

**Chapter****7****Agriculture Development**

Introduction of high yielding varieties of crops, increased use of chemical fertilizers and pesticides, farm mechanization, development of irrigation facilities, implementation of price, credit and other policies and support for agricultural education, research and extension has enabled agricultural production to grow at a faster rate during the last four decades. The strong growth in the agricultural sector has enabled Pakistan to feed the growing population and to earn substantive amount of foreign exchange through exports of raw and processed agricultural products. Agriculture presently accounts for nearly 22 percent of the GDP and employs 45 percent of the labour force and is a source of livelihood for about two-third of our population living in rural areas. To meet the growing food needs of our population, to increase our export earnings and to overcome the social deficit, agriculture development will be crucial in future. Performance of this sector thus has a direct impact on our economy.

The main thrust of MTDF for agricultural development is to achieve self-reliance in agricultural commodities ensure food security and improve productivity of crops through enhancing crop productivity, efficient use of irrigation water, promoting production and export of high value crops, import substitution, ensuring availability of agricultural inputs and credit, improving marketing infrastructure, and improving agricultural research and extension activities and their linkages

The prospects for bringing more area under cultivation are rather limited. Thus, to feed the growing population and increase our export earnings, there is a need to increase productivity, bridge the yield gap between ordinary and progressive farmers, between national and international yields as well as between farmers in general and research stations. We have also to deal with the problems of soil degradation, irrigation water scarcity and SPS requirements in the arena of international trade in agricultural commodities.

Diversification of agriculture is needed to ensure optimal use of resources to achieve sustainable agriculture, and to enhance production of high value agricultural commodities. Awareness about and adoption of new technologies by farmers has to be ensured by strengthening agricultural education, research and extension activities. The role of biotechnology in agriculture will have to be increased to raise agricultural productivity and competitiveness. To comply with WTO requirements for our agricultural exports, animal and plant health inspection capacity has also to be upgraded.

The main constraints faced in sustainable agricultural development include: soil degradation, irrigation water scarcity inadequate coverage of improved seeds and fertilizers, yield gap, and inefficient marketing system particularly of perishable commodities.

To deal with emerging challenges and issues, the Planning Commission will be playing a proactive role. Consultative process with the stakeholders is being ensured

through constitution of Working Groups on: Visioning and Forecasting; Agriculture, Livestock, Dairy, Poultry & Fisheries, and Horticulture. It is planned to constitute three more Working Groups on Forestry, Irrigation and Nutrition. These Working Groups will help the Planning Commission in devising policies and action plans for rapid and sustained agricultural development.

## Review 2006-07

### Financial Allocations and Utilization

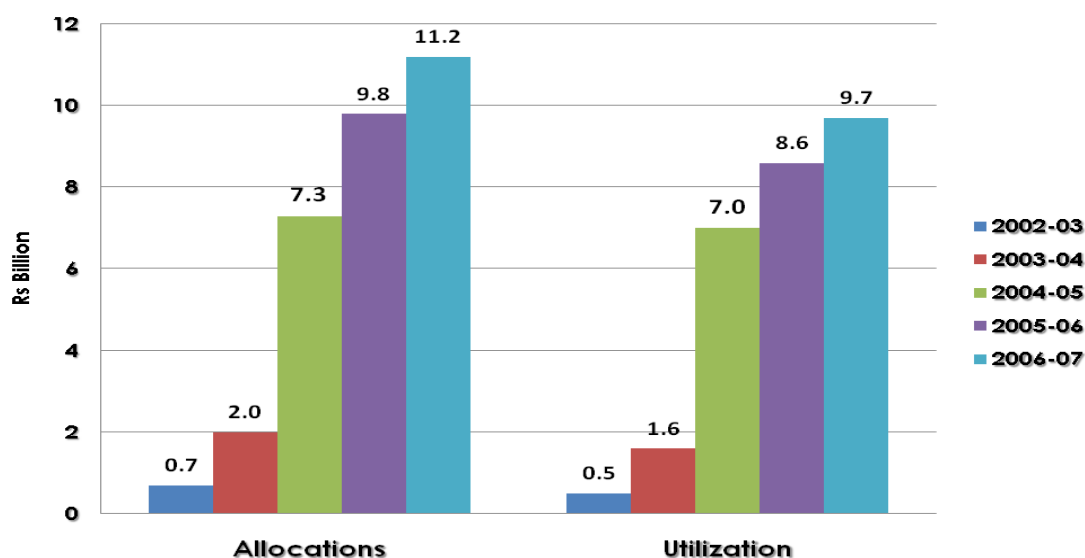
Originally an allocation of Rs 11.8 billion was made in the PSDP 2006-07 for the projects of Ministry of Food, Agriculture and Livestock. Later on, it was revised to Rs 11.3 billion. The utilization against the allocation is expected to be Rs 9.7 billion, showing an expenditure of 87 percent of the revised allocations.

Recognizing the role of Agriculture Sector in the economy, the Government significantly enhanced PSDP allocations to this sector from Rs 785 million in 2002-03 to Rs 11,277 million in 2006-07 reflecting a 13 times increase over a 5 years period. During the same period, utilization of funds increased from Rs 535 million to Rs 9,750 million, indicating a 17 times increase. The extent of utilization of PSDP funds also improved from 68 percent to 87 percent. The trend of allocations and utilization during the last 5 years is depicted in Table 7.1 and Fig 7.1.

**Table 7.1 PSDP Allocations and Utilization (2002-07)**  
(Rs Billion)

Years	Allocations	Utilization
2002-03	0.785	0.535
2003-04	2.08	1.64
2004-05	7.3	7
2005-06	9.846	8.638
2006-07	11.277	9.75

**Figure 7.1: PSDP Allocations and Utilization 2002-07**



## Main Areas of Intervention

Management and conservation of irrigation water through lining of water courses and laser land-leveling, agribusiness development, productivity enhancement through research and integrated pest management, oilseeds development, land use planning, improved seed production of high value crops and technology transfer were the main areas of focus during 2006-07 in line with the MTF objectives. Sufficient funds were disbursed to the development projects in these areas.

## Crop Situation

During 2006-07, the overall performance of agriculture sector was better than its performance in 2005-06. The enhanced agricultural credit availability, Government policy of encouraging use of the balanced fertilizer by granting subsidy on phosphatic and potashic fertilizer, increased irrigation water availability and favourable weather conditions particularly during Rabi season were the major factors responsible for increased agricultural output. The output of wheat, sugarcane, gram and potato was higher by 10.5 percent, 22.6 percent, 75.6 percent and 47.8 percent respectively compared with the output in 2005-06, while that of cotton remained unchanged. The wheat production of 23.5 million tones during 2006-07 is an all time record. The rice, maize and onion production declined by 2.0 percent, 4.5 percent and 14.3 percent respectively. Shifting of acreage to sugarcane crop and heavy rainfall in onion producing areas in Sindh was responsible for decline in these crops production. Performance of crop sector during 2006-07 relative to previous years and production targets for 2007-08 is given in Table 7.2.

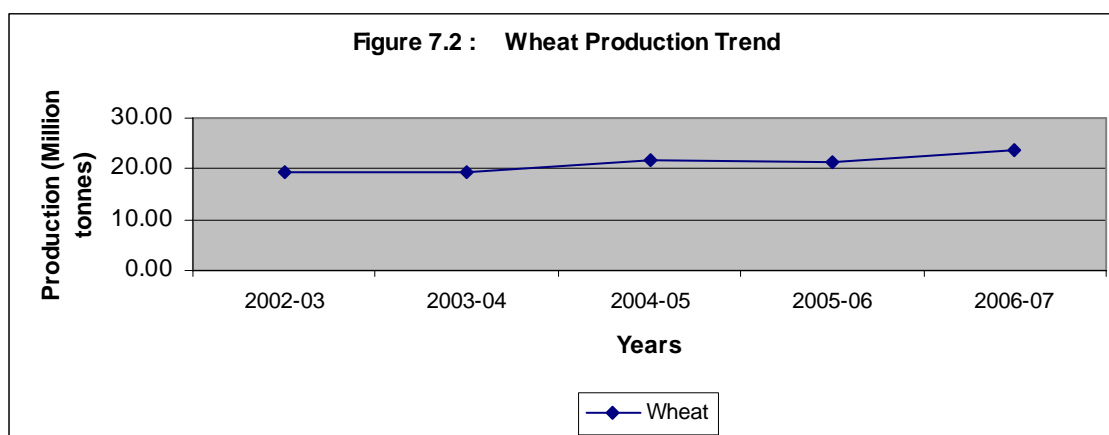
**Table 7.2 Physical Targets and Achievements of Crops**

Items	Unit	Production			Production Targets 2007-08
		2005-06 Actual	2006-07 (Prov.)	Percent Change over 2005-06	
(1)	(2)	(3)	(4)	(5)	(6)
Rice	(000 MT)	5,547.2	5,438.4	-2.0	5,720.5
Basmati	(000 MT)	2,920.4	2,493.6	-14.6	2,666.4
Others	(000 MT)	2,626.8	2,944.8	12.1	3,054.1
Maize	(000 MT)	3,109.6	2,968.3	- 4.5	3,220.9
Sugarcane	(000 MT)	44,665.5	54,741.5	22.6	55,876.0
Cotton	(Million Bales)	13.0	13.0	-	14.1
Wheat	(000 MT)	21,276.9	23,520.2	10.5	24,000.0
Gram	(000 MT)	479.5	842.0	75.6	932.0
Potato	(000MT)	1567.9	2317.8	47.8	2249.0
Rape and Mustard	(000 MT)	171.7	148.6	-13.5	153.8
Onion	(000 MT)	2055.7	1760.9	-14.3	2142.0

**Sources:** Agricultural Statistics of Pakistan 2005-06, MINFAL, Crop Outlook, Ministry of Food, Agriculture and Livestock, Medium Term Development Framework, Planning Commission, Federal Bureau of Statistics.

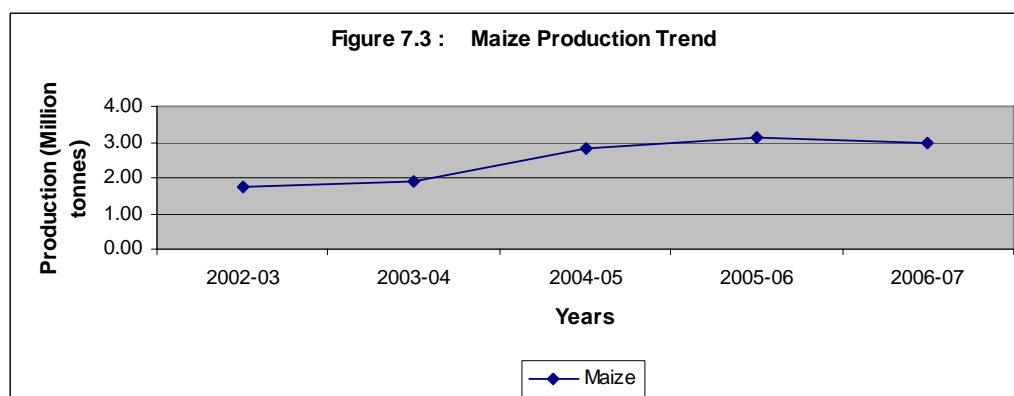
## Wheat

During the last five years, wheat production has increased by 22.5 percent and a record output of 23.5 million tonnes was harvested during 2006-07. Balanced use of fertilizer enabled by the Government Policy of Subsidy on Phosphatic and potashic fertilizers and timely rains during wheat growing season are the main factors responsible for a 10.3 percent increase in wheat production during 2006-07 (Figure 7.2)



## Maize

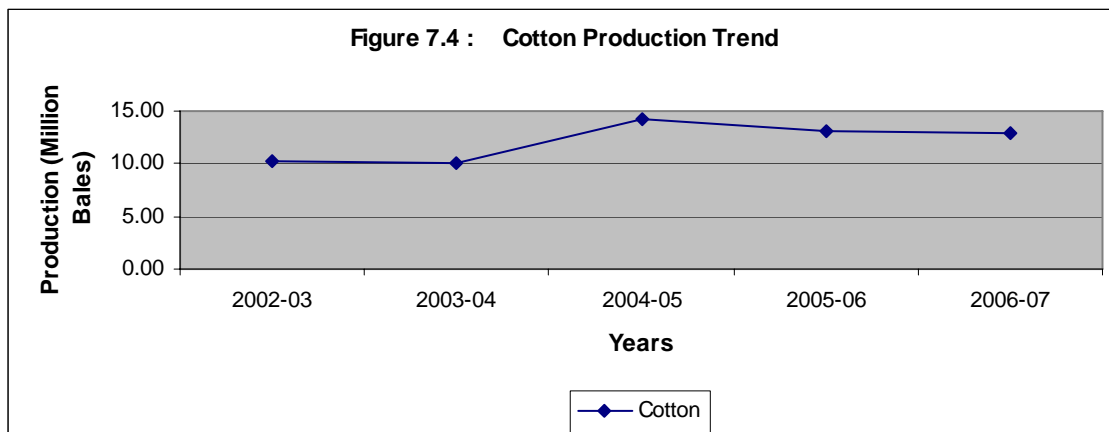
Maize production shows an increasing trend particularly since 2003-04. About 47.4 percent increase in its production was achieved in 2004-05. Extensive use of hybrid maize seed, favourable weather conditions and good economic returns received by the farmers were the causative factors for the increase in maize output. Same factors were responsible for 11.2 percent increase in maize production during 2005-06. However, there has been slight decline in maize production during 2006-07. (Figure 7.3)



## Cotton

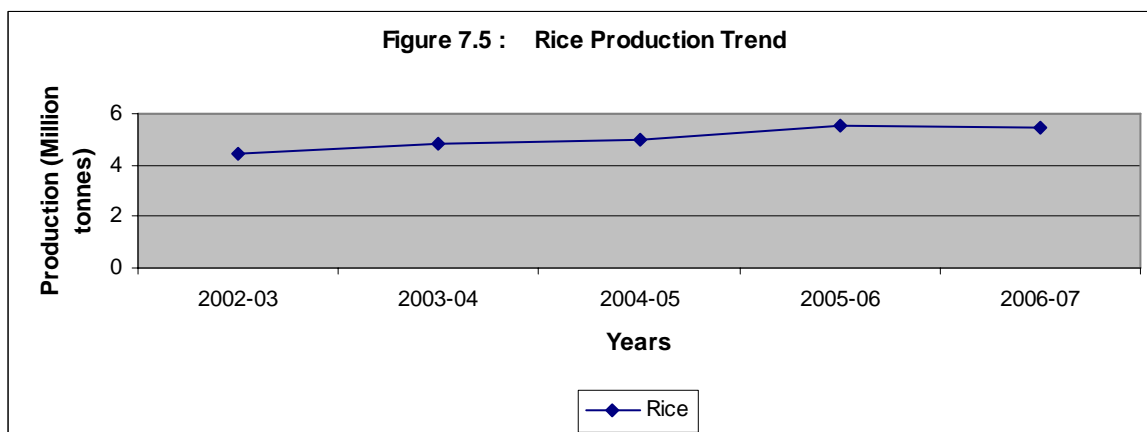
Cotton crop is very sensitive to weather conditions and associated insect/pest flare up. Cotton output increased from 10.00 million bales in 2002-03 and 2003-04 to a record production level of 14.27 million bales in 2004-05 due to highly favorable climatic conditions (Figure 7.4). In subsequent two years, cotton production has declined to 13.0 million bales. The contributing factors were emergence of Burewala

strain of cotton Leaf Curl Virus, decline in cotton area, crop damage by floods, rain and attack of cotton mealy bug.



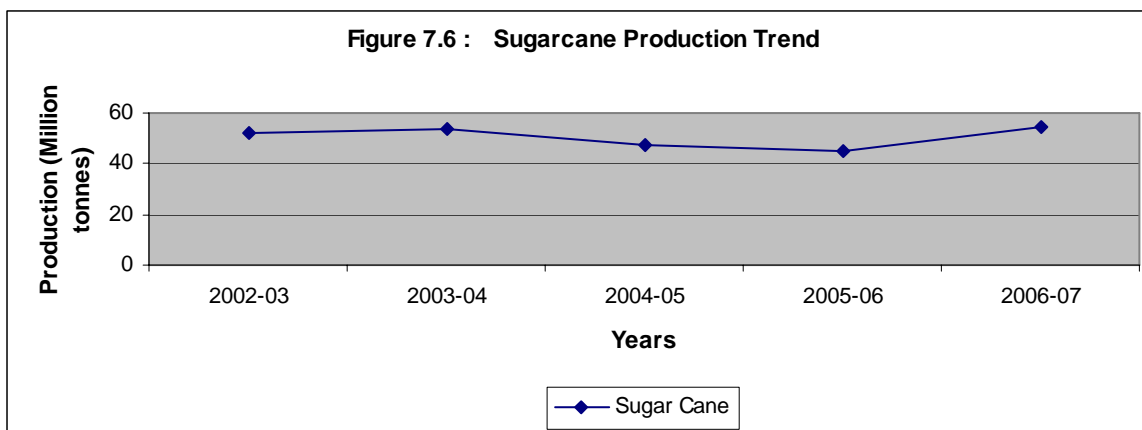
## Rice

The rice production exhibited a rising trend during the last five years showing an increase of 5 percent per annum (Figure 7.5).



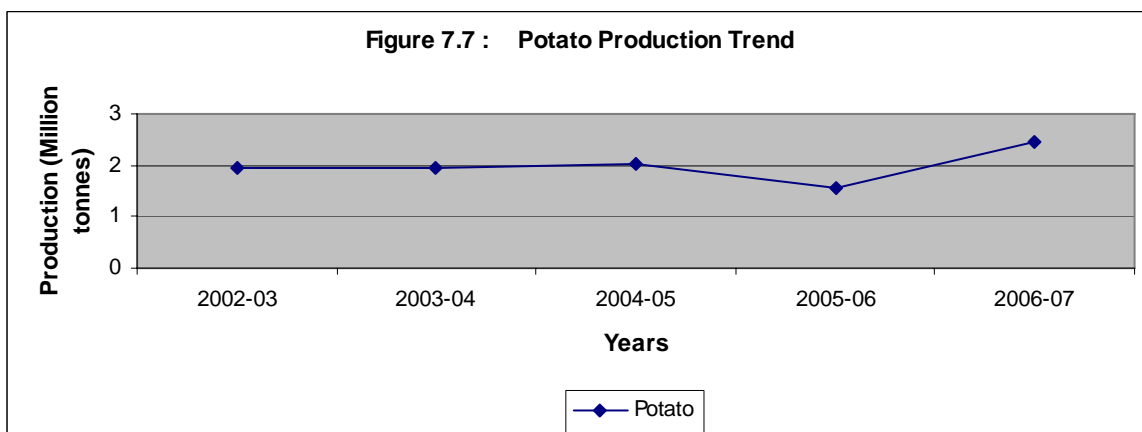
## Sugarcane

The sugarcane production has shown fluctuations during the last five years. It decreased by 11.6 percent in 2004-05 as compared to 2003-04. The contributing factors were shifting of sugarcane area to cotton crop due to lucrative price of cotton in 2003-04, to sunflower in Sindh, late payments made by sugar mill owners to growers. The trend of declining sugarcane production continued in 2005-06. In 2006-07, sugarcane production increased by 22.8 percent over 2005-06 level primarily due to attractive market prices and high demand (Figure 7.6).



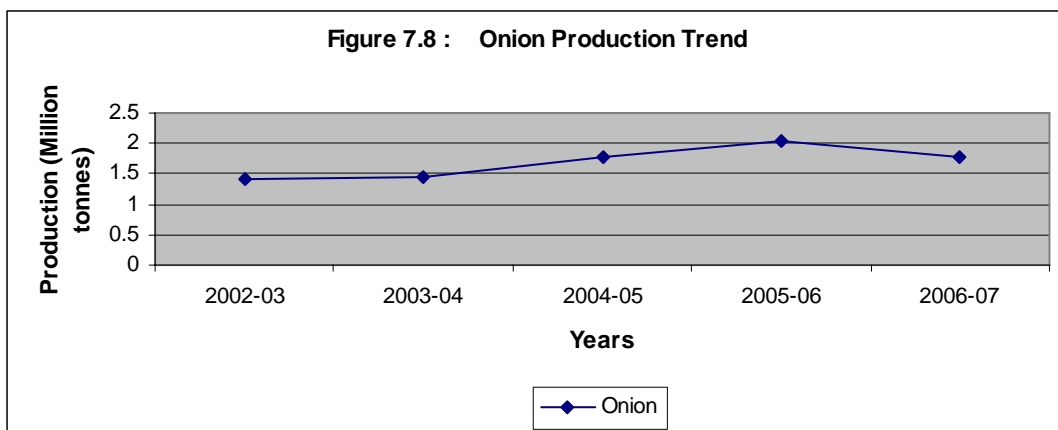
### Potato

Potato production remained relatively stable around 2 million tones during 2002-05. The potato crop was damaged by frost in January 2006 and as a consequence, potato production in 2005-06 declined by 22.6 percent relative to 2004-05. In 2006-07, the potato production increased to 2.47 million tones, which represents a 57.6 percent increase over 2005-06 (Figure 7.7). The contributing factors were 12.4 percent increase in its area, stable market prices, increase in its export and processing into potato chips.



### Onion

The onion production after remaining stable during 2002-03 and 2003-04 showed an increasing trend till 2005-06. Around 2.05 million tones onion was produced during 2005-06. The contributing factor was increase in cultivated area under onion by 17.2 percent during 2004-05 and by 16.4 percent during 2005-06 relative to 2003-04 and 2004-05 respectively in response to higher onion prices. The onion production in 2006-07 declined by 14.3 percent relative to 2005-06 due to 15.1 percent decrease in area (Figure 7.8). Heavy monsoon rains in lowers parts of Sindh, which is the main onion producing area damaged nurseries and ultimately the production of onion was adversely affected.



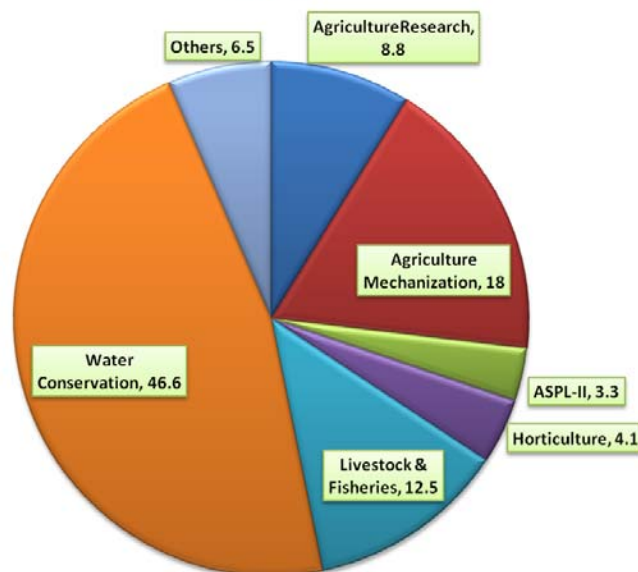
The balanced application of fertilizers plays an important role in boosting crop production. The fertilizer off-take during 2006-07 was 3,637 thousand nutrient tones (N=2,631, P=954 and K=52) against the target of 3,938 thousand tones (N=3,017, P=892 and K=29). The desirable N:P ratio is 2:1. It was 3.4:1 during 2005-06. However, the Government’s policy of granting subsidy on phosphatic and potashic fertilizer contributed to balanced use of fertilizer and the N:P ratio improved to 2.8:1 during 2006-07.

**Program for 2007-08**

**Financial Allocations**

An amount of Rs 15.8 billion has been allocated to the development projects of Ministry of Food, Agriculture and Livestock in PSDP 2007-08. which represents a 40 percent increase over allocation during 2006-07. The relative shares of allocations to various sub sectors is given in Figure-7.9. Additionally, Rs 200.3 million have been provided for agricultural development projects of the ministries of Textile, Industry, Science and Technology, Planning and Development and Islamabad Capital Territory (ICT) of Interior Division.

**Figure 7.9: Relative Share % of Different Programs in PSDP 2007-08**



Note: Others include Plant Protection, Soils & Fertilizers, Agri. Extension, Oilseed Development, Improved Seeds and WTO.

### **Planned Interventions**

The implementation of policies, strategies and programs envisaged in the Medium Term Development Framework (MTDF) will be continued. Keeping in view the performance of crop sector during last two years, the production targets for major crops for 2007-08 are given in the Table 7.1.

The areas of interventions as identified in the opening discussion will continue to get the attention of the policy makers. However, some new areas such as agribusiness investment, biotechnology, bio-saline agriculture and bioenergy will be taken up during 2007-08. This represents a significant widening of the base of agricultural development efforts.

Keeping in view the targets for crop production during 2007-08, targets for fertilizer off-take equivalent to 3,800 thousand tones (N=2,710, P=1,030 and K=60) has been fixed for the year 2007-08, which will further improve N: P ratio to 2.6:1.

### **Major Programs**

Sufficient financial resources are provided to ongoing projects. Some new programs are also included in PSDP 2007-08. The major programs are discussed in subsequent paragraphs.

#### **Conservation of Irrigation Water**

With increase in cultivated area and the cropping intensity, Pakistan is experiencing scarcity of irrigation water. For that reason, the water resources need to be used efficiently. The resource conservation technologies (RCT's) need to be promoted vigorously.

National Program for Improvement of Water Courses in Pakistan, which commenced in 2004 will continue. Under this project, 87,000 water courses are to be lined to save water losses. So far 40,383 water courses have been improved and 18,000 will be improved during 2007-08. Another mega project, "Water Conservation and Productivity Enhancement through High Efficiency Irrigation Systems" will also be launched. It envisages installation of high efficiency irrigation system on nearly 0.3 million acres and construction of 20340 water storage tanks. To save irrigation water, a development project, "National Project to Stimulate Adaptation of Permanent Raised Beds to Maize-Wheat and Cotton-Wheat Farming System in Pakistan" is in progress. It will not only save irrigation water but land preparation cost will be reduced significantly. About 190 Permanent Raised Bed machines are to be locally manufactured and would be made available to the farmers on subsidized rates to facilitate adoption of new technology.

### Lined Watercourses and Related Structures



**Cotton Sown on Permanent Raised Beds**



**Permanent Raised Bed Technology**

### Development of Culturable Waste Land

About 8.12 million hectares of land falls in the category of culturable wasteland out of which 1.22 and 4.0 million hectares are in NWFP and Balochistan respectively. Provincial Agri. Engineering Departments need additional machinery and equipment to reclaim the culturable wastelands. Federal Government will facilitate the governments of NWFP and Balochistan by providing bulldozers ( 200 for Balochistan and 100 for NWFP), which would be hired out to the farmers at no profit no loss basis. Around 2,19,375 hectares of culturable wasteland (NWFP 73,125 and Balochistan 146,250 hectares) would be reclaimed through the use of these 300 bulldozers. This will enhance agricultural production in the two provinces.

### Integrated Pest Management Projects

The indiscriminate use of pesticides adversely affects economics of crop cultivation and creates environmental hazards, as insects develop resistance against pesticides. In the process the useful insects are also killed, and residues beyond safe limits affect human and animal health. It is necessary to reduce the use of pesticides and to use it selectively along with other means of controlling insects and pests i.e biological and cultural practices. Accordingly, the integrated Pest Management (IPM) techniques have been developed, tested and are being adopted by the farmers to control pests and minimize the use of pesticides. A “National Integrated Pest Management Project” was initiated in 2004 with the objective to train 500 extension

workers and 55,000 farmers in IPM techniques through 20 trainings of facilitators and holding of 840 farmers' field schools, along with training of 250 teachers of colleges and universities. An evaluation of this project will be undertaken to draw lessons for future policy formulation in this area.

### **Agriculture Sector Development Loan**

The Government of Pakistan, with the Assistance of Asian Development Bank is implementing an Agriculture Sector Program Loan II (ASL-II) since 1<sup>st</sup> April 2002 which comprises three loans totaling US\$ 350 million. The loan is releasable in three tranches. Two tranches of \$ 225 million have been released and the third tranche is due by June 2007. The loan will close on 30<sup>th</sup> June 2008.

The Program's primary objective is to promote growth through increased agricultural productivity and profitability. To achieve this, the Program was designed to assist the Government in removing policy distortions, supporting institutional restructuring and investment in agriculture.

The Government has taken measures for removing policy distortions i.e removal of restriction on the inter-provincial and intra-district movement of wheat, entry of private sector in wheat marketing, removal of non-tariff barriers on exports and imports of agricultural commodities, free market for the basic seed, formulation of rules on cotton grading and standardization, and quality control measures on fertilizers and pesticides.

Steps have also been undertaken/underway for institutional restructuring i.e winding up of the Sindh Agricultural Supplies Organization, restructuring of Seed Corporation and converting it into a company. Organization and management study of the Pakistan Agricultural Research Council, and restructuring studies of provincial agricultural research and extension systems and Food Departments of all the four provinces have been undertaken.

The Federal Government and the Provincial Governments are implementing 41 and 65 development projects respectively with major focus on building institutional capacity, strengthening of agriculture research program for various crops, improving marketing of agricultural commodities, introduction of sprinkler irrigation, establishment of soil and water testing labs, establishment of Farms Service Centers (NWFP), establishing quality control labs for livestock and foods of animal origin, providing livestock services, combating desertification and conservation of riverine forests (Sindh), strengthening of cottage industries (Sindh).

### **Production of Quality Seed**

Seed is the basic and cheapest input and due to its genetic characteristic, influences efficiency of other inputs in achieving better yields. The use of quality seed enables 20 to 25 percent improvement in crop yields. Seed has the potential to influence productivity both at commercial and subsistence farms. The Government Policy places greater focus to ensure increased supply of quality seed to the growers. Private sector is being encouraged to produce and market improved seeds of various crops. So far, 657 private seed companies have been granted permission to do seed business. The present status of quality seed distribution of different crops is not satisfactory as the certified seed availability for wheat is 24 percent, paddy 30 percent, cotton 64 percent, maize 35 percent, oilseeds 12 percent and pulses 1.3 percent. The major source of supplies for seeds for fodders, maize, oilseeds and

vegetables are imports. The inadequate availability of improved seed highlights the challenges lying ahead. The Ministry of Food, Agriculture and Livestock has sent draft bill on "Plant Breeder's Rights " which provides legal protection against commercial exploitation of varieties evolved by Plant Breeders, and encourages both public/private sectors to invest in agricultural research and marketing .

Eleven new seed testing laboratories have been established and sixteen existing laboratories rehabilitated /upgraded under a project "Establishment of Seed Testing Labs and Rehabilitation of Existing Labs." It will improve seed certification coverage in the country and ensure supply of disease free quality seeds. Quality seed production through private – public partnership has also been initiated through another project "Establishment of Facilitation Unit for Participatory Vegetable Seed and Nursery Production Program". It will provide sound technological basis for vegetable seed and nursery production of fruit plants. Under the project 20 participatory units will be established in private sector on public – private partnership basis.

To provide an incentive to plant breeders to evolve and disseminate high yielding/better quality varieties, provision has been made for royalty for plant breeders in the Draft Legislation on Plant Breeder's Rights.

### **Compliance of WTO Regulations**

Pakistan lacks a coherent Sanitary and Phytosanitary (SPS) management system in relation to its trade with other countries. There are serious capacity constraints and a lack of coordination and effective interaction between the departments involved in inspection, testing and other related activities. The absence of an SPS management system is resulting in rejection of exported consignments and export bans, costing the country huge losses in foreign exchange earnings. There is a strong and urgent need to develop an SPS management system. Thus, a project "Special Program for Strengthening SPS Facilities and Quality Inspection Services- Establishment of an Integrated Animal and Plant Health Inspection Services (NAPHIS)" has been launched. It envisages a sound regulatory system to safeguard the health of animals and plants and to ensure compliance of agricultural produce with international SPS standards.

### **Agricultural Research**

Agriculture Research is the prime factor for continuously improving and up-grading agricultural productivity and therefore appropriate investment has to be made for this purpose. Pakistan Agricultural Research Council, the main research body in the country had not received in the past enough financial support to upgrade its facilities and revamp its programs. Therefore, PARC has now been supported through a mega project amounting to nearly Rs.3 billion to up-grade and re-furbish its facilities, add new equipments and initiate research programs around priority themes. Main fields include productivity improvement, high value agriculture (horticulture, livestock and fisheries), post-harvest technologies, value chain, export competitiveness, WTO compliance, sustainable resource use and otheRs This will also involve major human resource development for acquiring new skills and technology for under-taking strategic research in various sectors of agriculture.

In addition Agricultural Research System of Baluchistan is being restructured and upgraded through a project entitled "Restructuring and Strengthening of National

Agriculture Research system in Baluchistan". It involves building new laboratories in different ecological zones of the province and also capacity building of the scientists.

Cotton being the most important cash crop and backbone of Pakistan's economy, research and development of this crop is of high priority. A project for strengthening of Central Cotton Research Institute in Multan was approved with a view to modernize the research infrastructure, strengthen the research capabilities of the institute and enhance capacity building of its research scientists, field staff and growers. It will help in improving the productivity and quality of cotton by ensuring and effecting continuous induction of new research-based technologies, indigenous knowledge and skill transfer system. Similarly, the project on "Managing Burewala Strain of Cotton Virus" will be continued for genetic and varietal research activities. The federal and provincial cotton research institutes are being strengthened by provision of research equipment and materials through this project. The ultimate focus of the project will be the development and release of cotton varieties resistant to Burewala strain of cotton virus.

Sugarcane crop has high water requirements, its productivity is low and it is infringing in our cotton belt. This is an important policy issue which is being looked into. Efforts will be made towards introduction of sugar-beet and increasing productivity of sugarcane.

On-going project "Production of Medicinal Herbs in Collaboration with Private Sector" focuses on medicinal herb production as per WHO guidelines, undertaking research and data compilation of various herbs in the geographical boundaries of Pakistan.

### **Biotechnology**

Biotechnology continued to be one of the important technologies in agriculture research. Several projects in this area have been funded from PSDP through MINFAL, MoST and HEC. Maximum emphasis is being placed on cotton biotechnology especially for developing Cotton Leaf Curl Virus (CLCV) resistant varieties through genetic engineering. After undertaking the basic work of identifying and characterizing the causative virus, different genetically engineered cotton varieties are now being tested in the field. Similar work in tomatoes, potatoes and Chilies is being carried out as these crops also face an acute problem of viral infections. In addition toxin genes have been introduced in cotton, which will impart a broad-spectrum resistance to both sucking and chewing insects. All these technologies will positively impact cotton production in the coming years

In order to further support biotechnology, two new projects have been approved. One is the establishment of National Institute of Genomics and Advance Biotechnology at NARC Campus Islamabad. This project is of unique nature and will undertake genomics, bioinformatics, biological statistics, prepare DNA profiles, gene sequencing of crops and animals under the umbrella of PARC. The other project is the University Institute for Biotechnology & Bio-informatics at University of Arid Agriculture, Rawalpindi. These projects will not only further strengthen the human resources but will also focus on functional genomics, which provides the basic information for improving agricultural productivity both in crops and livestock.

### **Bioenergy from Plant Biomass**

A project "Production of Bioenergy Plant Biomass" will be initiated to utilize the experience already gained to develop economically feasible process for production of

biofuel from plant biomass, essentially grown on salt affected wastelands such as 'kallar' grass and other salt tolerant plants. It is a multi-laboratory study in which PAEC, Punjab University, PCSIR and GCU Lahore are participating. The lingo-cellulosic biomass will be converted by enzymatic hydrolysis and fermentation into ethanol/methane. It will provide an alternate source of energy. Research Institutes involved will be strengthened with required equipment and technical manpower.

### **Agribusiness Development and Diversification Project**

The on-going "Agribusiness Development and Diversification Project" will be continued in all the provinces, AJK , FATA and FANA with the assistance of Asian Development Bank. It aims to develop a competitive and sustainable agribusiness sector in the country with particular reference to horticulture/hortibusiness, livestock, dairy development and promotion of the production of value added crops in the country from business point of view. It involves development of agribusiness policy and regulatory framework, rationalization/restructuring/capacity building of DALPMG and FSCRD of MINFAL, establishment of Livestock and Dairy Development Board and Horticulture Project Unit within Pakistan Horticulture Development and Export Board (PHDEB), a coordinated training program, facilitating access to effective Business Development Services by agribusiness enterprises by financing eligible services including technical, managerial, financial and marketing capacity building, feasibility studies for agribusiness enterprises, capacity building support for participating financial institutions for enhancing their capacity to extent agribusiness sector.

The project would help in production and export of value added crops/commodities such as livestock dairy and products, fruits, vegetables, and flours. Hence it will promote a non-conventional sub-sector of agriculture sector.

### **Agribusiness Investment Promotion**

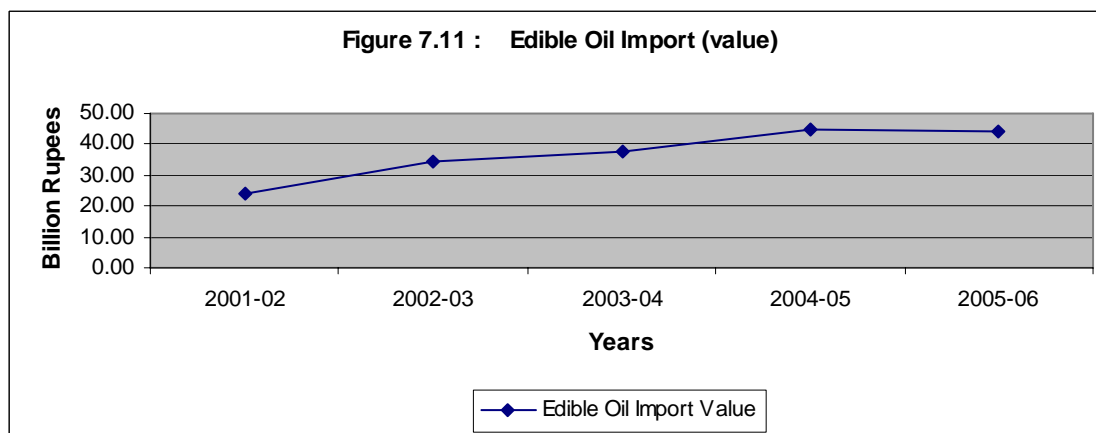
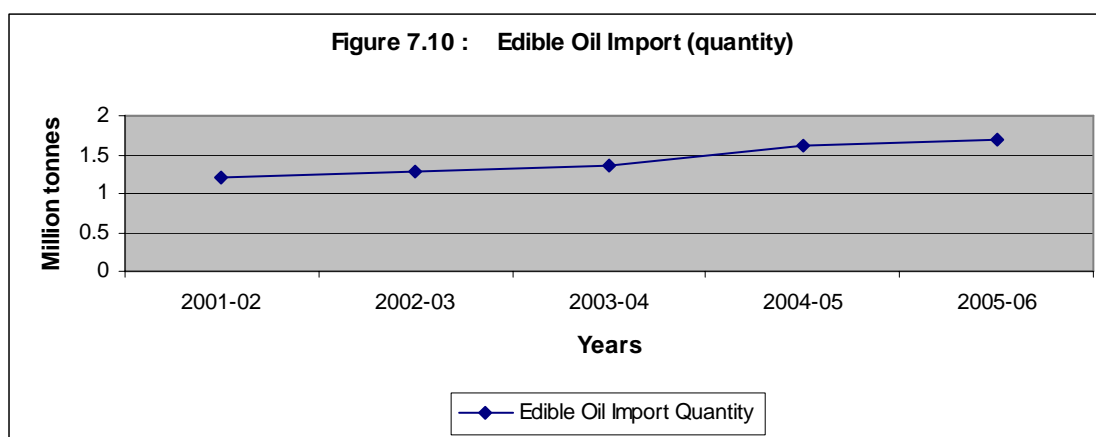
An agribusiness investment promotion project costing about Rs 5 billion has been proposed by MINFAL with the following components:

- Agribusiness Investment Promotion.
- Strengthening of Agribusiness Support Fund and Investment/Marketing facilitation.
- Equity participation in strategic/viable agribusiness ventures through an existing venture capital company).
- Special funds allocation for Provinces and Special Areas.
- Project Management Unit.

Under this project, a major chunk i.e 78.5 percent of the project cost is earmarked for Agribusiness Support Fund (ASF) strengthening. A grant of Rs 3 billion to ASF is intended to establish an Agribusiness Equity Fund for placing with a Venture Capital Company of repute, with aim of entering into viable joint ventures with local and foreign investors in agribusiness

## Imports Substitution

Edible oil and tea are our two major agricultural import items. Pakistan is not self-sufficient in either of them. About two-third of the domestic requirements are met through imports. The import of edible oil is increasing both in terms of quantity and value. It increased from 1.197 million tones in 2001-02 to 1.695 million tones during 2005-06 costing Rs 24.00 billion and Rs 44.20 billion respectively, as illustrated in Figure 7.10 and Figure 7.11



During first eight months of 2006-07, the quantity of imported edible oil was 1.303 million tones costing Rs 37 billion. To curtail the imports of edible oil, domestic production needs to be enhanced significantly. To achieve this, the on-going oilseed development and promotional programs will be continued in the direction of enhanced output of domestic edible oils and the consequent self-reliance. These programs include “Rapid Conversion of Wild Olive into Oil Bearing Species” aiming at conversion of 1.64 million wild olive plants to fruit bearing trees, and “Sunflower Cultivation in Balochistan” to grow sunflower on 12,000 acres in the province for increasing the production of oilseeds/edible oil in the country along-with transfer of technology to the farmers by developing demonstration plots at various locations in the province. The oilpalm cultivation technology has already been demonstrated in the coastal areas of Sindh and Balochistan through Phase-I of the project “Oilpalm

Development Pilot Project". As a follow-up to this project, another "Oilpalm Development Project" was launched in 2005-06 in Sindh and Balochistan envisaging oilpalm promotional program for increasing the production of edible oils. It will be continued in 2007-08. Under it, 300,000 oilpalm seedlings will be imported, 500,000 nursery plants will be established for distribution to farmers in Sindh and Balochistan and a small oil mill will be installed for palm oil extraction from oilpalm fruit produced by the farmers.

The edible oil imports drain our scarce foreign exchange resources and accordingly the efforts for import substitution are receiving due attention.

### **Tea Production**

Tea is another major import item. Its import has risen from Rs 8.6 billion in 2001-02 to Rs 13.3 billion in 2005-06. A mega project entitled "Commercialization of Tea Production through Public Private Partnership" is being processed for approval, which aims at bringing under cultivation 6000 acres of suitable land under tea cultivation in NWFP, AJK and FATA and strengthening the National Tea Research Institute at Mansehra. The project will be launched in 2007-08.

### **Crop Maximization Project**

A "Crop Maximization Project" being implemented since 2002-03 in 109 villages of 15 districts of all the provinces and AJK was completed in June 2006. The project resulted in 30-40 percent enhancement in crop productivity. Its follow up "Crop Maximization Project-II" will be launched in other 1,012 villages of 27 districts of all the provinces, AJK, and NAs during 2007-08.

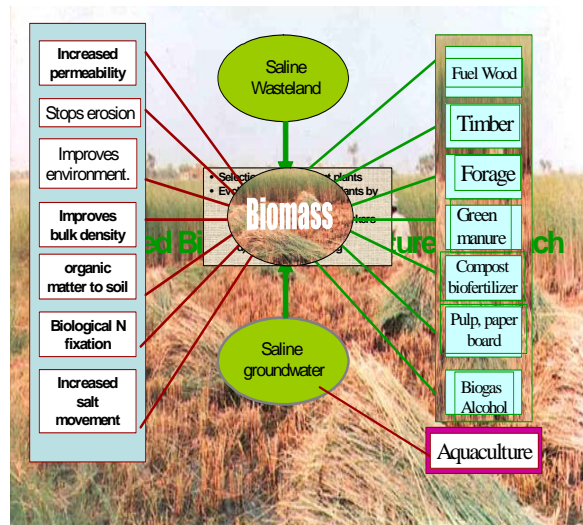
The project envisages benefiting from the experience of phase-I of the project in increasing the agricultural productivity of rural areas on sustainable basis, enhancing food security and reducing poverty. It will establish collective institutions, i.e. Village Organizations one each in 1012 villages which will be owned and managed by the farmers themselves for procurement/management of critical inputs/services, marketing of outputs and diversification of income generation activities, especially by the small land holders.

### **Biosaline Agriculture**

Salinization of soils and ground water is a major soil degradation problem that is growing steadily. Nearly 6 million hectares of potentially arable land is salinized; 1.25 falling in the canal commanded area while the rest is out-side it. This salinity has adversely affected the soil's chemical and physical properties, making it unfit for conventional crop production. It seems that a durable solution of salinity and water logging problems may take a long time and we may have to live with salinity by finding ways to utilize the affected land fruitfully.



Salt Accumulation on Soil Surface



Schematic Presentation of Biosaline

### Agriculture Technology

A possible approach could be to tailor plants to suit this environment. Research on these select lines have already been carried out at NIAB and University of Agriculture, Faisalabad and Biosaline Agriculture Technology has been developed. Based on this approach several community based small projects have been carried out by several organizations. Government of Punjab using this approach is carrying out a project on 3 affected districts of Punjab. Based on the previous results, a National Biosaline Agriculture Program has been launched in 13 affected districts: 6 in Sindh; 4 in Punjab; 2 in Balochistan, and 1 in NWFP. Model demonstration sites will be established to transfer the technology through community participation. It is hoped to cover nearly 150,000 acres of salt affected land.