

CHAPTER-1

INTRODUCTION

Agriculture plays an essential role in the process of economic development of less developed countries like India. Besides providing food to nation, agriculture releases labour, provides saving, contributes to market of industrial goods and earns foreign exchange. Agricultural development is an integral part of overall economic development. In¹ India, agriculture was the main source of national income and occupation at the time of Independence. Around 72 percent of total working population was engaged in agriculture. These confirm that Indian economy was a backward and agricultural based economy at the time of Independence.

Agricultural sector occupies a key position in the Indian economy, mainly because of three reasons. First, agriculture constitutes largest share of country's national income though the share has declined from 55 percent in early 1950s to 14.6 percent in 2011-12. Secondly, more than half of India's work force is employed in agriculture sector. Thirdly, growth of other sectors and overall economy depends on performance of agriculture to a considerable extent. Besides, agriculture is a source of livelihood and food security of India. In spite of this, it is also an important feature of agriculture that is to be noted that growth of other sectors and overall economy depends on the performance of agriculture to considerable extent. Because of these reasons agriculture continues to be the dominant sector in Indian Economy.

Agricultural development treated as precursor to industrial development in nations across the world, passes through distinct but relatively definite phases of modernization. It is always worthwhile to understand these phases and their prime features as so to acquaint ourselves of the complications, opportunities and challenges involved there and learn from the experiences of the nations which have successfully passed these phases and the strategies that they adopted to do away with the complications, tackle the challenges and exploit. India's agricultural development has passed through the following phases. The performance of Indian

¹Tripathi and Prasad: Agricultural Development in India since Independence (2009), *Electronic Press*.

agriculture during the last sixty year of planned economic development has passed through three stages. In the first stage covering the pre-green revolution period up to middle 1960's, development of irrigation, land reforms, community development and restructuring of rural credit institutions received a high priority. Despite good achievements in these areas, the growth of food grains output was far from being satisfactory to meet the needs of growing population. The experience of other developing countries highlighted the importance of adoption of high yielding varieties of seeds, and greater use of chemical fertilizers under conditions. This led to the launch of green revolution in the mid-sixties, in the initial period the green revolution was confined only to well-endowed regions of the country covering few crops like wheat and rice. However during 1980's, the green revolution became more wide spread regionally. Due to this green revolution there was a quantum jump in the agriculture output. There was not only improvement in yield of different crops; there was significant increase in the productivity of all inputs. Further, in response to the rise in per capita incomes and growing preference of consumers towards non-food grain items of food such as milk, poultry, meat, fish, vegetables and fruits, there were indications of increasing diversification of agriculture.

Following the implementation of economic reforms in the country from 1990-91, Indian agriculture entered the present phase of globalization and diversification trade and exchange rate liberalization and reduction of protection led to the improvement in the terms of trade for agriculture. This provided greater incentives to private investment in agriculture, as is evident from the significant rise in such investment in agriculture continued to decline and stagnate owing to the rise in subsidies and adverse tax GDP ratio. This has harmed the development rural in fracture such as irrigation there is also shortage of in seasonal credit to small and marginal farmers. As a result, the country is experiencing withering away of green revolution effect with a slowdown in agricultural growth on account of declining input use, factor productivity and profitability during the post-reform period. It is, therefore, necessary to take stock of the major issue faced by Indian agriculture with the achievement of self-sufficiency in food grains, increasing trend towards diversification of agriculture and globalization of trade should be promoted. The present attempt is confined to major crops of rice, Rice, Wheat, Coarse cereals and Pulses because India contribute major share in these types of food grains in the world. As India's food security vitally depends upon wheat and rice production.

Paddy, which is the predominant food grain crop in India, is extensively cultivated in almost all parts of the country. In India, Paddy cultivation has a long history marked by a series of technological break-through and has the largest area under rice in the world. India ranks second next to china and the country contributes nearly 22 per cent of the global Paddy production. The principal Paddy producing states in India are West Bengal, Uttar Pradesh and Punjab. Paddy, India's preeminent crop is the staple food of the people of the eastern and southern parts of the country. In context of **wheat**, in which India holds the second position among the wheat producing countries of the world, next to China. Uttar Pradesh, Punjab, Haryana and Madhya Pradesh are the major wheat producing states in India.

Coarse cereals are a group of six cereals, namely jawar, Bajra, maize, ragi, barley and millets. In the production of coarse cereals, India holds the sixth position in the world next to US, China, Brazil, the Russian Federation and France. In India, coarse cereals are grown mainly in the rain fed areas where the coverage of irrigation is only about 12 per cent. In context of Pulses production, India ranks first in the world. The leading producer states of pulses in the country are Madhya Pradesh, Uttar Pradesh and Rajasthan. Sorghum and millet, the principal coarse grains, are dry land crops most frequently grown as staples in central and western India. Corn and barley are staple foods grown mainly near and in the Himalayan region. As the result of increased yields, the production of coarse grains has doubled since 1950, there was hardly any change in the area sown for these grains.

Pulses are an important source of protein in the vegetarian diet; the small improvement in production along with the increase in population meant a reduced availability of pulses per capita. Before the Green Revolution, coarse grains showed satisfactory rates of growth but afterward lost cultivated areas to Wheat and Paddy, and their growth declined.

This can be achieved by removing the prevailing restrictions on movement, storage and processing of agricultural commodities. Investment in the technological up gradation and activities like processing storage and marketing should be promoted. Since 1970-71, there has been a national level comprehensive scheme for studying cost of cultivation/production of principal crops which covers all major states and is conducted on a continuous basis. Data from this scheme is used to prepare the recommendations for agriculture price policy by the agriculture prices commission renamed as the commission for agricultural costs and price (CACP). The present study uses for the period 1996-97 to 2008-09 comprehensive scheme (CS)

data for fulfillment of the following objectives. Prior to this a major study was conducted by Abhijit Sen. and M.S Bhatia² covering the period 1970-71 to 1999-2000.

Objectives of the study

1. To study the changes in the pattern of cost structure of principal crops in major growing states.
2. To analyses the profitability across states.
3. To study the productivity trends across crops.

Source of Data

This study is based on the data collected under Comprehensive Scheme for studying Cost of Cultivation/ Production of Principal Crops. The Comprehensive Scheme covers all major states and is conducted on a continuous basis. The data are taken from [Eands.dacnet.nic.in/ Cost of cultivation htm](http://Eands.dacnet.nic.in/Cost%20of%20cultivation.htm). (Ministry of Agriculture, Govt.of India)

Chapterisation Scheme

The present dissertation consists of six chapters. In addition to a chapter on introduction, the second chapter is devoted to conduct brief survey of selected literature related to the present work. In chapter three a brief description of the comprehensive scheme for cost of cultivation and production is presented. An analysis of the structure of cost of cultivation is contained in chapter four. Inter-state variations in the level and growth rate of productivity and an analysis of profitability are contained in chapter five. Finally the concluding remarks make the subject matter of chapter six.

Methodology

The methodology employed in the present work is consists of application of simple ratios, percentage, coefficient of variation and compound growth rate.

²Sen, A. and M.S, Bhatia (2004), Cost of Cultivation and Farm Income, Academic Press.

Coefficient of variation

The coefficient of variation (C.V) is used to measure the extent of interstate disparities in respect of food grain cultivation cost. The coefficient of variation is computed as a ratio of standard deviation to mean of the observations i.e.

$$C.V. = (\text{Standard Deviation})/\text{Mean}$$

Numerical value of C.V. is interpreted as variation per unit of mean. When c.v. is multiplied by 100, the value represents variations as percentage of mean. It can be verified that in contrast to standard deviation which is not independent of unit of measurement, the coefficient of variation is free from units of measurement and therefore, it can be used to compare variability of two variables even if they are measured in different units.

Annual Compound Growth Rate

The compound growth rate is computed by fitting an exponential function to the relevant data. An exponential trend equation is defined as:

$$Y = ab^t e^u$$

Where b is 1+g and g is the compound annual growth rate.

The semi natural logarithmic transformation of this function is:

$\ln Y = \ln a + t \ln b + u$ Which is a semi log linear function. And 'ln' is natural logarithm.

The values of the parameter a and b in this equation are estimated by using OLS method. CAGR is computed by using the formula:

$$CAGR (g\%) = (\text{anti-log } b - 1) * 100$$