CHAPTER 8

AGRICULTURE

8.1. The Agriculture Sector occupies centre stage in Indian economy embodying three thrust areas as (1) to promote inclusive growth, (2) to enhance rural income, and (3) to sustain food security. Pioneering work by agriculture scientists and the efforts of farmers, popularly known as the “Green Revolution’, had helped achieve a breakthrough in the agriculture sector in the 1960. High agricultural production and productivity achieved in subsequent years has been the main reason for attaining food security to a large extent. The country has not witnessed any big technological breakthrough in agriculture since then. The food safety net for each and every of the over a billion citizens – a number that is growing – requires enhanced agricultural production and productivity in the form of a Second Green Revolution. Further, special attention is required for achieving higher production and productivity levels in pulses, oilseeds, fruits, and vegetables, which had remained untouched in the First Green Revolution but are essential for nutritional security. In this regard, achieving high production of poultry, meat and fisheries is also essential.

8.2. Improved performance in agriculture is necessary if our growth is to be inclusive. The Eleventh Plan adopts a multipronged approach towards this end. It provides for a major expansion in the programmes for irrigation and water management. The Rashtriya Krishi Vikas Youjana (RKVY) has been launched to assist the States in development and implementation of district level agricultural plans, based on local agro-climatic conditions. As a step towards food security, which has assumed special relevance in view of recent international developments, the National Food Security Mission aims at increasing cereal and pulses production by 20 million tons over a five year period.

8.3. In that direction , the focus is on improving yields with existing technology and there is considerable scope for doing so because yields obtained in the field in large parts of the country are much lower than what is achievable with existing technology, provided cultivation practices are improved and critical inputs made available. Timely availability of water is the most critical element in raising yields and various schemes are implemented to expand irrigation where possible and also to improve existing irrigation systems. Where irrigation is not possible – and this covers 60% of the land area – the solution lies in improving management of water resources through watershed development, covering rain water harvesting in farm ponds and tanks, and methods of ground water recharge. A major expansion of the Accelerated Irrigation Benefit Programme and a renewed thrust on watershed development has been planned. The National Rainfed Area Authority, which was established in 2006 and is now fully operational, is expected to help cover different programmes in rainfed areas to achieve better water management in rainfed areas.

8.4. Cost of Cultivation: The Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops in India was initiated during the year 1970-71 as a 100% Central Sector Plan Scheme on the recommendations made by the Standing Technical Committee (STC) on Indices of Input Costs. The STC was constituted in 1967 under the chairmanship of Dr. Ashok Mitra, the then Chairman of 'Agricultural Prices Commission', now called the 'Commission for Agricultural Costs and Prices (CACP). This scheme was initially started with a study of only two crops viz. wheat and bajra. Later on, other important crops were included under the scheme in a phased manner depending upon need for fixation of Minimum Support Price (MSP) or for implementation of Market Intervention Scheme (MIS) for a specific commodity. As on date, there are 27 crops for which estimates of cost of cultivation and production are generated.

8.5. The Directorate of Economics and Statistics (DES) in the Ministry of Agriculture is getting the Scheme implemented through 16 Agricultural/General Universities/Colleges. Besides, the Directorate of Tobacco Development undertakes a special study on VFC tobacco in the state of Andhra Pradesh. These 17 Implementing Agencies collect and compile data pertaining to the cost of cultivation and production of various crops in different states and send it to the DES for generating the crop wise & State wise annual estimates of cost of cultivation/production. These estimates, as originally envisaged, provide one of the most important factors that are behind Minimum Support Price (MSP) recommendations of Commission for Agricultural Cost and Prices (CACP). MSPs, which provide protection to farmers in the event of adverse market conditions, have been one of the most important boosters of Agriculture Production and promoters of farmers' welfare. Needless, therefore, to mention that cost of cultivation and production estimates are as important and critical to agricultural growth and farmers' welfare as MSPs themselves.

8.6. The concept and definition of various terms are as under:

Classification of Land: Data are taken from latest Forestry Statistics Publication, Agriculture Census or are estimated based on latest available year data received from the States/Uts respectively. The nine-fold classification land uses are as under:

- **Forest Area:** This includes all land classified either as forest under any legal enactment, or administered as forest, whether State-owned or private, and whether wooded or maintained as potential forest land. The area of crops rose in the forest and grazing lands or areas open for grazing within the forests remain included under the "forest area".

- **Area under Non-agricultural Uses:** This includes all land occupied by buildings, roads and railways or under water, e.g. rivers and canals, and other land put to uses other than agriculture.

- **Barren and Un-ulturable Land:** This includes all land covered by mountains, deserts, etc. Land, which cannot be brought under cultivation except at an exorbitant cost is classified as unculturable whether such land is in isolated blocks or within cultivated holdings.

- **Permanent Pasture and other Grazing Land:** This includes all grazing land whether it is permanent pasture/meadows or not. Village common grazing land is included under this category.

- **Land under Miscellaneous Tree Crops, etc.:** This includes all cultivable land, which is not included in 'Net area sown' but is put to some agricultural use. Land under casurina trees, thatching grasses, bamboo bushes and other groves for fuel, etc. which are not included under 'Orchards' are classified under this category.

- **Culturable Waste Land:** This includes land available for cultivation, whether taken up or not taken up for cultivation once, but not cultivated during the last five years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles, which are not put to any use. They may be accessible or inaccessible and may lie in isolated blocks or within cultivated holdings.

- **Fallow Lands other than Current Fallows:** This includes all land, which was taken up for cultivation but is temporarily out of cultivation for a period of not less than one year and not more than five years. "Fallow land" has been split up into (i) "current fallow land"; and (ii) "other fallow land". Land lying fallow for a period of one year, are included under "current fallows", those lying fallow for more than one year but less than five years, are included under "other fallow land" while those fallow beyond a period of five years, are included under "culturable wastes" or under "miscellaneous tree crops and groves" (not included under net area sown) as the case may be.

- **Net Area Sown:** This represents the total area sown with crops and orchards. Area sowed more than once in the same year is counted only once.

Area under Crops: The figures related to Total Cropped Area are either estimated based on the latest available data received from States/UTs or are based on advance/forecast estimates received from the States/UTs.

- **Gross Cropped Area:** This represents the total area sown once and/or more than once in a particular year, i.e. the area is counted as many times as there are sowings in year. This total area is also known as total cropped area or total area sown.

- **Area Sown more than once:** This represents the areas on which crops are ultivated more than once during the agricultural year. This is obtained by deducting Net Area Sown from Gross Cropped Area.

Irrigated Area: The figures used in this chapter related to irrigate area are either estimated based on the data for the latest available year received from the States/UTs or are estimated/taken from Agriculture Census. The area is assumed to be irrigated for cultivation through such sources as canals (Govt. & Private), tanks, tube-wells, other wells and other sources. It is divided into two categories as (a) Net Irrigated Area: It is the area irrigated through any source once in a year for a particular crop. (b) Total Net Un-irrigated Area: It is the area arrived at by deducting the net irrigated area from net sown area.

Gross Irrigated Area: It is the total area under crops, irrigated once and/or more than once in a year. It is counted as many times as the number of times the areas are cropped and irrigated in a year

Total/Gross Un-Irrigated Area: It is the area arrived at by deducting the gross irrigated area from the gross sown area.

Average Yield of Crops: Average yields per hectare of principal crops have been obtained by dividing the total production by the corresponding total area under each crop. All India and State average yield per hectare has generally been calculated on the basis of area and production figures rounded up to hundreds . In the case of tea, rubber and minor crops, average yield has been calculated on the basis of area and production figures upto the unit place. In the case of coffee, yields per hectare relate to sowing or plucked area and in the case of rubber to tapped area.

8.7. The Highlights of this Chapter are as follows :

- The reporting area under land utilization increased from 305.18 million hectares in 2000-01 to 305.69 million hectares in 2008-09. The area not available for cultivation increased from 41.48 million hectares to 43.32 million hectares, whereas, the net sown remained as 141.36 million hectares in 2008-9 as it was in 2000-01. The total cropped area increased from 185.34 million hectares to 195.10 million hectares during the period 20001-01 to 2008-09.

- The area under foodgrains increased from 121.05 million hectares in 2000-01 to 121.33 million hectares in 2009-10. The area under cereals decreased from 100.70 million hectares in 2000-01 to 98.05 million hectares in 2009-10, whereas, the area under pulses increased from 20.35 million hectares to 23.28 million hectares during the same period. The area under oilseeds increased from 22.77 million hectares in 2000-01 to 25.96 million hectares in 2009-10.

- The production of foodgrains increased from 196.81 million tonnes in 2000-01 to 218.11 million tonnes in 2009-10. The production of cereals increased from 185.74 million tonnes to 203.45 million tonnes, whereas the production of pulses increased from 11.08 million tonnes to 14.66 million tonnes during the same period. The production of oilseeds increased from 18.44 million tonnes in 2000-01 to 24.88 million tonnes in 2009-10.

- The average yield of food grains per hectare increased from 16.3 quintals in 2000-01 to 18.0 quintals in 2009-10. The average yield of cereals per hectare increased from 18.4 quintals to 20.8 quintals, whereas the average yield of pulses per hectare increased from 5.4 quintals to 6.3 quintals during the same period. The average yield of oilseeds per hectare increased from 8.1 quintals in 2000-01 to 9.6 quintals in 2009-10.

- Area under cotton increased from 8.54 million hectares in 2000-01 to 10.13 million hectares in 2009-10, the production of cotton increased substantially from 9.52 million bales to 24.02 million bales over the same period signifying a vast increase in the yield of the cotton, which increased from 1.9 quintals per hectare to 4.0 quintals per hectare during the same period.

- Area under sugarcane decreased from 4.32 million hectares in 2000-01 to 4.18 million hectares in 2009-10, whereas the production of sugarcane decreased marginally from 295.96 million

tonnes to 292.30 million tonnes over the same period. The yield of the sugarcane increased from 685.8 quintals per hectare to 700.2 quintals per hectare during the same period.

- The Index Number of Agricultural Production (INAP) (with base: Crop Year Triennium ending 1993-94=100) of all crops decreased from 167.8 in 2006-07 to 159.1 in 2009-10. The INAP of food grains increased from 158.8 to 159.4, during the same period. While INAP of non-food grains decreased from 155.4 in 2006-07 to 143.6 in 2009-10, the INAP of oilseeds dencreased from 148.2 to 135.9 during same period.

- The Index Number of Agricultural Area (INAA) (with base: Crop Year Triennium ending 1993-94=100) of all crops decreased from 127.5 in 2006-07 to 126.3 in 2009-10. The INAA of food grains decreased from 128.5 to 126.0 during the same period. While INAA of non-food grains increased from 126.6 in 2006-07 to 128.0 in 2009-10, the INAA of oilseeds increased from 124.8 to 126.1 during same period.

- Among the five major paddy producing States, the maximum cost of cultivation amounting to ₹ 46450 per hectare was realized in Andhra Pradesh, whereas the minimum cost of cultivation amounting to ₹ 25909 per hectare was realized in Orissa during 2008-09. However, among the five major producing States of wheat, the maximum cost of cultivation amounting to ₹ 37450. per hectare were realized in Haryana, whereas, the minimum cost of cultivation amounting to ₹ 22489 per hectare was realized in Madhya Pradesh during 2008-09.

- Among the five major producing States of gram, the maximum cost of cultivation amounting to ₹ 26762 per hectare was realized in Uttar Pradesh and the minimum cost of cultivation amounting to ₹ 12610 per hectare was realized in Rajasthan in 2008-09. However, among the five major producing States of arhar, the maximum cost of cultivation amounting to ₹ 17130 per hectare were realized in Maharashtra, whereas, the minimum cost of cultivation of ₹ 10593 per hectare was realized in Karnataka during 2008-09.

- Among the five major rapeseed & mustard producing States, the maximum cost of cultivation amounting to ₹ 27507 per hectare was in Haryana while the minimum cost of cultivation of ₹ 17705 was in Madhya Pradesh during 2008-09. Among the five major producing States of sugarcane, the maximum costs of cultivation of ₹ 91442 per hectare was in Andhra Pradesh while the minimum cost of

cultivation of ₹ 45239 per hectare was in Uttar Pradesh during 2008-09.

8.7. This chapter contains the following tables :

Table 8.1 : Pattern of land utilisation (2000-01 to 2008-09)

Table 8.2 : Area under principal crops (2000-01 to 2009-10).

Table 8.3 : Production of principal crops (2000-01 to 2009-10).

Table 8.4 : Average yield of principal crops (2000-01 to 2009-10).

Table 8.5 : Index number of principal crops (Base: Crop Years Triennium Ending 1993-94=100) (2006-07 to 2009-10)

Table 8.6 : Cost estimate of some principal crops in five Major Producing States During 2007-08