

Agriculture

The agriculture sector continues to be an essential component of Pakistan's economy. It currently contributes 21 percent to GDP. Agriculture generates productive employment opportunities for 45 percent of the country's labour force and 60 percent of the rural population depends upon this sector for its livelihood. It has a vital role in ensuring food security, generating overall economic growth, reducing poverty and the transforming towards industrialization. The present government is determined to improve the quality of life of the people and to banish hunger and malnutrition from the country by making agriculture an efficient, productive and profitable sector of the economy.

In order to improve governance in the public sector the government took bold steps and brought in the 18th Amendment to the Constitution of 1973. Accordingly, Ministries performing tasks which were provincial subjects were devolved from the Federal level, including the Ministry of Food and Agriculture. However, realizing the food security concerns across the country the government took timely steps to establish the Ministry of National Food Security and Research to tackle the Food Security issues.

The newly created Ministry, under the aegis of the present government, has planned to take two major steps in order to solve the food security issues on a permanent basis. The first step is the establishment of the National Food Security Council representing Federal, Provincial and local level Governments. Secondly, through a Letter of Intent the Ministry, in collaboration with World Food Programme, is launching the Zero Hunger Programme worth US \$

1.6 billion to address the food security objective. Under this Programme the Ministry shall donate up to 500,000 metric tons of wheat per year and the World Food Programme intends to negotiate with local producers to exchange part of the donated wheat for High Energy Biscuits (HEB) and similar products manufactured in Pakistan factories for distributions through WFP operations to primary school children, siblings of malnourished children and the vulnerable populations especially children at risk of malnutrition. The fund will also be converted to fortified wheat flour for distributions aimed at combating food insecurity in Pakistan. The WFP will also cooperate in the capacity building of the Ministry's officials in areas addressing food security and monitoring progress.

Flooding in 2011, affected crops like rice, cotton and sugarcane, although in the current year, 2011-12, they performed well and provided support and continued to support food security objectives this year. The agriculture sector recorded a growth of 3.1 percent in 2011-12. The profitability of agriculture sector during 2011-12, remained high because the farmers received good prices for rice, cotton and sugarcane, which allowed for greater financial resources passed on to the rural economy.

Recent performance

During 2011-12, the overall performance of agriculture sector exhibited a growth of 3.1 percent mainly due to positive growth in agriculture related subsectors, except minor crops. Major crops accounted for 31.9 percent of agricultural value added and experienced a growth of 3.2 percent in fiscal year 2011-12 with negative growth of 0.2 percent in 2011. The significant growth in major crops is contributed by rice, cotton and sugarcane

by 27.7 percent, 18.6 percent and 4.9 percent, respectively.

Table 2.1: Agriculture growth percentages from 2005-2012

Year	Agriculture	Major Crops	Minor Crops	Livestock	Fishery	Forestry
2005-06	6.3	-3.9	0.4	15.8	20.8	-1.1
2006-07	4.1	7.7	-1.0	2.8	15.4	-5.1
2007-08	1.0	-6.4	10.9	4.2	9.2	-13.0
2008-09	4.0	7.8	-1.2	3.1	2.3	-3.0
2009-10	0.6	-2.3	-7.7	4.3	1.5	2.2
2010-11	2.4	-0.2	2.7	4.0	1.9	-0.4
2011-12(P)	3.1	3.2	-1.3	4.0	1.8	1.0

Source: Pakistan Bureau of Statistics

P:Provisional

Minor crops contributed 10.1 percent value addition in agriculture and exhibited a negative growth of 1.3 percent in 2011-12 against 2.7 percent growth of 2011. The Livestock sector, which has a 55.1 percent share in the agriculture, grew by 4.0 percent in 2011-12. The Fishery sector grew by 1.8 percent as against last year's growth of 1.9 percent. Forestry sector posted a positive growth of 1.0 percent this year as compared to negative growth of 0.4 percent last year.

Pakistan has two crop seasons, "Kharif" being the first sowing season from April-June and it is harvested during October-December. Rice, sugarcane, cotton, maize, mung, mash, bajra and jowar are "Kharif" crops. "Rabi", the second

sowing season, begins October-December and is harvested in April-May. Wheat, gram, lentil (masoor), tobacco, rapeseed, barley and mustard are "Rabi" crops. These crops make Pakistan an agricultural country and its performance is dependent upon timely availability of irrigation water. During 2011-12, the availability of water as a basic input for Kharif 2011 (for the crops such as rice, sugarcane and cotton) has been 10 percent less than the normal supplies but 13 percent higher than last year's Kharif 2010 season. The water availability during Rabi season (for major crop such as wheat), is estimated at 29.4 MAF, which is 19.2 percent less than the normal availability, but 15 percent less than last year's Rabi crop (Table 2.2).

Table 2.2: Actual Surface Water Availability

(Million Acre Feet)

Period	Kharif	Rabi	Total	%age incr/decr. Over the Avg.
Average system usage	67.1	36.4	103.5	-
2003-04	65.9	31.5	97.4	- 5.9
2004-05	59.1	23.1	82.2	- 20.6
2005-06	70.8	30.1	100.9	- 2.5
2006-07	63.1	31.2	94.3	- 8.9
2007-08	70.8	27.9	98.7	- 4.6
2008-09	66.9	24.9	91.8	-11.3
2009-10	67.3	25.0	92.3	-10.8
2010-11	53.4	34.6	88.0	-15.0
2011-12	60.4	29.4	89.8	-13.4

Source: Indus River System Authority

I. Crop Situation

Major crops, such as wheat, rice, cotton and sugarcane account for 91 percent of the value added in the major crops. The value added in major crops accounts for 32 percent of the value added in

the agriculture. Thus, four major crops (wheat, rice, cotton, and sugarcane) on average, contribute 29 percent to the value added in overall agriculture and 6.0 percent to GDP. The minor crops account for 10.1 percent of the value added in overall

agriculture. Livestock contributes 55.1 percent to agricultural value added—much more than the combined contribution of major and minor crops (41.9 percent). The production performance of major crops is documented in Table 2.3.

Table 2.3: Production of Major Crops (in thousands of tons)

Year	Cotton (000 bales)	Sugarcane	Rice	Maize	Wheat
2005-06	13,019 (-8.7)	44,666 (-5.5)	5,547 (10.4)	3,110 (11.2)	21,277 (-1.6)
2006-07	12,856 (-1.2)	54,742 (22.6)	5,438 (-2.0)	3,088 (-0.7)	23,295 (9.5)
2007-08	11,655 (-9.3)	63,920 (16.8)	5,563 (2.3)	3,605 (16.7)	20,959 (-10.0)
2008-09	11,819 (1.4)	50,045 (-21.7)	6,952 (25.0)	3,593 (-0.3)	24,033 (14.7)
2009-10	12,914 (9.4)	49,373 (-1.3)	6,883 (-1.0)	3,261 (-9.2)	23,311 (-3.0)
2010-11	11,460 (-11.3)	55,309 (12.0)	4,823 (-30.0)	3,707 (13.7)	25,214 (8.2)
2011-12(P)	13,595 (18.6)	58,038 (4.9)	6,160 (27.7)	4,271 (15.2)	23,517 (-6.7)

Source: Pakistan Bureau of Statistics

P: Provisional (July-March), Figures in parentheses are growth/decline rates

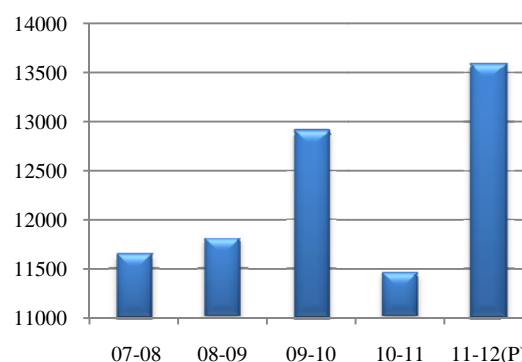
a) Major Crops:

i) Cotton:

Cotton is an important cash crop which significantly contributes to the national economy by providing raw material to the local textile industry, such as cotton lint as an export item. It accounts for 7.8 percent of value added in agriculture and 1.6 percent of GDP. During 2011-12, the crop was cultivated on an area of 2835 thousand hectares, 5.4 percent more than last year (2689 thousand hectares). The production is reported at 13.6 million bales during the period (July-March) 2011-12, higher by 18.6 percent over the last year's production which was 11.5 million bales. The increase in cultivated area and production is attributed to the use of BT cotton, control over widespread attack of cotton leaf curl virus (CLCV) and sucking pests which helped

increase in yield per hectare as compared to last year. The area, production and yield of cotton for the last five years is given in Table 2.4 and Figure 2.1.

Figure 2.1: Cotton Production (000 bales)



Source: PBS

Table 2.4: Area, Production and Yield of Cotton

Year	Area		Production		Yield	
	(000 Hectare)	% Change	(000 Bales)	% Change	(Kgs/Hec)	% Change
2007-08	3054	- 0.7	11655	- 9.3	649	-8.7
2008-09	2820	-7.7	11819	1.4	713	9.9
2009-10	3106	10.1	12914	9.3	707	-0.8
2010-11	2689	-13.4	11460	-11.3	724	2.4
2011-12(P)	2835	5.4	13595	18.6	815	12.6

Source: Pakistan Bureau of Statistics

P: Provisional (July-March)

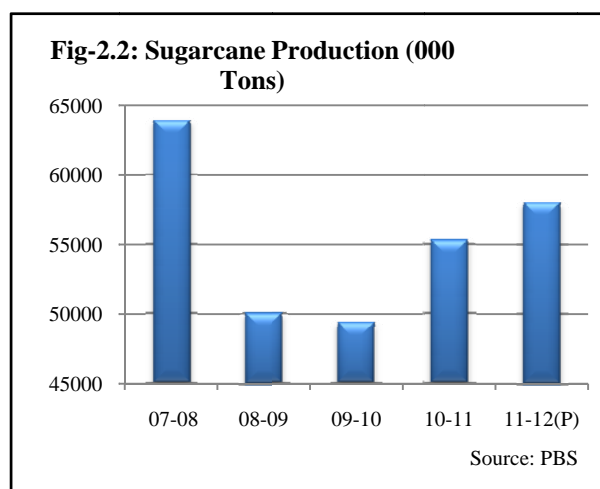
World Cotton Outlook

The production and consumption of major cotton growing countries are given in Table 2.5.

Table 2.5: Production and Consumption of Major Cotton Growing Countries			(in Millions of Tons)
	2009-10	2010-11 E	2011-12 P
Production			
China	6.92	6.40	7.40
India	5.18	5.76	5.69
USA	2.65	3.94	3.39
Pakistan	2.07	1.91	2.35
Brazil	1.19	1.96	2.00
Uzbekistan	0.85	0.91	0.88
Others	3.29	4.22	5.28
World Total	22.17	25.10	26.96
Consumption			
China	10.10	9.59	9.38
India	4.30	4.48	4.56
Pakistan	2.39	2.20	2.33
East Asia/Australia	1.86	1.75	1.63
Europe & Turkey	1.55	1.49	1.46
Brazil	1.02	0.96	0.90
USA	0.77	0.85	0.70
Others	3.36	3.17	3.01
World Total	25.36	24.49	23.96

Source: Pakistan Central Cotton Committee, M/O Textile Industry

E: Estimated, P: Provisional



ii) Sugarcane:

The sugarcane crop is the second major cash crop and is used as a raw material in the production of refined sugar and gur. Its share in value added in agriculture and GDP is 3.7 and 0.8 percent,

respectively. Sugarcane was cultivated on an area of 1,046 thousand hectares, 5.9 percent higher than last year's level of 988 thousand hectares. Sugarcane production for the year 2011-12 is estimated at 58.0 million tons, in contrast to last year's production of 55.3 million tons. This shows an increase of 4.9 percent over the production of last year. The main factors contributing to the production are lucrative market prices of last year's produce and timely availability of inputs encouraged the farmers to grow more sugarcane crop. However, the yield per hectare, if compared with last year, posted a negative growth. The floods of 2010 enhanced the soil fertility of Sugarcane crop, and as a result, yield per hectare posted a growth of 6.9 percent as compared to negative 0.9 percent this year. However, productivity gain could not be sustained because water receded very slowly in sugarcane area of lower Sindh. The area, production and yield of sugarcane for the last five years are given in Table 2.6 and Figure 2.2.

Table 2.6: Area, Production and Yield of Sugarcane

Year	Area		Production		Yield	
	(000 Hectare)	% Change	(000 Tons)	% Change	(Kgs/Hec.)	% Change
2007-08	1241	20.6	63920	16.8	51507	-3.2
2008-09	1029	-17.1	50045	-21.7	48635	-5.6
2009-10	943	-8.4	49373	-1.3	52357	7.7
2010-11	988	4.8	55309	12.0	55981	6.9
2011-12(P)	1046	5.9	58038	4.9	55486	-0.9

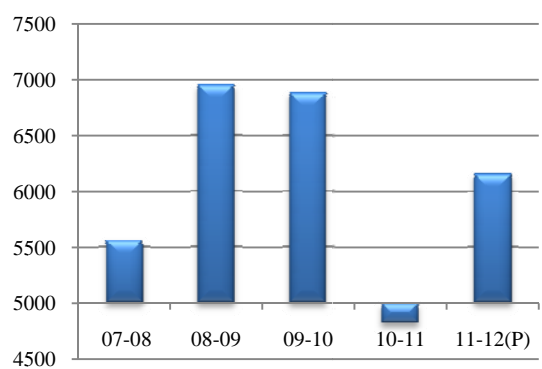
Source: Pakistan Bureau of Statistics

P: Provisional (July-March)

iii) Rice:

Rice ranks as second amongst the staple food grain crops in Pakistan and it has been a major source of foreign exchange earnings in recent years. Pakistan grows a high quality of rice to fulfill the domestic demand and also for exports. Rice accounts 4.9 percent of the value added in agriculture and 1.0 percent of GDP. The sown area for rice is 2571 thousand hectares, 8.7 percent more than last year's 2365 thousand hectares. The production of the crop is an estimated 6160 thousand tons, 27.7 percent more than the 4823 thousand tons produced last year. This increase in area is due to 8.7 percent increase in area sown. The yield per hectare has shown improved growth of 17.5 percent as compared to -14.6 percent last year. The area,

production and yield of rice for the last five years are shown in Table 2.7 and Figure 2.3.

Figure 2.3: Rice Production (000 Tons)

Source: PBS

Table 2.7: Area, Production and Yield of Rice

Year	Area		Production		Yield	
	(000 Hectare)	% Change	(000 Tons)	% Change	(Kgs/Hec.)	% Change
2007-08	2515	-2.6	5563	2.3	2212	5.0
2008-09	2963	17.8	6952	25.0	2346	6.1
2009-10	2883	-2.7	6883	-1.0	2387	1.7
2010-11	2365	-18.0	4823	-30.0	2039	-14.6
2011-12(P)	2571	8.7	6160	27.7	2396	17.5

Source: Pakistan Bureau of Statistics

P: Provisional (July-March)

iv) Wheat:

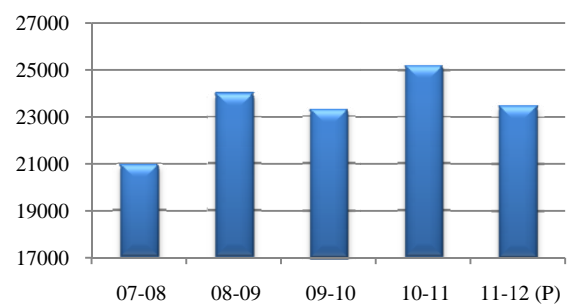
Wheat is the basic staple food for most of the population and largest grain source of the country. Its importance is always recognized when formulating agricultural policies. It contributes 12.5 percent to the value added in agriculture and 2.6 percent to GDP. Wheat is cultivated in an area of 8666 thousand hectares in 2011-12, showing a decrease of 2.6 percent over last year's area of

8901 thousand hectares. The production of 23.5 million tons is estimated during July-March 2011-12. The yield per hectare in 2011-12 posted a negative growth of 4.2 percent as compared to 11 percent growth last year. This is due to the fact that the sowing of wheat was delayed due to standing water and other climatic factors. Recently the government has increased the procurement price to Rs. 1050. This step would help the farmers to

increase its production and its impact will be realized in the later part of 2011-12.

The overall decrease in area is due to problems farmers faced in the disposal of the wheat produced during last year. Farmers then began to increase predisposition of growing early sown BT cotton and reducing the area of BT cotton sown in rain affected districts of Sindh. This phenomenon is demonstrated in Table 2.8 and Figure 2.4.

Fig 2.4: Wheat Production (000 Tons)



Source: PBS

Table 2.8: Area, Production and Yield of Wheat

Year	Area		Production		Yield	
	(000 hectares)	% Change	(000 tons)	% Change	(Kgs/Hec.)	% Changes
2007-08	8550	-0.3	20959	-10.0	2451	-9.8
2008-09	9046	5.8	24033	14.7	2657	8.4
2009-10	9132	1.0	23311	-3.0	2553	-3.9
2010-11	8901	-2.5	25214	8.2	2833	11.0
2011-12(P)	8666	-2.6	23517	-6.7	2714	-4.2

Source: Pakistan Bureau of Statistics

P:Provisional(July-March)

v) Other Major Crops

During 2011-12, the production of maize increased by 15.2 percent, while rapeseed and mustard rose by 5.7 percent. This is in contrast to crops like gram, the largest Rabi pulses crop in Pakistan, where production stood at 291 thousand tons, against 496 thousand tons of last year, showing a

reduction of about 41.3 percent during 2011-12 mainly because of unfavorable weather conditions. The other crops like bajra, tobacco, jawar and barley also, witnessed a decline in production of 12.1 percent, 8.7 percent, 2.8 percent and 1.4 percent, respectively, in 2011-12 as compared to the corresponding period last year. The area and production of major crops are given in Table 2.9.

Table 2.9: Area and Production of Other Major Kharif and Rabi Crops

Crops	2010-11		2011-12 (P)		% Change In production over Last year
	Area (000 hectares)	Production (000 tons)	Area (000 hectares)	Production (000 tons)	
Kharif					
Maize	974	3707	1083	4271	15.2
Bajra	548	346	458	304	-12.1
Jawar	229	141	214	137	-2.8
Rabi					
Gram	1054	496	1055	291	-41.3
Barley	77	71	75	70	-1.4
Rapeseed & Mustard	203	176	213	186	5.7
Tobacco	51	103	47	94	-8.7

Source: Pakistan Bureau of Statistics

P: Provisional (July-March)

b) Minor Crops**i) Oilseeds**

The major oilseed crops grown in the country include sunflower, canola, cottonseed, rapeseed and mustard. Although the cotton crop is grown for its lint, cottonseed contributes 50 to 60 percent of local edible oil production. At present, total requirement of edible oil in the country is 2.045 million tons. During the year 2010-11, the total availability of edible oil was 3.079 million tons; of which local production contributed 0.696 million tons (34 percent of the requirement); while imports of edible oil or oilseeds was 2.383 million ton. The import bill reached Rs. 224 billion (US\$ 2.611 billion) in 2010-11.

It is estimated that 10 percent of the total availability of edible oil is consumed in industries like cosmetics, paints and other allied products. Around 200,000 tons of edible oil is exported, mainly to Afghanistan. This does not include smuggling through porous borders which is not accounted for.

During the year 2011-12 (July-February) 1.467 million tons of edible oil worth Rs. 145 billion (US\$ 1.654 billion) was imported. Local production during 2011-12 was 0.636 million tons. The area and production of oilseed crops during 2010-11 and 2011-12 is shown in Table 2.10.

Table 2.10: Area and Production of Major Oilseed Crops

Crops	2010-11			2011-12 (P)		
	Area	Production		Area	Production	
	(000 Acres)	Seed (000 Tons)	Oil (000 Tons)	(000 Acres)	Seed (000 Tons)	Oil (000 Tons)
Cottonseed	6,450	2,934	352	6,958	3,212	385
Rapeseed/ Mustard	439	157	50	575	203	61
Sunflower	1,108	643	244	877	473	179
Canola	223	131	50	27	30	11
Total	8,230	3,865	696	8,437	3,918	636

Source: Pakistan Oilseed Development Board

P: Provisional (July-Feb)

ii) Other Minor Crops:

The production of mung and potato has increased by 22.0 percent and 17.5 percent, respectively during, 2011-12. However, the production of chillies, onion, masoor (lentil) and mash decreased by 78.3 percent, 15.4 percent 12.8 percent and 3.5

percent, respectively. The area sown for masoor, onion and chillies decreased by 13.8 percent, 14.9 percent and 65.7 percent, respectively. There was an increase of area sown for mung and potatoes by 2.5 percent and 16.2 percent, respectively. The area and production of minor crops are given in Table 2.11.

Table 2.11 Area and Production of Minor Crops

Crops	2010-11		2011-12(P)		%Change In Production
	Area (000 hectares)	Production (000 tons)	Area (000 hectares)	Production (000 tons)	
Masoor	26.1	13.3	22.5	11.6	-12.8
Mung	137.4	76.2	140.8	93.0	22.0
Mash	24.5	11.3	24.5	10.9	-3.5
Potato	159.3	3491.8	185.1	4104.4	17.5
Onion	147.6	1939.6	125.6	1640.0	-15.4
Chillies	63.6	171.7	21.8	37.2	-78.3

Source: Pakistan Bureau of Statistics

P: Provisional (July-March)

II. Farm Inputs

i) Fertilizer:

Fertilizer is Pakistan's most important and expensive input in agricultural production. The contribution of balanced fertilizer use towards increased yield varies from 30 to 60 percent in different crop production areas of the country. One kg of fertilizer nutrient produces about 8 kg of cereals (wheat, maize and rice), 2.5 kg of cotton and 114 kg of stripped sugarcane. All of Pakistan's soils are deficient in nitrogen (N), 80 to 90 percent are deficient in phosphorus (P), and 30 percent are lacking in potassium (K). The wide spread deficiency of micronutrients is also appearing in different areas. Lands used for single crops are depleting soil fertility because lands are using only certain essential plant nutrients and are intensely cultivated. When these soils go without being replenished, future crops are threatened from loss of micronutrients and other essential plant nutrients.

The domestic production of fertilizers from July-March, 2011-12 declined by 1.4 percent when compared to the last year's production. The fertilizer industry experienced a curtailment of

natural gas (the raw material for urea) and some urea plants produced less than their production capacity. However, a timely import of urea addressed the absence in supply and total availability of fertilizer increased by 16.3 percent. Despite the increased supply of urea, total consumption of fertilizer reduced by 4.9 percent. Nitrogen consumption increased by 0.3 percent while that of phosphate decreased by 22.3 percent and potash by 36 percent. Details of fertilizer production are presented in Table 2.12.

The major reason for reduced fertilizer consumption was the effect of heavy and destructive rains in the Sindh province during the monsoon season in 2011, which adversely affected crop lands. Another reason for the reduction in consumption of fertilizer was the increase in price of all fertilizers. The prices of urea went up by 81.4 percent in July-March, 2011-12 as compared to the same period of the last fiscal year. The prices of DAP, CAN and NP also increased by 38.8 percent, 75.5 percent and 45.7 percent, respectively, over the same period last year.

Year	Domestic Production	% Change	Import	% Change	Total	% Change	Off-take	% Change
2007-08	2822	-	876	-	3698	-	3581	-
2008-09	2907	3.0	568	-35.1	3475	-6.0	3711	3.6
2009-10	3082	6.0	1444	154.2	4526	30.2	4360	17.5
2010-11	3076	-0.2	645	-55.4	3721	0.6	3933	-9.8
2010-11 P	2287	-	532	-	2819	-	3064	-
2011-12 P	2255	-1.4	1024	92.6	3279	16.3	2913	-4.9

Source: National Fertilizer Development Centre

P : Provisional (Jul-March)

ii) Improved Seed:

Quality seed is also an essential input for improving yield in Pakistan. Seed has a unique position among the other various agricultural inputs because the effectiveness of all other inputs depend primarily on the potential of the seeds. Seed is a high technology product and is an innovation readily adapted for Pakistan's climate. Improving access to good quality seed is a critical

requirement for sustainable agricultural growth and food security. Effective use of improved and certified seed can result in higher agricultural production, which leads to increased net incomes of farming families. This is the desired positive impact of improved seed for greater rural development. Hence the availability of quality seed of improved varieties is essential to achieve production targets.

During July-March, 2011-12 about 361.0 thousand tons of improved seed of various Kharif/Rabi season crops were procured. The procurement of seeds for various Kharif crops (cotton, paddy, maize, mung bean, etc) is currently underway. The details of this procurement are demonstrated in Table 2.13.

The Federal Seed Certification and Registration Department (FSC&RD) is engaged in providing seed certification coverage to public and private sector seed companies of the country. It provides seed quality control services through its 28 seed testing laboratories as well as monitoring of seed quality in the market. The activities and achievements of the department during 2011-12 are described below:

- ▶ During the year 2011-12, forty-five (45) new seed companies were registered, making the total number of registered seed companies in the country 774, which includes four public sector and five multinational companies.
- ▶ Twenty-two (22) new crop varieties were approved {(5) wheat, (11) cotton, (3) oilseeds, (2) pulses and (1) fodder}.
- ▶ During 2011-12, different crops offered by the various seed agencies, totaling 502.6 thousand

acres, were inspected for certification purposes.

- ▶ A total quantity of 361.0 thousand MT seeds of various crops were sampled and tested for purity, germination and seed health purposes.
- ▶ Pre and post control trials of all pre-basic, basic seed lots and 20 percent of certified seed lots were carried out in the fields to determine the quality of seed distributed by various seed agencies.
- ▶ Under the provision of the Seed Act, five cases were filed in different courts of law against the seed dealers found selling substandard seeds.
- ▶ During 2011-12, a total of 13.7 MT of imported seed of various crops and hybrids, with a total value of Rs. 3287.6 million, was tested under the Seed (Truth in Labelling) Rules, 1991 at the port of entries i.e. Lahore and Karachi.
- ▶ Almost 718 samples of seed and propagating material of various vegetable and fruit crops were tested at the Central Seed Testing Laboratory, Islamabad for detection of fungal and viral disease using latest diagnosis techniques and protocols.

Table 2.13: Seed Availability*

			(Metric Tons)
Crop	Local	Imported	Total
Wheat	319890.0	0.0	319890.0
Cotton	1649.8	0.0	1649.8
Paddy	22749.6	2657.1	25406.7
Maize	1372.9	3739.3	5112.2
Pulses	1189.0	0.0	1189.0
Oilseeds	23.5	328.7	352.2
Fodders	11.4	1473.6	1485.0
Vegetables	256.0	564.6	820.6
Potato	145.0	4963.6	5108.6
Total	347287.2	13726.9	361014.1

Source: Federal Seed Certification & Registration Department

* : July-March 2011-12

iii) Irrigation

Universally an efficient irrigation system is a pre-requisite for higher agricultural production as it

helps in increasing crop intensity, an aim Pakistan hopes to achieve throughout the country. Despite the existence of a good irrigation canal network in Pakistan, large amounts of water are wasted in the

irrigation process because of improper lining of waterways. Rainfall recorded during the monsoon and winter season is presented in Table 2.14.

Table 2.14: Rainfall* Recorded During 2011-12

(in Millimetres)

	Monsoon Rainfall* (Jul-Sep) 2011	Winter Rainfall* (Jan-Mar) 2012
Normal	137.5mm	70.5mm
Actual	236.5mm	34.2mm
Shortage (-)/excess (+)	+ 99.0mm	-36.3mm
% Shortage (-)/excess (+)	+72.0 %	-51.4%

Source: Pakistan Meteorological Department

*: Area weighted

During the monsoon season, (July-September), the normal average rainfall 137.5 mm, while the actual rainfall received in 2011 was 236.5 mm, indicating an increase of 99.0 percent. During the winter, (January-March), normal average rainfall during this period is 70.5 mm and the actual rainfall received in 2012 was 34.2 mm, indicating a decrease of 51.4 percent under the normal rainfall average.

The canal head withdrawals in April-September 2011 increased by 13 percent and stood at 60.4 million acre feet (MAF) as compared to 53.4 MAF during the same period last year. During the second planting season, October-March, 2011-12, the canal head withdrawals declined to 29.4 MAF, compared to 34.6 MAF during the same period last year. The Province-wise details are given in Table 2.15.

Table 2.15: Canal Head Withdrawals (Below Rim Station)

Million Acre Feet (MAF)

Provinces	Kharif (Apr-Sep) 2010	Kharif (Apr-Sep) 2011	% Change in Kharif 2011 over 2010	Rabi (Oct-Mar) 2010-11	Rabi (Oct-Mar) 2011-12	% Change in Rabi 2011-12 Over 2010-11
Punjab	29.00	34.29	18	18.73	17.61	-6
Sindh	22.61	23.29	3	14.51	10.13	-30
Balochistan	1.21	1.86	54	0.88	1.12	27
KPK	0.60	0.96	60	0.48	0.56	17
Total	53.41	60.40	13	34.59	29.42	-15

Source: Indus River System Authority

To address the water sector issues, strategies and future water sector policy, an integrated water resource management approach, guiding principles of equity, efficiency, participatory decision making, sustainability and accountability have been adopted. The strategy is focused on priority investments in the water sector to achieve additional water storages and reorganization for effective and responsive institutional reforms. Water availability is continuously diminishing. The challenge is to formulate an effective implementation of a comprehensive set of measures for the development an efficient management of water

resources. The focus areas of investment in the water sector are:

- Augmentation of surface water resources by construction of storage small/medium dams.
- Conservation measures, or the lining of irrigation channels, included modernizing and rehabilitating irrigation systems, lining of waterways and enhancing efficiency by rehabilitating and improving the operation of the existing system.
- Protection of infrastructure from onslaught of floods and water logging and Salinity.
- Introduction of high efficiency irrigation systems i.e. sprinkler and drip.

It is expected about Rs. 30.00 billion would be utilized on the water sector's programmes under the Ministry of Water and Power for 2011-12. The following major water sector projects are demonstrated in Table 2.16.

Table: 2.16: Major Water Sector Projects under Implementation

Projects	Location	Total App.cost (Rs. In million)	Live Storage (MAF)	Irrigated Area (Acres)	Latest Status (Expected up to June 2012)
Gomal Zam Dam	Khyber Pakhtunkhwa	12,829	0.892	1, 91,139	75 % Physically completed
Greater Thal Canal *	Punjab	30,467	-	1,739,000 (3 Phases)	Phase-I, completed
Rainee Canal *	Sindh	18,862	-	412,400 (3 Phases)	94 % Physically completed Phase-I
Kachhi Canal *	Balochistan	31,204	-	713,000 (3 Phases)	62 % Physically completed Phase-I
Raising of Mangla Dam	AJ&K	62,553(O) 97,000 (B R)	2.90	All over Pakistan	Physically completed
Satpara Dam Multi- purpose	Skardu	4,397	0.05	15,536	Physically completed
Right Bank Outfall Drain (RBOD)					
RBOD-I	Sindh	14,707			88% Physically Completed
RBOD-II	Sindh	29,014			65% Physically Completed
RBOD-III	Balochistan	6,535			75% Physically Completed

Source: Planning & Development Division, Planning Commission

* Progress of all three canals is for Phase-I, whereas app. cost is reflected for total project, Revised cost of all three canals is un-approved, submitted for approval to P&D Division

Water Sector Programmes during (2011-12)

These programmes are:

- ▶ Completion of phase-I of the Greater Thal Canal, substantial completion (60 percent) of Kachhi Canal in Balochistan and Rainee Canal (92 percent) in Sindh for irrigating 2.9 million acres.
- ▶ Completion of Mangla Dam Raising Project for additional storage of 2.9 MAF and additional power generation of 644 GWh.
- ▶ Completion of Satpara Dam in Gilgit Baltistan for irrigation of 15,536 acres of agriculture land and 17.3 MW power generations.
- ▶ Substantial completion of Gomal Zam Dam Project in Tribal/ Khyber Pakhtunkhwa (KPK) area for irrigation of 1, 91,139 acres of agriculture land and generation of 17.4 MW power
- ▶ Rs. 1,800 million is expected to be utilized on lining various irrigation channels in Punjab, Sindh and Khyber Pukhtunkhwa during the year 2011-12.
- ▶ An amount of Rs. 1,600 million is expected to be utilized during the year 2011-12 on improvement of existing irrigating system in Punjab, Sindh, KPK and Balochistan.
- ▶ More than Rs. 2.00 billion is expected to be utilized on construction of new small to medium sized dams across Pakistan; (Winder, Darwat, Nai Gaj and Naulong dam).
- ▶ In Balochistan, about Rs. 3.00 billion are expected to be spent on the construction of new small, delay action dams and improvement of existing irrigation system and flood schemes.
- ▶ In the drainage sector, continued fast track implementation of the RBOD-1, II & III projects hope to protect and reclaim 4.90 million acres of irrigated land.

iv) Agricultural Credit:

The role of credit is instrumental in the agriculture sector where Pakistani farmers often lack finances necessary for carrying out vital farming activities. This issue, if not addressed, can cause a multitude of problems, ranging from the exploitation of poor farmers at the hands of informal sources of credit, to a slowdown in the adoption of modern farming techniques and inputs, resulting in slow development of this chief sector of our economy.

The Government of Pakistan and the SBP is cognizant of the centrality of access to agriculture credit in the growth of the agriculture sector, and they have been making all efforts for the promotion and development of agricultural finance in the country at affordable prices. As a result, the flow of credit to agriculture sector from banks is showing improvement. A well-established network of lending institutions operates to meet the financial requirements of farmers in the rural areas. Currently 26 commercial and microfinance banks, with around 3,900 agriculture designated branches, are facilitating farmers by extending agriculture credit throughout the country. These include; ABL, Habib Bank Limited (HBL), Muslim Commercial Bank (MCB), United Bank Limited (UBL), two specialized banks, viz, Zarai Tarqiti Bank Limited (ZTBL), Punjab Provincial Corporate Bank Limited (PCBL), and 14 private domestic banks. Furthermore, five microfinance banks (MFBs) are also providing financing to farmers. These banks provide credit to the farming community for all types of farming activities such as growing crops, livestock, poultry, fisheries, orchards, forestry, nurseries, apiculture and sericulture.

The increasing demand for credit is due to an array of factors, such as the rising pressure from the quickly expanding population. Credit on food resources and high prices of agriculture inputs, and the reasonable prices of agricultural commodities are attracting investment into Pakistan's agriculture sector. The Agricultural Credit Advisory Committee (ACAC) has allocated an indicative agriculture credit disbursement target of Rs. 285 billion for 2011-12 as compared to the target of Rs. 270 billion; (fixed for last year and the actual credit disbursement of Rs. 263 billion during 2010-11). Out of the total amount of agricultural credit disbursed, Rs. 195.1 billion was allocated to Commercial Banks, Rs. 70.1 billion to ZTBL, Rs. 12.2 billion went to the Microfinance Banks, (five MFBs included since July 2011), and Rs. 7.6 billion was allocated to the Punjab Provincial Cooperative Bank Limited (PPCBL). During July-March, 2011-12 five major banks, as a group, disbursed Rs 107.7 billion or 76.3 percent of their whole year's targets. ZTBL disbursed Rs 37.9 billion or 54 percent of its targets and Domestic Private Banks (DPBs) disbursed Rs 37.3 billion or 69 percent of their targets. MFBs disbursed Rs 8.5 billion or 69.9 percent of their target and the PPCBL disbursed Rs 6.0 billion or 79.1 percent of its allocated target.

During the period July-March, 2011-12, bank disbursement to the agriculture sector surged by 17 percent on a year-to-year basis to Rs 197.4 billion, or 69.2 percent of the target, of Rs. 285 billion. This goes in contrast to the disbursement of Rs 168.7 billion during corresponding period last year. The details are presented in Table 2.17.

Table 2.17: Supply of Agricultural Credit by Institutions (Rs. in Billion)

Year	ZTBL	Commercial Banks	PPCBL	Domestic Private Banks	MFBs	Total	
						Rs. Billion	%Change
2006-07	56.5	80.4	8.0	24.0	0.0	168.8	22.8
2007-08	66.9	94.7	5.9	43.9	0.0	211.6	25.3
2008-09	75.1	110.7	5.6	41.6	0.0	233.0	10.1
2009-10	79.0	119.6	5.7	43.8	0.0	248.1	6.5
2010-11	65.4	140.3	7.2	50.2	0.0	263.0	6.0
2010-11 P	37.4	93.3	4.4	33.7	0.0	168.7	-
2011-12 P	37.8	107.6	6.0	37.3	8.5	197.4	17.0

Source: State Bank of Pakistan.

P: Provisional (July – Mar)

Box-1**Credit Disbursement to Farm and Non-Farm Sector**

The sector-wise classification reveals that the share of the non-farm sector showed healthy growth and its share in overall agriculture credit disbursement rose to 36.3 percent in March, 2012. During the period under review Rs 125.64 billion was disbursed to the farm sector while credit disbursement to non-farm sector stood at Rs 71.73 billion. Last year, an amount of Rs 110.46 billion or 65.5 percent was extended to farm sector and Rs 58.23 billion or 34.5 percent was disbursed to non-farm sector.

Sector		2011-12	2010-11
		July-March 2011	July-March 2010
A	Farm Credit	125.64	110.46
1	Subsistence Holding	70.83	65.97
i	Production	68.60	63.97
ii	Development	2.23	2.82
2	Economic Holding	33.82	28.68
i	Production	33.04	27.94
ii	Development	0.78	0.74
3	Above Economic Holding	20.98	15.81
i	Production	19.07	15.09
ii	Development	1.91	0.72
B	Non-Farm Credit	71.73	58.23
1	Small Farms	19.02	12.67
2	Large Farms	52.71	45.56
Total (A+B)		197.36	168.69

Source: SBP

III. Forestry

During the year 2011-12, forests have contributed 92 thousand cubic meters of timber and 262 thousand cubic meters of firewood as compared to 91 thousand cubic meters timber and 261 thousand cubic meters firewood in 2010-11.

IV. Livestock and Poultry**A. Livestock**

The livestock sector occupies a unique position in the National Agenda of economic development of the present government. The sector provides a net source of foreign earnings. Historically livestock has been the subsistence sector dominated by small holders to meet their needs of milk, food security and daily cash income. Therefore, livestock is considered a more secure source of income for the small farmers and landless poor; and, is a source of

employment generation at the rural level. It also helps to reduce income variability, especially in cases of crop failure due to a variety of causes. Livestock is central to the livelihood of the rural poor in the country and can play an important role in poverty alleviation. It can uplift the socioeconomic condition of Pakistan's rural masses. The livestock population for the last three years is given in Table 2.18.

Livestock contributed approximately 55.1 percent to the agricultural value added and 11.6 percent to national GDP during 2010-12, against 54.6 percent and 11.6 percent during the same period last year. Gross value added of the livestock sector at constant factor cost has increased from Rs. 672 billion (2010-11) to Rs. 700 billion (2011-12); showing an increase of 4.0 percent as compared to previous year.

Table 2.18: Livestock Population				(Million Nos.)
Species	2009-10¹	2010-11¹	2011-12¹	
Cattle	34.3	35.6	36.9	
Buffalo	30.8	31.7	32.7	
Sheep	27.8	28.1	28.4	
Goat	59.9	61.5	63.1	
Camels	1.0	1.0	1.0	
Horses	0.4	0.4	0.4	
Asses	4.6	4.7	4.8	
Mules	0.2	0.2	0.2	

Source: Ministry of National Food Security & Research

¹: Estimated Figure based on inter census growth rate of Livestock Census 1996 & 2006

The major products of livestock are milk and meat. The production of these products for the last three years is given in Table 2.19.

Table 2.19: Milk and Meat Production				
Species	Units	2009-10¹	2010-11¹	2011-12¹
Milk (Gross Production)	000 Tons	44,978	46,440	47,951
Cow	"	15,546	16,133	16,741
Buffalo	"	27,848	28,694	29,565
Sheep ²	"	36	36	37
Goat	"	739	759	779
Camel ²	"	808	818	829
Milk (Human Consumption)³	000 Tons	36,299	37,475	38,690
Cow	"	12,437	12,906	13,393
Buffalo	"	22,279	22,955	23,652
Sheep	"	36	36	37
Goat	"	739	759	779
Camel	"	808	818	829
Meat⁴	000 Tons	2,965	3,095	3,232
Beef	"	1,655	1,711	1,769
Mutton	"	603	616	629
Poultry meat	"	707	767	834

Source: Ministry of National Food Security & Research

1: The figures for milk and meat production for the indicated years are calculated by applying milk production parameters to the projected population of respective years based on the inter census growth rate of livestock census 1996 & 2006

2 : The figures for the Milk production for the indicated years are calculated after adding the production of milk from camel and sheep to the figures reported in the livestock census 2006.

3 : Milk for human consumption is derived by subtracting 20% (15% wastage in transportation and 5% in calving) of the gross milk production of cows and Buffalo.

4 : The figures for meat production are of red meat and do not include the edible offal's.

The production of other livestock products over the last three years is demonstrated in Table 2.20.

Table:2.20 Estimated Livestock Products Production				
Species	Units	2009-10¹	2010-11¹	2011-12¹
Eggs	Million Nos	11,839	12,457	13,144
Hides	000 No's	13,040	13,481	13,938
Cattle	"	6,496	6,741	6,995
Buffalo	"	6,445	6,640	6,842

Table:2.20 Estimated Livestock Products Production

Species	Units	2009-10 ¹	2010-11 ¹	2011-12 ¹
Camels	"	99	100	101
Skins	000 No's	47,402	48,478	49,582
Sheep Skin	"	10,495	10,620	10,745
Goat Skin	"	23,061	23,685	24,237
Fancy Skin	"	13,846	14,173	14,509
Lamb skin	"	3,117	3,154	3,192
Kid skin	"	10,728	11,019	11,318
Wool	000 Tons	42.0	42.5	43.0
Hair	"	22.6	23.2	23.8
Edible Offal's	"	334	344	353
Blood	"	56.8	58.3	59.8
Guts	000 No's	47,886	48,974	50,089
Casings	"	13,879	14,347	14,832
Horns & Hooves	000 Tons	48.1	49.5	50.9
Bones	"	713.4	735.1	757.5
Fats	"	228.1	234.8	241.7
Dung	"	1,008	1,039	1,071
Urine	"	311	320	329
Head & Trotters	"	208.2	214.0	220.1
Ducks, Drakes & Ducklings	Million No's	0.6	0.6	0.5

Source: Ministry of National Food Security & Research

1 ; The figures for livestock product for the indicated years were calculated by applying production parameters to the projected population of respective years

Consequent of 18th Constitutional Amendment, the subjects of animal health and production have been delegated to the provinces. The Ministry of National Food Security and Research created a "Livestock Wing", delegating the following roles:

1. Co-ordination of foreign aid and technical assistance in the livestock sector and related fields.
2. Animal Quarantine Departments/ stations/ facilities located anywhere in Pakistan.
3. Veterinary drugs, vaccines and animal feed additives.
 - a. Import and export.
 - b. Procurement from abroad for federal requirement and for interprovincial supplies.
4. Livestock, poultry and livestock products;
 - a. Import and export.
 - b. Laying down national grades.

The population growth, increase in per capita income and the potential for export is fueling the

demand of livestock and livestock products. The rise in production cost has increased the retailer's and consumer's price index for milk, yogurt, meat, eggs, and other items. The overall livestock development strategy resolves to foster "private sector-led development", with the public sector providing an enabling environment through policy interventions and playing a capacity building role for improved livestock husbandry practices. The emphasis will be on improving per unit animal productivity and moving from subsistence to market oriented and then to commercial livestock farming in the country to meet the domestic demand and surplus for export.

The Livestock Wing with its redefined mandate continued regulatory measures that included allowing import of high yielding animals, semen and embryos for crossbreeding. It also included duty free import of veterinary dairy and livestock machinery/equipment, allowing import of feed inputs, and vaccines at zero rates. In order to reduce input costs in livestock/poultry feed production, certain feed ingredients, growth promoters and vitamin premixes have been zero rated. Sales tax exemption has been allowed to

uncooked poultry meat; processed milk, yogurt, cheese and flavoured milk, butter and cream in order to encourage establishment of a value added industry in the country. More than 9500 exotic animals, 318,768 semen doses and 4300 embryos of high yielding animals have been imported in the country from July 2010 to December 2012. New slaughterhouses, milk processing and meat processing units have been established in the private sector. The export of the meat (beef, mutton and camel meat) has increased from US \$108.54 million (2010-11) to US \$123.61 million in 2011-12, showing an increase of 13.9 percent.

The future plan for the livestock sector is to persuade the policies to achieve 5 percent or more growth in meat and 8 percent or more in milk production through shifting from subsistence livestock farming to market-oriented and commercial farming. The focus will be to encourage and promote high yielding animal's production and their crossbreeding through Artificial insemination services. The future road

map has clear mile stones in the shape of entering into global Halal Food Trade Market, controlling trans-boundary animal diseases of trade and economic importance, as well as a socio-economic uplifting mechanism of poor, small-scale livestock farmers.

Poultry

The poultry sector is one of the most organized and vibrant segments of the agriculture industry of Pakistan. This sector generates direct and indirect employment and income for about 1.5 million people. Its contribution in agriculture and livestock is 6.4 percent and 11.5 percent, respectively. Poultry meat contributes 25.8 percent of the total meat production in the country. The current investment in the poultry industry is about Rs 200.00 billion. The poultry sector has shown a robust growth of 8 to 10 percent annually, which reflects its inherent potential. The production of commercial and rural poultry and poultry products for the last three years is given in Table 2.21.

Table 2.21: Domestic/Rural & Commercial Poultry

Type	Units	2009-10 ¹	2010-11 ¹	2011-12 ¹
Domestic Poultry	Million No's	77.35	78.51	79.68
Cocks	"	9.58	9.84	10.10
Hens	"	36.76	37.42	38.09
Chicken	"	31.02	31.25	31.48
Eggs ²	"	3676.00	3742.00	3809.00
Meat	000 Tons	102.40	104.43	106.51
Duck, Drake & Duckling	Million No's	0.59	0.56	0.54
Eggs ²	"	26.28	25.18	24.13
Meat	000 Tons	0.80	0.77	0.73
Commercial Poultry				
Layers	Million No's	30.41	32.54	44.10
Broilers	"	493.40	542.74	34.82
Breeding Stock	"	8.39	8.81	597.02
Day Old Chicks	"	515.36	566.89	9.25
Eggs ²	Million No's	8137.00	8690.00	623.58
Meat	000 Tons	603.47	662.18	9281.00
Total Poultry				
Day Old Chicks	Million No's	546.00	598.00	655.00
Poultry Birds	"	610.00	663.00	721.00
Eggs	"	11839.00	12857.00	13114.00
Poultry Meat	000 Tons	707.00	767.00	834.00

Source: Ministry of National Food Security & Research

1 ; The figures for the indicated year are statistically calculated using the figures of 2005-06.

2 : The figures for Eggs (Farming) and Eggs (Desi) are calculated using the poultry parameters for egg production.

Poultry Development policy envisions sustainable supply of wholesome poultry meat, eggs and other value added products to the local and international markets at competitive prices. It is aimed at facilitating and supporting private sector-led development for sustainable poultry production. The strategy revolves around improving the regulatory framework; disease control and genetic improvement in rural poultry; high tech poultry production under environmentally controlled housing; processing and value addition; improving bio-security; need based research and development and farmers training and education. It envisages poultry sectors growth of 15-20 percent annually.

MEGA DEVELOPMENT PROJECTS

The Ministry of Livestock and Dairy Development, before devolution concluded the following (7) projects in the Livestock sector at an estimated cost of Rs. 8.8 billion. The achievements of these projects are summarized below:

Strengthening of Livestock Services Project (SLSP)

- ▶ Field studies on (5) models of service delivery were conducted (CAHEW, WLEW, DFCM, Wool Producers Association, PRSM);
- ▶ Introduced PPR vaccine production in the country;
- ▶ Distribution of 2200 Motor-Cycles to field staff of provincial livestock departments on hire purchase basis to strengthen and improve the veterinary health coverage; and
- ▶ Established the National Epidemiology Network for Livestock Disease Surveillance and Reporting.

Livestock Production and Development for Meat Production

- ▶ Completed more than 13,000 feed-lot fattening operations (beef and mutton) in which more than 163,000 beef animals and 200,000 mutton animals have been produced.

Milk Collection Processing and Dairy Production and Development Programme

- ▶ Formed 207 Milk Producer Groups (MPG) in all the four provinces, Azad Jammu & Kashmir and Gilgit Baltistan
- ▶ Installed 150 milk cooling tanks
- ▶ Provided 63.3 tons of fodder seeds and 663 tons of animal ration/feed on cost basis to the members of MPGs
- ▶ Registered 1,004 Red Sindhi, Sahiwal and NiliRavi livestock breeders for production of quality breeding animals.

Prime Minister's Special Initiative for Livestock (PMSIL)

- ▶ A total of 290 veterinary clinics have been established providing veterinary services at 70 percent reduced cost to rural farmers at their door steps i.e. 100 percent achievement
- ▶ Quality medicines/vaccines are available to rural farmer at 30 percent reduced cost as compared to market prices
- ▶ A total of 3,150 community organizations (COs) have been formed and 3000 rural community persons have been trained by imparting one month training in basic veterinary services through the government livestock institutes
- ▶ A total of 4,265 rural livestock female farmers have been trained in better animal husbandry practices to enhance their income through enhanced milk productivity

National Programme for the Control and prevention of Avian Influenza

- ▶ Established 40 surveillance and 66 rapid response units (RRUs)
- ▶ Processed 0.4 million samples of blood, tissues and swabs for screening against Avian Influenza
- ▶ Establishment of the Bio security Laboratory-3 is under process
- ▶ Disbursed Rs. 23.5 million as compensation to Avian Influenza affected farmers
- ▶ Pakistan is maintaining Avian Influenza (bird flu) free status since June 2008

Improving Reproductive Efficiency of Cattle and Buffaloes in smallholder production systems

- ▶ Civil work of Embryo Transfer Technology Centre at Okara has been completed
- ▶ For strengthening and improvement of Provincial Semen Production Units (SPU) 6 Semen Quality Analyzer (SQA-VB with Test Kit) were given to SPU's in Korangi, Quetta, Khairimurat, Qadirabad, Harichand, and Karaniwala
- ▶ Embryo Transfer Technology Centre has produced 502,996 semen doses and 2,031 embryos from elite exotic animals for cross breeding purposes and carried out 178,318 artificial inseminations, embryo transfer has been carried out in 168 animals
- ▶ Provided training to artificial insemination technicians

Up gradation and Establishment of Animal Quarantine Stations in Pakistan

- ▶ A total of (5) Animal Quarantine Stations (AQS) have been up-graded in order to facilitate import/export of livestock and its products
- ▶ A total of 2 new AQS are being established at Khunjrab and Khokhrapar.

V. Fisheries

- i) Fishery plays an important role in Pakistan's economy and is considered to be a source of livelihood for coastal inhabitants. Apart from marine fisheries, inland fisheries (based in rivers, lakes, ponds, dams) are also a very important activity throughout the country. Fisheries share in GDP is 0.3 percent. Although the contribution is very small it adds substantially to the national income via export earnings. A total of 84,498 million tons of fish and fish preparation were exported during the July-March, 2011-12. Pakistan's major buyers are China, Thailand, Malaysia, Middle East, Sri Lanka and Japan. Pakistan earned US \$222.8 million from these exports.
- ii) During July-March, 2011-12 the total marine and inland fish production was estimated at 951,324 million tons, out of which 681,700

million tons was from marine production and the remaining came from inland waters. In July-March, 2010-11 the production was estimated to be 937,082 million tons, where 672,652 m. tons was marine and the remaining was produced by inland fishery sector.

- iii) The government is taking a number of steps to improve the fisheries sector. A number of initiatives have been taken by the federal and provincial fisheries departments which also include strengthening of extension services, introduction of new fishing methodologies, development of value added products, enhancement of per capita consumption of fish, and the upgrading of socio-economic conditions of the fishermen's community.
- iv) Modernized Fishing Fleets: A project for the improvement of fish holds of local fishing boats was approved and four local fishing boats have been modified by the federal government (Marine Fisheries Department) as demonstration boats at a total cost of Rs. 5.0 million with the aim of assisting boat owners to modify their boats on similar lines. As a result of introducing modular boats by the MFD, boat owners have started modifying boat using their own expenses. So far, 502 boats have been modified. This shows success in the fishermen community because they have accepted and are using the technology of lining of fish holds with fiberglass coatings.

(v) Resumption of Export to the EU Countries

The European Union (EU) has expressed satisfaction with most of the steps taken by the government of Pakistan. However, with regard to the Hazard Analysis Critical Control Point (HACCP) of processing plants, the EU has now asked for an inspection report. MFD, in consultation with a UNIDO consultant, submitted this report on December 31, 2011. Based on this report it is hoped that fisheries' exports will be resumed.

The export of fish and fishery products to the European Union was suspended in April 2007. The Government has made adequate and effective efforts to resume of export to the EU.

In this connection, two laboratories of the Marine Fisheries Department achieved accreditation under ISO/IEC-17025 international standards and now the test report of these laboratories are recognized all over the world. Thus, the requirement of EU and SPS has been fulfilled. As mentioned above, during the tenure of the present government, more than 500 fishing boats have been upgraded; the government of Sindh contributed 75 percent, while 25 percent contribution was made by the owner to upgrade present standards.

Landing sites and auction halls at Karachi Fish Harbour have also been upgraded; processing plants have rectified the deficiencies. The knowledge and skills of MFD inspectors under official watch have been enhanced. Training has also been provided to the fishermen on hygienic preservation and handling of a catch once it is onboard the fishing vessels.

v) Conservation and management of marine resources

MFD in collaboration with fisheries department of the government of Sindh, Fisherman's Cooperative Society Ltd, Karachi Fisheries Harbour Authority and other stakeholders undertook research/experimental

surveys to test different sizes of the cod-end of trawl-net being used by local fishermen. The optimal mesh size, on the basis of results of the surveys, will be selected and notified for implementation by the fishermen to ensure juveniles and/or undersized fish cannot escape from the trawl-net.

Conclusions

The agriculture sector continues to play a crucial role in Pakistan's economy. Currently it contributes 21 percent to GDP, and provides employment to 45 percent of the country's labour force, while 60 percent of the rural population derives its livelihoods from this sector. Despite the floods of 2011, the sector recorded a growth of 3.1 percent in 2011-12. The profitability of agriculture sector during 2011-12, remained high because the farmers received good prices for rice, cotton and sugarcane, which allowed for greater financial resources passed on to the rural economy. Recognizing the vital role the sector plays in ensuring food security, generating overall economic growth, reducing poverty and the transforming towards industrialization, the present government is determined to support the sector by promulgating policy that will continue to make agriculture an efficient, productive and profitable sector of the economy.