613	44780	31168	6772	1.18	3.29	249	800
2	Seed cotton	240	18	51752	16155	59978	43823	8226	1.16	3.71	250	3332
3	Wheat	180	12	37525	13253	40173	26920	2648	1.07	3.03	223	3348
4	Sunflower (spring)	180	22	41316	16318	40400	24083	-916	0.98	2.48	224	1836
5	Seed cotton + wheat	420	30	89277	29408	100151	70743	10874	1.12	3.41	238	3338
6	Seed cotton +sunflower	420	40	93068	29408	100378	70970	7310	1.08	3.41	239	2509
7	IRRI paddy+ wheat	360	68	75533	26866	84953	58087	9420	1.12	3.16	236	1249
8	IRRI paddy+ sunflower	360	78	79324	29930	85180	55250	5856	1.07	2.85	237	1092

Notes for Annex -VII:

1. The economic analysis presented in the above exercise is based on the input-output prices applicable for 2014-15 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, 2014-15 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 2014-15 crops. To incorporate the escalations in input prices, particularly fertilizers, which occurred during the growing period, some marginal revisions, have been made as per the prices prevailed at the time of application for the respective crops in 2014-15 season.
3. Water use has been estimated from the number of irrigations as reported in the cost of production estimates of the respective crops assuming each irrigation of 3 inches and 'rauni' of 4 inches.
4. The following prices as realized by the growers for different crops are adopted for the analysis:
 - 4.1 The support price of Rs 1300 per 40 kgs, as maintained by the government for 2014-15 crop, has been adopted for the current analysis.
 - 4.2 The wholesale market prices of basmati paddy and IRRI paddy during the post-harvest period in major producer area markets have averaged at Rs 1330 and Rs 801 per 40 kgs, respectively. While, the average price of IRRI paddy in Sindh is reported at Rs 844 per 40 kgs.
 - 4.3 The wholesale market prices of seed cotton during the post-harvest months of Aug - Feb 2014-15 in the main producer area markets have averaged at Rs 3000 per 40 kgs in the Punjab and Sindh.
 - 4.4 The price of sunflower 2014-15 crop has been reported hovering around Rs 2050/40 kgs and Rs 2100 for canola.
 - 4.5 The market prices of sugarcane at mill-gate in the major cane producing areas are reported to hover around Rs 180 per 40 kgs in the Punjab and Rs 182 per 40 kgs in Sindh.

5. The market prices have been adjusted for the marketing expenses to make them effective at the farm level. These expenses amount to Rs 15 per 40 kgs in Punjab and Rs 14.32 in Sindh for sugarcane, Rs 40 for seed cotton in Punjab and Sindh, Rs 45 for rice paddy in Punjab and Rs 40 in Sindh, and Rs 30 for wheat and oilseeds.
6. Gross income = (Yield per acre multiplied by price of principal produce at farm gate) plus (value of by-products per acre).
7. Cost of purchased inputs = Cost incurred on seed and related items, fertilizer, supplementary irrigation including labour, canal water rate, pesticides and weedicides.
8. Gross margin = Gross income minus cost of purchased inputs.
9. Net income = Gross income minus gross cost.
10. Output-input ratio = Gross income divided by gross cost
11. Revenue per rupee of purchased inputs cost = Gross income divided by cost of purchased inputs
12. Revenue per crop day = Gross income divided by crop duration in days.
13. Revenue per acre-inch of water used = Gross income divided by irrigation water used in acre inches.

EXPORT PARITY PRICES OF BASMATI PADDY ON THE BASIS OF FOB (KARACHI) PRICE

S.No	Item	May, 15	2014-15	2011-14
		----- US \$ Per Tonne -----		
1.	Average fob (Karachi) prices of rice			
	US\$ per tonne	1238	1077	964
	Current exchange rate (Rs per US\$)	101.78	101.78	101.78
	Pak Rupees per tonne	126004	109617	98116
		----- Rs per 40 kgs -----		
		5040	4385	3925
2.	Expenses from sheller/ market to export point	225	225	225
3.	Producer area market level price of rice (item 1-item 2)	4815	4160	3700
4.	Product recoveries per 100 kgs of paddyKgs.....		
	i) Head rice of export quality @ 70 of normal recovery	35.0	35.0	35.0
	ii) Short grain rice @25% of normal recovery	12.5	12.5	12.5
	iii) Brokens	20.0	20.0	20.0
	iv) Tips	3.5	3.5	3.5
	v) Bran powder	6.0	6.0	6.0
	vi) Husk and dust	23.0	23.0	23.0
5.	Prices of products	-----Rs per 40 kgs-----		
	i) Export quality rice as calculated in item 3	4815	4160	3700
	ii) Short grain rice (70% of export quality -item 3)	3371	2912	2590
	iii) Brokens (50% of short grainrice)	2408	2080	1850
	iv) Tips (30% of short grainrice)	1445	1248	1110
	v) Bran powder (15% of short grainrice)	722	624	555
	vi) Husk	150	150	150
6.	Value of products recoverable from 100 kgs paddy			
	i) Export quality rice	4213	3640	3237
	ii) Short grain rice	1053	910	809
	iii) Brokens	1204	1040	925
	iv) Tips	126	109	97
	v) Bran powder	108	94	83
	vi) Husk	86	86	86
	vii) Total value of all products	6791	5879	5238
7.	Husking/Processing /financial charges of			
	i) 100 kgs paddy	225	225	225
	ii) Export quality rice @Rs1 per Kg	63	63	63
8.	Mill-gate price of paddy per 100 kgs	6503	5591	4950
9.	Mill-gate price of paddy per 40 kgs	2601	2236	1980

Sources:

- 1 Pakistan Bureau of Statistics (PBS), Karachi.
- 2 Rice Exporters/Millers for incidental charges.

EXPORT PARITY PRICE OF IRRI PADDY ON THE BASIS OF FOB (KARACHI) PRICE

S.No	Item	May, 15	2014-15	2011-14
		----- US \$ Per Tonne -----		
1.	Average fob (Karachi) prices of rice			
	US\$ per tonne	491	447	513
	Current exchange rate (Rs per US\$)	101.78	101.78	101.78
	Pak Rupees per tonne	49974	45496	52213
		----- Rs per 40 kgs -----		
		1999	1820	2089
2.	Expenses from sheller/ market to export point	125	125	125
3.	Producer area market level price of rice (item 1-item 2)	1874	1695	1964
4.	Product recoveries per 100 kgs of paddy	-----Kgs-----		
	i) Head rice of export quality @ 70 of normal recovery	33.6	33.6	33.6
	ii) Short grain rice @25% of normal recovery	12.4	12.4	12.4
	iii) Brokens	14.0	14.0	14.0
	iv) Tips	7.0	7.0	7.0
	v) Bran powder	7.0	7.0	7.0
	vi) Husk and dust	26.0	26.0	26.0
5.	Prices of products	-----Rs per 40 kgs-----		
	i) Export quality rice as calculated in item 3	1874	1695	1964
	ii) Short grain rice (70% of export quality -item 3)	1312	1186	1374
	iii) Brokens (50% of short grainrice)	656	593	687
	iv) Tips (30% of short grainrice)	394	356	412
	v) Bran powder (15% of short grainrice)	197	178	206
	vi) Husk	100	100	100
6.	Value of products recoverable from 100 kgs paddy			
	i) Export quality rice	1574	1424	1649
	ii) Short grain rice	407	368	426
	iii) Brokens	230	208	241
	iv) Tips	69	62	72
	v) Bran powder	34	31	36
	vi) Husk	65	65	65
	vi) Total value of all products	2379	2157	2489
7.	Husking/Processing /financial charges of			
	i) 100 kgs paddy	225	225	225
	ii) Export quality rice @Rs1 per Kg	63	63	63
8.	Mill-gate price of paddy per 100 kgs	2091	1869	2201
9.	Mill-gate price of paddy per 40 kgs	836	748	880

Sources:

- 1 Pakistan Bureau of Statistics (PBS), Karachi.
- 2 Rice Exporters/Millers for incidental charges.

REGION WISE EXPORT OF BASMATI AND COARSE RICE DURING : 2012-13 AND 2013-14

Region	Quantity			Value			% share in in total export	
	2012-13	2013-14	%	2012-13	2013-14	%	2012-13	2013-14
	...000 tonnes.....		Change	...Million US \$...		Change	Per cent	
A. Basmati Rice								
Asia	490.94	440.52	-10.27	482.08	508.61	5.50	72.83	65.99
Oceania	20.03	19.634	-1.95	19.68	21.91	11.37	2.97	2.94
Europe	76.10	120.281	58.05	81.24	141.45	74.13	11.29	18.02
Africa	29.48	35.133	19.18	28.90	37.89	31.10	4.37	5.26
America	29.99	33.643	12.17	32.62	42.83	31.33	4.45	5.04
CIS	27.51	18.312	-33.43	23.27	13.82	-40.61	4.08	2.74
Total	674.05	667.52	-0.97	667.78	766.53	14.79	100.00	100.00
B. Coarse Rice								
Asia	829.08	815.23	-1.67	423.76	421.16	-0.61	38.62	33.76
Oceania	1.61	0.73	-54.69	1.16	0.53	-54.02	0.07	0.03
Europe	25.72	20.93	-18.66	15.23	12.10	-20.54	1.20	0.87
Africa	1116.29	1400.61	25.47	484.69	573.10	18.24	52.00	58.01
America	111.29	89.83	-19.28	46.09	33.63	-27.03	5.18	3.72
CIS	62.74	87.23	39.04	27.16	33.49	23.31	2.92	3.61
Total	2146.73	2414.55	12.48	998.08	1074.02	7.61	100.00	100.00

Source: Pakistan Bureau of Statistics (PBS), Karachi

**ECONOMIC EFFICIENCY OF RESOURCE USE IN BASMATI (PADDY)
PRODUCTION IN PUNJAB**

Based on export parity prices

Description	Revenues	Traded Input Cost	Domestic Factor Cost	Profits
----- Rupees per acre -----				
2008-09				
Private Prices	27615.83	9604.01	8765.13	9246.68
Social Prices	47450.77	8171.37	8980.69	30298.71
Transfers	-19834.95	1432.64	-215.56	-21052.03
2009-10				
Private Prices	25990.53	9790.22	12917.74	3282.56
Social Prices	34749.37	8345.39	13142.75	13261.23
Transfers	-8758.85	1444.84	-225.01	-9978.67
2010-11				
Private Prices	31269.00	13143.66	13936.00	4189.34
Social Prices	34290.15	11182.28	14168.83	8939.04
Transfers	-3021.15	1961.39	-232.84	-4749.70
2011-12				
Private Prices	39986.80	16141.76	18602.34	5242.69
Social Prices	49616.30	13738.58	18844.43	17033.29
Transfers	-9629.50	2403.18	-242.09	-11790.59
2012-13				
Private Prices	56807.60	18277.17	21001.59	17528.84
Social Prices	49369.71	15536.82	21245.67	12587.22
Transfers	7437.89	2740.35	-244.08	4941.63
2013-14				
Private Prices	67152.98	18954.25	23660.22	24538.50
Social Prices	53518.24	16127.17	23912.11	13478.96
Transfers	13634.74	2827.08	-251.89	11059.54
2014-15				
Private Prices	41906.95	19901.55	26714.35	-4708.94
Social Prices	55925.03	16824.94	26583.33	12516.76
Transfers	-14018.08	3076.61	131.02	-17225.70

Note:

Data for 2014-15 is an estimate based on respective cost of production and export parity price for 2014-15. All other estimates are taken from previous issues of Rice Policy Analysis reports.

ECONOMIC EFFICIENCY OF RESOURCE USE IN IRRI (PADDY) PRODUCTION IN PUNJAB

Based on export parity prices

Description	Revenues	Traded Input Cost	Domestic Factor Cost	Profits
----- Rupees per acre -----				
2008-09				
Private Prices	22929.80	8551.95	7687.32	6690.53
Social Prices	26551.04	7279.64	7901.86	11369.54
Transfers	-3621.24	1272.31	-214.54	-4679.01
2009-10				
Private Prices	23327.65	8391.14	12198.45	2738.06
Social Prices	21081.48	7160.56	12422.66	1498.26
Transfers	2246.18	1230.58	-224.21	1239.80
2010-11				
Private Prices	32445.30	10867.94	13160.83	8416.53
Social Prices	23530.98	9259.47	13393.10	878.41
Transfers	8914.32	1608.47	-232.27	7538.12
2011-12				
Private Prices	36484.00	14104.47	18292.26	4087.26
Social Prices	47390.00	12021.13	18533.23	16835.64
Transfers	-10906.00	2083.35	-240.97	-12748.38
2012-13				
Private Prices	36820.00	16038.36	20349.94	431.70
Social Prices	31576.00	13648.22	20592.58	-2664.81
Transfers	5244.00	2390.14	-242.65	3096.51
2013-14				
Private Prices	37244.00	16511.84	21480.04	-747.88
Social Prices	30746.00	14049.94	21729.54	-5033.48
Transfers	6498.00	2461.89	-249.50	4285.61
2014-15				
Private Prices	36474.25	16969.61	24148.56	-4643.91
Social Prices	31038.25	14292.68	24062.18	-7316.61
Transfers	5436.00	2676.92	86.37	2672.70

Note:

Data for 2014-15 is an estimate based on respective cost of production and export parity price for 2014-15. All other estimates are taken from previous issues of Rice Policy Analysis reports.

**ECONOMIC EFFICIENCY OF RESOURCE USE IN IRRI (PADDY) PRODUCTION
IN SINDH**

Based on export parity prices

Description	Revenues	Traded inputs cost	Domestic Factor cost	Profits
----- Rupees per acre -----				
2008-09				
Private Prices	22474.25	6840.06	7908.40	7725.79
Social Prices	29254.40	5844.86	8091.62	15317.92
Transfers	-6780.15	995.20	-183.21	-7592.13
2009-10				
Private Prices	25675.30	6554.96	11782.63	7337.72
Social Prices	23192.95	5637.16	11977.56	5578.23
Transfers	2482.35	917.80	-194.94	1759.49
2010-11				
Private Prices	35693.55	8779.80	13502.57	13411.18
Social Prices	25875.30	7537.10	13707.76	4630.44
Transfers	9818.25	1242.70	-205.19	8780.74
2011-12				
Private Prices	41479.80	11853.92	18233.78	11392.10
Social Prices	61870.50	10160.08	18448.40	33262.02
Transfers	-20390.70	1693.84	-214.62	-21869.92
2012-13				
Private Prices	46089.00	13391.14	19621.84	13076.02
Social Prices	39175.20	11451.47	19837.79	7885.94
Transfers	6913.80	1939.67	-215.95	5190.08
2013-14				
Private Prices	45988.80	13937.44	21605.06	10446.30
Social Prices	37672.20	11929.22	21829.87	3913.11
Transfers	8316.60	2008.21	-224.80	6533.19
2014-15				
Private Prices	43934.70	14604.74	23403.84	5926.12
Social Prices	36720.30	12445.12	23296.32	978.87
Transfers	7214.40	2159.62	107.52	4947.26

Note:

Data for 2014-15 is an estimate based on respective cost of production and export parity price for 2014-15. All other estimates are taken from previous issues of Rice Policy Analysis reports.

**AREA AND PRODUCTION OF MAJOR RICE PRODUCING COUNTRIES
IN THE WORLD : 2013 CROP**

S.No.	Country	Area (million)hectares	Per cent share
1	India	43.500	26.408
2	China, mainland	30.226	18.350
3	Indonesia	13.835	8.399
4	Thailand	12.373	7.512
5	Bangladesh	11.770	7.145
6	Viet Nam	7.903	4.798
7	Myanmar	7.500	4.553
8	Philippines	4.746	2.881
9	Cambodia	3.100	1.882
10	Pakistan	2.800	1.700
11	Nigeria	2.600	1.578
12	Brazil	2.349	1.426
13	Japan	1.599	0.971
14	Nepal	1.421	0.862
15	Madagascar	1.300	0.789
16	Sri Lanka	1.188	0.721
17	Guinea	1.100	0.668
18	United States of America	0.999	0.606
19	United Republic of Tanzania	0.928	0.564
20	Lao People's Democratic Republic	0.880	0.534
21	Republic of Korea	0.833	0.505
22	Egypt	0.700	0.425
23	Malaysia	0.688	0.418
24	Democratic People's Republic of Korea	0.664	0.403
25	Sierra Leone	0.650	0.395
26	Mali	0.605	0.367
27	Colombia	0.533	0.323
28	Democratic Republic of the Congo	0.510	0.310
29	Iran (Islamic Republic of)	0.500	0.304
	Total	157.799	95.798
	World Total 117 countries	164.722	100.000

S.No.	Country	Production million(tonnes)	Per cent share
1	China, mainland	135.527	27.261
2	India	106.133	21.35
3	Indonesia	47.520	9.56
4	Bangladesh	34.333	6.91
5	Viet Nam	29.360	5.91
6	Thailand	25.858	5.20
7	Myanmar	18.667	3.75
8	Philippines	12.293	2.47
9	Brazil	7.839	1.58
10	Japan	7.172	1.44
11	Pakistan	6.533	1.31
12	Cambodia	6.227	1.25
13	United States of America	5.742	1.16
14	Egypt	4.500	0.91
15	Republic of Korea	3.754	0.76
16	Nigeria	3.133	0.63
17	Sri Lanka	3.080	0.62
18	Nepal	3.003	0.60
19	Madagascar	2.407	0.48
20	Lao People's Democratic Republic	2.200	0.44
21	Peru	2.034	0.41
22	Democratic People's Republic of Korea	1.934	0.39
23	Malaysia	1.751	0.35
24	Iran (Islamic Republic of)	1.693	0.34
25	Colombia	1.623	0.33
26	Mali	1.475	0.30
27	United Republic of Tanzania	1.463	0.29
28	Guinea	1.369	0.28
29	Côte d'Ivoire	1.250	0.25
	Total	479.874	96.53
	World Total 117 Countries	497.140	100.00

Source: World Statistics Year Book 2013.

Note: Rice production has worked out from paddy production assuming rice (paddy)ratio is 2/3

YIELD PER HECTARE OF MAJOR RICE PRODUCING COUNTRIES IN THE WORLD: 2013 CROP

S.No.	Name of Country	Yield Kgs/hect	S.No.	Name of Country	Yield Kgs/hect
1	Australia	6812	32	Iran (Islamic Republic of)	3387
2	Egypt	6429	33	Brazil	3337
3	United States of America	5749	34	Nicaragua	3333
4	Turkey	5425	35	Guyana	3333
5	Uruguay	5237	36	Russian Federation	3298
6	Greece	5183	37	Côte d'Ivoire	3289
7	Peru	5141	38	Romania	3146
8	Morocco	5029	39	Colombia	3048
9	Tajikistan	5026	40	Mauritania	3033
10	Spain	5015	41	Jamaica	2952
11	Republic of Korea	4509	42	Bangladesh	2917
12	Japan	4485	43	Democratic People's Republic of Korea	2913
13	China, mainland	4484	44	Réunion	2889
14	Argentina	4479	45	Suriname	2877
15	China, Taiwan Province of	4423	46	Venezuela (Bolivarian Republic of)	2822
16	Italy	4201	47	Solomon Islands	2800
17	Paraguay	4200	48	France	2693
18	Chile	4137	49	Hungary	2613
19	El Salvador	4108	50	Senegal	2609
20	Ukraine	3996	51	Sri Lanka	2593
21	The former Yugoslav Republic of Macedonia	3994	52	Philippines	2590
22	Honduras	3988	53	Kazakhstan	2567
23	Viet Nam	3715	54	Ecuador	2547
24	Bulgaria	3660	55	Malaysia	2545
25	Mexico	3617	56	Costa Rica	2525
26	Portugal	3596	57	Lao People's Democratic Republic	2500
27	Rwanda	3557	58	Myanmar	2489
28	Kenya	3493	59	India	2440
29	Belize	3482	60	Mali	2438
30	Indonesia	3435	61	Pakistan	2333
31	Dominican Republic	3409		World Avg.	3018

Source: World Statistics Year Book 2013.

AVAILABILITY OF CERTIFIED SEED OF RICE PADDY: 2009-10 TO 2014-15

Year	Province	Area			Seed requirement at		Total Seed available	Availability of seed	
		Basmati	Irri+Others	Total	Gross	Replacement @ 20 %		Gross requirement	Replacement requirement
		----- 000 hect -----			----- tonnes -----			----- (per cent) -----	
2009-10	Punjab	1414	518	1932	29918	5984	24809	83	415
	Sindh		708	708	17700	3540	4590	26	130
	KPK		54	54	1350	270	134	10	50
	Balochistan		190	190	4750	950	278	6	29
	Total	1414	1470	2884	53718	10744	29811	55	277
2010-11	Punjab	1334	433	1767	26833	5367	19262	72	359
	Sindh		361	361	9025	1805	5248	58	291
	KPK		46	46	1150	230	46	4	20
	Balochistan		191	191	4775	955	1340	28	140
	Total	1334	1031	2365	41783	8357	25896	62	310
2011-12	Punjab	1121	593	1714	28282	5656	17701	63	313
	Sindh		636	636	15900	3180	7088	45	223
	KPK		50	50	1250	250	91.78	7	37
	Balochistan		171	171	4275	855	1932	45	226
	Total	1121	1450	2571	49707	9941	26813	54	270
2012-13	Punjab	995	716	1711	29849	5970	29506	99	494
	Sindh	0	512	512	12800	2560	13152	103	514
	KPK	0	51	51	1277.5	256	0	0	0
	Balochistan	0	38	38	937.5	188	0	0	0
	Total	995	1317	2312	44864	8973	42658	95	475
2013-14	Punjab	1173	607	1780	29251	5850	35247	120	602
	Sindh	0	746	746	18650	3730	9726	52	261
	KPK	0	55	55	1375	275	73	5	27
	Balochistan	0	180	180	4500	900	1000	22	111
	Total	1173	1588	2761	53776	10755	46046	86	428
2014-15	Punjab	1320	558	1878	29783	5957	38323	129	643
	Sindh	0	782	746	19543	3909	7044	36	180
	KPK	0	57	57	1423	285	234	16	82
	Balochistan	0	174	174	4358	872	2627	60	301
	Total	1320	1571	2891	55105	11021	48228	88	438

- Notes:**
1. The area under rice for the Punjab province represents area under basmati and IRRI varieties while that of Sindh represents the area under IRRI and 'Other varieties'. For KPK and Balochistan total area under rice represents 'Othrs' and IRRI varieties, respectively.
 2. The seed requirement has been worked by using the seed rate of 12 kgs per hectare for basmati and 25 kgs per hectare for IRRI and 'others' varieties.

- Sources:**
1. For Area: Annex-I
 2. For Seed: FSC&RD, Islamabad

