CHAPTER – II
REVIEW OF LITERATURE

Review of literature helps the researcher to understand the areas researched and explored already, research gaps and new pastures for research adventurism. Various studies relating to the agricultural products and use of pesticides and fertilizers have been conducted and most of which re scientific in nature. Agricultural scientists do research on the impact of fertilizer on plants at various levels. Some Economists have also analyzed the pattern of use of pesticides, fertilizers, land use and marketing of agricultural crops at different areas. Some studies relating to marketing are reviewed in this chapter for the purpose of understanding the concepts of pattern of use.

Adilakshmi, D, Hemachandrudu, K and Parthasarathy, P.B in their study on “Spatial and Temporal variations in prices and marketing efficiency of chillies in Andhra Pradesh” examined spatial and temporal variations in prices and marketing efficiency of chillies in Andhra Pradesh. The study observed that by and large a close unison in price movements between each pair of selected regulated markets indicating that all the selected markets were well.

Arakeri, H.R., in his book “Indian Agriculture”, stressed the need for increased attention paid to the aspect of fertilizer use efficiency. He also says that farming in dry land is as old as agriculture itself. He recommended that the required organizational structure has to be built up to ensure timely and adequate supply of fertilizers and also the equipments needed to apply the same by the recommended methods.
Arora, R.C., in his book “Development of Agriculture and Allied Sector” - an integrated area approach said that there are two aspects of fertilizer consumption. One is the question of year-to-year equilibrium between demand and supply; and the other that of the progressively higher levels of the annual equilibrium.

Arun S.Patel analyzed the growth pattern of agriculture in Gurajat for the period of 1970-1996. This analysis takes into account of non-food grain crops like rapeseed and mustard, castor, sesamum, sugarcane, tobacco, banana and potato. The area of cotton and groundnut declined in trend. The rest of the crops except banana increased. In the case of banana, the share of area declined while that of production increased.

Balappa Shivaraya examined the pattern of growth in red gram production in Gulbarga district and for the Karnataka state as a whole from 1980 to 1994. For the Karnataka state as a whole, production of red gram declined by 4 per cent.

Bansil, P.C., in his book “Agricultural Problems of India” finds out that organic manures cannot possibly meet that full requirements for replenishing the soils at higher levels of production envisaged by the new technology. He concluded that due to various plan programmes undertaken by both central and state governments, the farming community is increasingly becoming aware of the value of applying fertilizers.

Bhagat examined the supply response of farmers growing wheat in Bihar using Nerlove’s partial adjustment model for a period of 21 years 1956-57 to 1976-77 and measure acreage elasticities of wheat with respect to price, yield and other factors. Data for this study were collected from
secondary sources of Season and crops reports and office of the department of agriculture, Government of Bihar. The ordinary least square method was employed for estimating the co-efficient of regression functions.

Bharathi S.V., and others have analyzed the factors responsible for the instability of pulses production in Andhra Pradesh during 1970-71 to 1986-87 using cop pock’s instability index, coefficient of variation and standard deviation. According to this study, the area has greatly contributed to the pulses production more than yield in the major pulses growing districts and Andhra Pradesh.

Bhatnager, K.C., Khurana, G.L and Bapat, S.R., in their article “Economics of Consumption- Application to Mustard”, attempted to examine the scope and extent of fertilizer application to mustard crop in three states of Northern Region and found out that the return to investment on Fertilizers and said that fertilizer use is dependent upon additional yield of the produce. They also -found out the factors affecting fertilizer-use-efficiency like, variety, season and time, sowing, water management, plant protection measures, etc.,

Blauacharyya, P. and Mishra, U.C., in their article “Status of Bio-fertilizer Use In Andhra Pradesh-Scope and Limitation” studied the scope of applying Bio-fertilizer and said that Bio-fertilizer plays a significant role as one of the components of Integrated Plant Nutrient Supply Systems. They studied the potential demand in Andhra Pradesh and stressed the need for the combined efforts of Centre and State Government to meet the demand.
Biswa, B.C., Naresh Prasad and Sonnithra Das in their article on “Fertilizer use in some selected Agro-Ecological Zones of India” attempted to examine their fertilizer use pattern of some selected agro-ecological zones and also indicated the fertilizer use pattern for the future taking into account their compound growth of fertilizer consumption. They found out that fertilizer consumption varies widely in different agro-ecological zones in India.

Cauvery R., attempted to examine the extent of instability of groundnut production in Tamil Nadu with particular reference to the four major groundnuts growing regional viz, North Arcot, South Arcot, Coimbatore and Salem. The instability was studied for two periods 1965-6 to 1975-76 and 1977-78 to 1988-89. The methodology was built up on the lines of his work by Peter B.R.Hazell. The area and yield data were collected.

Chacko Jose made a study on production and export of cardamom in India. The study indicated that India the world’s largest producer of cardamom until 1979-80 and its position diminished in the subsequent years due to a number of factors. There has been occasional small hikes and frequent sharp slumps in production.

Chandrasekaran conducted a study to analyze farmers’ selling behaviour of principal crops including turmeric and chillies in Tamil Nadu. The study identified that majority of the farmers lacked awareness about the benefits of the marketing institutions. The study also reported that many farmers had chosen private traders not because they extended money but because of lack of knowledge about the existence of government institutions.
Chhotan Singh and Pramod Kumar have analyzed the time-series data 1970-81 of wholesale prices of orange, banana, apple, almond and cashew in important markets of the country for these fruits. The price of apple exhibited an erratic trend in all the markets. Hence special attention needs to be paid for increasing the production of fruits in order to check the rising prices of fruits.

Chinnappa B., and Keshava Reddy T.R., have made an empirical analysis of growth and instability in Indian sugar industry covering 1930-1993 periods. The study covered the area, yield, production and yield of sugar cane. The empirical findings of the study showed that the area, production and productivity of sugarcane were 1.7257, 3.60358 and 1.84813 respectively.

Colby H., made a growth supply response model in China. This analysis is used in between the four major crops like rice, wheat, maize and soybeans. For this analysis the time series data for the period 1978-99 were taken from various govt. publications. The total factor productivity (TFP) contribution to growth in grain production is found in the period immediately following china’s rural economic reform 1978-85. In recent years the growth rate of TFP fell sharply, contributing to less than 20 per cent of growth in grain production, as increased use of inputs became the major engine of growth.

Deepak Kher and Bhat G.M in their article “Economics of Fertilization in Maize and wheat: A study of Himachal Pradesh” has analyzed the use of fertilizer and the relationship between fertilizer inputs and yield outputs with regard to maize and wheat in Himachal Pradesh, They have found out that the coefficient determination R2 is significantly high for both the crops.
Desai, R.G., in “Role of Agriculture in Economic Development” traced the importance of agriculture to Indian Economic Development. He wanted that to achieve a rapid increase in incomes a greater proportion of investment should be made in agriculture.

Dhindas and Anju Sharma in their study on ‘Growth and supply responses of pulses in Punjab’ have attempted to identify the acreage response of various factors determining the decisions regarding allocation of land among different pulse crops in Punjab and its various sub-regions and to estimate the short run elasticity of acreage under various pulse crops with respect to various price and non-price factors. The study covered the period 1965-66 to 1991-92. The major findings of the study were: The increase in prices of pulses will hit the poorest section of the society and will create serious imbalances in the dietary mix of the majority of the people.

Dilakar Naik and Upton Hatch examined the impact of processing industry on farm price of turmeric in Phulbani district of Orissa. The study identified that in the existing marketing frame work the tribals commit their crops to money lenders even before it was harvested which tends the growers to sell the produce at low price to them during the post harvest period.

Eswara Prasad conducted a study on Turmeric in Guntur market. The study indicated that the arrival was high during the months of March, April, May and June in the case of both bulbs and finger type turmeric and curing these months the price indices were on the lower side correspondingly in both cases. As the harvesting of the crop started from March, market arrivals gradually rose from this month and reached its peak during April and May. The prices increased at the rate of Rs. 40.36 per year.
Gadgil revealed in his another study that the turmeric prices did slump invariably in the post harvest period, i.e. heavy arrival months and also did not rise invariably in the subsequent lean arrival months.

Gadgil studied marketing of turmeric in Sangli district. The study revealed that the regulation and supervision by the market committee and the system of sale by open auction created conditions which were conducive for creating better buying competition in the market.

Giri who examined the marketable surplus of spices and condiments reported, that it was very high, in general. Cardamom and black pepper have 100 per cent marketable surplus, less than 100 per cent but greater than 80 per cent.

Gowen, S., in his book “Bananas and plantains” said that in order to achieve high yields, in banana cultivation the amount of nitrogen, phosphorus, potassium or other nutrients applied differed from one location to another. This variation is significant according to the climate, cultivar being grown, yield, resources of the grower and his soil and management practices. He stressed the need for frequent application of nitrogen. He found out that plant density is one of the major factors affecting the mineral nutrition in many respects.

Hattink, studied the cocoa supply response in Ghana. It is derived from the aggregate time series data. The study presents results of a cross section profit function analysis, based on farm level data.
Heady Earl, O., Pesek John, T., Brown William, G., and Doll John, P., in their work - “Crop Response Surfaces and Economic Optima in Fertilizer Use”, conducted a research experiment in Iowa in 1952. They had used Cobb-Douglass production function with and without fertilizer nutrients and found out Economic Optima for these two aspects. They found out that uncertainty in agriculture and other factors did not allow the farmers to be so precise in their decision making.

Jena analyzed the instability in groundnut production in Orissa For this analysis, 38 years 1954-55 to 1971-72 data were collected from various sources. The data were further divided into pre techno period 18 years and post-techno period 20 years. It is found that the instability in both area and production was convergent in nature except in the kharif season In Dhenkanal and Ganjam districts, and in the Rabi season in Pun and Sambalpur district.

Jesy Thomas and Sundaresan analyzed the export performance of Cordamom in India which revealed that high export instability. Production was found to be a significant factor to determine export with domestic prices. Price analysis using market integration model revealed the integration between Tamil nadu market and Kerala market on the prices.

Kasar Raut and Rasane in their study on behaviour of prices and arrivals of red Chillies in Maharashtra found that in dondaicha market the arrivals of red wet Chillies were maximum during December to March. By and large, there existed a significant negative correlation between arrivals aid prices of red Chillies. The arrivals an prices of red wet Chillies and prices of red dry Chillies depicted a significant increasing trend and the rate of increase in the prices of dry Chillies was quite higher than the prices of wet Chillies in Dondaicha market.
Khan, conducted a study on the interregional analysis of farmers' supply response of gram and lentil acreage for 1964-1985. They have analyzed the farm area, crop yield, cost benefit analysis of a few grams and lentils in Punjab and Pakistan. Findings have revealed that the area under gram, lentils and Rabi pulses declined by 14.8 per cent. The relative yield variable had a positive and significant impact on gram acreage in the Thai region, but a negative and non-significant effect in Sargodha region.

Kuo, Leslie, T.C., in his work “Agriculture in the Peoples Republic of China Structural changes and Technical Transformation” stressed the importance of organic fertilizers and chemical fertilizers in Chinese agriculture in stepping up production. He analyzed the fertilizer production, distribution and the use of chemical fertilizers in China. He felt that to make up deficiencies, the People’s Republic of China needs import of chemical fertilizers.

Korwar, G.R. and Pratibha, G in their article, “Performance of short duration pulses with African Winterthorn in semi-arid regions”, studied the effect of leaf-shedding in the area of black gram and Green gram cultivated as intercrops. This study conducted experiments on block gram and Green gram under the trees and found out that there was fertility improvement of the soil because of leaf shedding.

Kumar Dash Tappan and Bhattacharyya Kant, in Chapter V on Rural Development Experience of Fertilizer in “Rural Development” felt the need for increasing food production to meet the demand for increasing population of India. They said that Block Demonstration as a method of increasing the fertilizer use was initiated by the cluster-village concept. This method was advocated by Indo-German Fertilizer Education Project of Hindustan Fertilizer Corporation Ltd., launched in 1974.
Lin, Sanford and Skiner analyzed the acreage response of cotton. The own price supply elasticity is estimated at 0.466 for U.S. Upland cotton. A 0.466 per cent increase in cotton planting is associated with one per cent increase in the expected cotton farm price up to 7.9 per cent from 1986-90 when little planting flexibility existed.

Lotter made a study on marketing of turmeric in western Maharashtra. The highest arrivals were observed in the month of March and the lowest in the month of November indicating the seasonality of the arrivals. The arrivals showed a typical behaviour of concentration within a period of three months after harvests. Though the indices of prices showed a correspondence with peak of arrivals in March the variations was not observed to be larger between the lean arrival period and peak arrival period.

Madhavan studied the supply of groundnut and gingelly, in Madras by using Nerlovian model expressed in log form with crop acreage, as a function of lagged crop price, lagged yield and the acreage of the crops and its competitor, and rainfall index computed for the sowing period. The study has revealed that commercial crops were more responsive to the relative prices than the food crops. Yield was an equally important factor affecting Tamil Nadu acreage decision of the farmers.

Mani in a study on factors associated with participation of turmeric growers in regulated market, revealed that there was no significant difference between participant and non - participants of regulated market on the factors such as age, education, farm size, farming experience, mass media exposure, urban contact, level of aspiration and over all modernity.
Mani and Chako Jose conducted a study on Export of Cardamom. The study found that the cardamom yield was low and there was frequent fluctuations in yield in the study period. The study found that the trends in the export of cardamom have come down alarmingly due to high cost of production because of low quality and effective entry of Guatemala in this trade.

Mengal K. and Kirkby, E.A., in “Principles of Plant Nutrition” said that during the growing period roots act as sink collecting available nutrients to be utilized in the synthesis of organic plant constituents. After the termination of growth and the start of decay, the process is reversed and nutrients are released into the soil from breakdown of the plant debris.

Mishra, B. in his article on “Computer’s use of Fertilizer Advice and Crop Production”, says that there are many possibilities of using computers in crop production for saving time and increasing crop yields. He also stressed that a good fertilizer recommendation should be site specific as well as situation specific.

Mohan Das. R., examined the factors influencing growth and instability in the production of paddy, coconut, arecanut, pepper, ginger, tapioca, cashew, rubber, tea, cardarnon, sugarcane, banana and coffee, different districts of Kerala. The study was based on secondary data covering the period 1973-74 to 1987-88. He divided all the districts of Kerala into three categories. He sewed the tools like compound growth rates and coefficient of variation.
Mohanam T.C.44, in his article on “Growth Rates of Fertilizer Consumption - A District-wise Analysis in Tamil Nadu” analyzed the growth rate of fertilizer consumption in Tamil Nadu. There were inter-district variations and almost clustered around the state level growth rate.

Mutalik Desai V.R., in his book “The Strategy of Food and Agriculture in India” felt that agriculture makes a positive contribution to the regeneration of the entire economy of India. He stresses that due to continuous cropping over the years the fertility of the soil may decline. Hence according to him application of fertilizers is essential. For this, he advocated a massive production programme for fertilizers.

Nadda A.L., has specified two types of multiple regression models, i.e linear and double log with different combinations of independent variables for estimating acreage supply response in apple in Himachal Pradesh. The results in respect of regression coefficient and their significance are consistently superior in double log model.

Nageswara Reddy, M., Sitaramayya, M., Narayanaswamy, S., Sairam, A. and Krishna Kanth, G., in their article, “Productivity and soil fertility changes under continuous fertilization of rice, rice-cropping system’, conducted experiment with rice, rice-cropping system for 10 consecutive years from 1987-1996 in a semi-arid climatic zone of Andhra Pradesh. They found out that comprehensive continuous nutrition to rice is a need for better result.

Omezzine and Jabri studied the supply response of vegetable growers in the Sultanate of Oman and the empirical investigation of vegetable grower’s responses to prices in Oman. It developed a single supply response
function incorporating adaptive expectation model for prices. Results indicate that growers adjust relatively fast to changes in expected prices. These results will support efforts aimed at market development and crop enhancement programmes.

Pandy, N., Sarawgi, A.K, Rastogi, N.K. and Tripathi, R.S.51, in their article, “Effect of farmyard manure and chemical N fertilizer on grain yield and quality of scented rice varieties”, analyzed and found out that Mathuri II gave significantly higher grain yield than Pusa Basmati. The increase in grain yield was mainly associated with the significant increase in effective tillers. Mathuri II according to them recorded a higher N uptake by the grain and straw than that of Pusa Basmati I due to higher concentration and yield.

Parameshwar, analyzed the production behaviour of ground nut farmers in Karnataka employing Nerlovian Expectation - cum - adjustment model. The district wise time series data for 18 years from 1975-76 to 1992-93 pertaining to the hectage, yield, production and post harvest prices of ground nut and its competing crops (Jowar, cotton, chilli and ragi) and monthly rainfall data abstracted from the Bureau of Economics and Statistics, Government of Karnataka Bangalore. The negative elasticity of the production of groundnut with reference to fertilizer prices in all but two show that the farmers are sensitive to changes in the price of fertilizers and reduce its application following a rise in its price.

Patel A.S., analyzed the growth rate of banana in the districts of Gujarat as well as the various states in India and India as a whole, form the period from 1970-71 to 1994-95. The secondary data were collected form various sources. This study is divided into four major sections. Section first tries to examine the economy position of this crop at the all India and state level in general and the area growth in Gujarat in particular.
Patel G.N. and others have analyzed the Growth and Instability of groundnut production in Sourashtra region of Gujarat, during 1960-61 to 1988-89 using Compound growth rate and coefficient of variation. According to this study area, production and productivity of groundnut crop in the state of Gujarat have shown a negative growth during both the study periods. According to them, the instability in yield levels has caused further instability in groundnut production.

Patidar M and Singh B. in their article “Use of improved varieties and fertilizer for higher yield of mothbean and green gram in arid zone” has analyzed the efficiency of varieties and fertilizer applications. They have also demonstrated the technologies for higher production of mothbean and green gram among the farmers of arid zone. They have found that the highest net returns were obtained with improved package of practices that is improved varieties and fertilizer applications.

Patil B.N., examined the trends and growth rates in area, production and productivity and the factors responsible for change in acreage under banana crop in Jalgaon district of Maharashtra. The data were collected for the years 1950-51 to 1979-80 from published as well as unpublished secondary sources.

Peter K.V., in his study reported that in India Chilli is grown in almost all states. Andhra Pradesh had the highest area followed by Maharashtra and Kamataka. Productivity of Chilli was the highest in Andhra Pradesh (1.55 tonnes per hectare) followed by Punjab (0.22 tonnes per hectare) India is a major exporter of Chilliis and it had exported chillies worth Rs. 252.8 million during 1990-91. Still Chilli occupies only 0.73 to 5.77 per cent share in India’s total export in quantity and 0.30 to 7.27 per cent in value.
Pradhan, P.N. Jena, S., Mitra, A.K. in their article “Growth of Fertilizer Consumption in Orissa - A District-wise Analysis” found out that during post-Green Revolution the fertilizer consumption had increased when HYV seeds were introduced. They held the view that the growth rate of fertilizer consumption in Orissa was 9.45 per cent where as in India it was 9.40 per cent during the period 1968-1992.

Praveen K. Sardana analyzed the factors influencing growth and variations in agricultural performance in Haryana. The period of the study was 1975 — 76 to 1995-96. Following are the major findings of this study:
There has been reduction in disparities among districts of Haryana with regard to agricultural performance value of agricultural produce per hectare during the last 25 years; This calls for another vital breakthrough, especially the development of hybrid rice. Technological efforts should also spread to newer areas. In particular, research on high value crops like fruits, flowers and allied activities should be accorded priority.

Raguram, P. and Chowdry K.R. in their article, “Factors Influencing Fertilizer Consumption in Andhra Pradesh- A Micro-Macro Analysis” realized that the application of fertilizers was a pre-requisite for the realization of expected level of output on the farm. At the micro level quantitative factors like area under HYVs, irrigated, etc., and quantitative factors viz, literacy, social status of the farmers etc., were analyzed to study the influence of fertilizers in three districts of Andhra Pradesh.

Rahane R.K. attempted to study the performance of fruits and vegetables in Mahasrastra both at the state and regional level. For this purpose secondary data were collected from the Directorate of Agriculture and Directorate of Horticulture, Govt. of Maharastra.
Rajesh Sharma in a study on chillies of Sikar District of Rajasthan in 1989-90 recognized the informal and formal sources of finance for production and marketing of chillies, impact of different source f finance for production. Forced to sell their produce either to money lender or through middlemen and consequently they received lowest price (Rs 258.57 per cent quintal).

Raju V.T., Darai V.S. Rao C. Ravisankar analyzed the Growth and Distribution of Fruit crops in Andra Pradesh. This study was carried out for Banana, Mango, Citrus, Grapes, Guava, Papaya, Cashew and other total fruits. For analysis, compound growth rate and simple regression equation were used.

Ramasamy C., examined the supply response of sugarcane in Tamilnadu with special reference to Erode District. The data related to this analysis are collected from various sources fro the period of 1969-70 to 1994-95. In this study, elasticity coefficients were measured at the arithmetic mean of prices, areas and yields. Supply elasticity was obtained by summing the hectare and yield elasticity, which were estimated separately.

Raveendaran in his study established that there were no village merchants operating in turmeric trade. Similarly direct sales to the wholesalers were not observed in the study area. The farmer had the option to sell the produce directly to commission agent, regulated market and cooperative marketing society. In the study area, only 4 per cent of the farmers preferred sale through two agencies viz., commission agents and cooperatives but 96 per cent of them preferred to sell through single agency only. Nearly 76.92 per cent of turmeric growers preferred sale through commission agents with 73 .7lper cent of the total marketable surplus.
Raveendran conducted a study on growth of export and export process of turmeric in India. The study found that very high correlation of export prices of turmeric with its domestic prices which indicates that the domestic prices were exposed to international trade fluctuations. The study also found that there was high price uncertainty to farmers which is evidenced by very high co-efficient of variation of prices (70.71). The study suggested for some policies of price support to farmers with a view to reducing price uncertainty at farm level.

Ravindran on marketing of turmeric in Tamil Nadu revealed that 76.96 per cent of the producers preferred the sale through commission agents with 73.71 per cent of the marketable surplus.

Reddy M.J.M, in his article “Efficiency of Fertilizer use in Ground Nut” has estimated the share of fertilizers in the total cost of cultivation of ground nut under rain-fed and irrigated conditions. He has found out that there are positive elasticity significant at 10 per cent level in case of medium farms. On small and large farms, elasticities are negative.

Robert N. Herdt attempted to estimate to responses of supply and aggregate agricultural output to change in prices of agricultural products. The index of non-agricultural prices is also introduced as a separate variable in his equation. Own price elasticities and cross price elasticities were then aggregated in this study to get an estimate of elasticity of aggregate farm production, using average value of production of different crops as weight.

Robinson, J.C., in his Book on “Bananas and Plantations”, discussed about fertilization and said that fertilization practices vary widely according to climate, cultivars, yield level, soil fertility and management expertise of
the grower. He felt that in addition to nitrogen, potassium, Phosphorus, the use of calcium and zinc are also essential. Organic fertilization is another option for supplying nutrient elements to bananas.

Sarad Chandra Jam V.,7 in his book on” Indian Agriculture” (Chapter VI Price Behavior and Resource Allocation in Indian Agriculture) discussed the ratio of cost of fertilizer to the price of produce and the additional yield due to fertilizer use. He found out that without proper fertilizer usage, results will not be good and without good results the incentive for the farmer to invest further in fertilizer will be absent.

Sarad Chandra Jam, V., in his work “Agricultural Production Manual Chapter VII Plant Production Material Their Prices, Cost and Response”, dealt with the need for crop protection from pests, diseases and weeds. He stressed the need for applying rural composts, urban composts, Green Manures and fertilizers. Cost and response of fertilizers are also important deciding factors for the use of fertilizers.

Sathees Babu made a study on area, production and productivity of paper in Kerala. The study by reveals that the area under pepper was increased whereas the productivity was decreased. The growth in pepper output was accompanied by instability in production, which was caused by instability in both area and productivity.

Satya N., and in an article “Gearing to Meet Fertilizer Shortage”, stressed that since “Grow More Food Campaign” the consumption has been doubling roughly every five years. The real boost came with the introduction of high yielding dwarf varieties of cereals, which are fertilizer responsive and require application of large quantity to attain full potential.
Savitha Vadnere and V.K. Pandey examined the extent of instability of twelve crops in various regions of India for the periods 1970-71 to 1990-91. The methodology in this study is built on the lines of the work by Haxel (MOTAD MODEL). The time series and yield data were analyzed. The study arrived at the following conclusions: Strengthening the agricultural planning machinery at the state and district levels for regulating the desired crop acreage through a set of incentives and disincentives.

Shaik Haffis, Rama Rao, Reddy and Katyal conducted a systematic study of the change in the variability of cereal production of India. The study included the change in sorghum and pearl millet. They have used decomposition model and coefficient of variation to know the growth and instability.

Sharad Bhatnagar and K.K. Saxena examined the area, production and average yield of wheat in Haryana for the period of 33 years from 1966-67 to 1998-99. The following linear equation is used to find out the growth rate. \( Y_l = a + bt \); Further the linear growth rates for the 33 years from 1966-67 to 1998-99 have been calculated for each year by taking the successive year’s area! production of wheat into consideration.

Sharma in his study examined that the effects of yield, area, prices and their interactions in the increase of value of production of major agricultural commodities. The study found that in case of cash crop like sugarcane, jute, Tobacco and chillies, area effect was higher than yield effect by 0.74 per cent, 40.09 per cent, 10.08 per cent, respectively.
Singh and Paramjeet Kaur have attempted to know the growth and instability in oilseeds production in India. The study was based on secondary data for the period 1965-66 to 1975-76 and 1976-77 to 1988-89. In this study, compound growth rates were worked out. Further Caddy Nille Index is used to know the trends in area, producing and yield.

Singh conducted the study on Chillies in Bihar. The price spread worked out in this study indicates that the intermediaries present in the marketing channel charged high margin of profit as compared to the services rendered. Hence, this study suggested the necessity of improving the marketing efficiency of present marketing system.

The study of Singh on production and marketing of turmeric in Bihar indicated that area, production and productivity of turmeric in the state of Bihar is expected to increase and the state is likely to become a surplus state with respect to turmeric production by the end of the century.

Singh Shaktawat, R.P. and Bansal, K., in their article “Effect of different organic manures and nitrogen levels on growth and yield of sunflower” conducted a field experiment during winter season. According to them, Sunflower crop fertilized with 80 Kg. N/ha produced significantly higher seed yield to the extent of 49.75 per cent over control yield of 1.40 tones.

Singh, A.K., in his work on “Fertilizer Promotion”, conducted a study to identify the variables which significantly contribute towards the level of fertilizers use of farmers and to increase the level of fertilizer use in Hadnghata Block of Nadia District, West Bengal. His study was based on using the analysis of Multiple Regression of the standardized index of the
level of fertilizer use of Marginal, Small, and Medium and Pooled sample of farmers. Lack of detailed knowledge about to fertilizers, lack of soil, testing facility and inadequate irrigation facility are the constraints they met with in their cultivation process.

Singh, S.N., Lal, M., Shukia, J.P. and Singh G.P. 84, in their article “Comparative Performance of Sugarcane raised through Spindle bud Culture and conventional methods under different dates of planting,” analyzed the dates of planting and said that planting dates had significant effect on number of tillers, millable canes and cane yield during both the years.

Srerama Murthy, C., in their study reported that the previous year’s acreage significantly influenced the farmers’ decision regarding area allocation to turmeric in Guntur. Area was not responsive to process. The coefficient of area adjustment indicated scope to increase the area under the crop in the district. Yield of the crop was not influenced by prices. The study suggested forecasting the prices every day and no person other than turmeric growers should be allowed to sell the produce in the market yard.

Sriraman and Balasubramanian in their report examined the production and marketing of turmeric in Madras state in comparison with other states. Further they analyzed the price behaviour of turmeric in the wholesale and retail markets of the state. They also evaluated the performance of imports and exports of turmeric. The report covered all the aspects of production and marketing including the procedures of marketing and processing.
Subashree, in her analysis of pulses in Tamil Nadu, covering the period 1965-66 to 1988-89 has studied the shift in acreage under pulses, trends in area, production and productivity of pulses and has analyzed the instability in pulse production. The environmental, technological, socioeconomic, organizational, management and institutional constraints, lack of research, in different extension services to pulses, lack of plant protection and quality control measures and faulty marketing are highlighted as constraints.

Subhendu Bhadraray, Rao, Y.S., Ahamed, N. and Dutt, OM in their article “Available Nutrient Status of Typic Ustochrept as influenced by two irrigated and rainfed tropical agro-silvicultural plantations”. investigated the effect of 10 year old irrigated and rainfed plantations of Eucalyptus tereticornis and leucaena Leucocephala and found out that these require a heavy demand on nutrient reservoirs. The study was taken in two blocks in Daryapur and Mehrauli (Delhi) with respect to their available nutrient status under irrigated and rainfed conditions. They also conducted pot culture experiment.

Subrahmanyam K.V., analyzed the growth of area, production and productivity of banana in different states of India. The study was based on secondary data covering the period 1965-66 to 1978-79. This period a so signifies two important events viz, i) the introduction of high yielding varieties of paddy crop with which bananas rotated and ii) the period in which the ‘bunch top’ disease acquired epidemic proportion in some of the states where banana is grown on a large scale.
Subramanian analyzed the area response of farmers growing groundnut in TamilNadu using Nerlove’s Partial Adjustment Model for a period of 29 years (1957-58 to 1985-86). Further he measured the acreage elasticities of groundnut with respect to price, yield and rainfall. The decision of the groundnut growers of Tamilnadu regarding area allocation for groundnut had positive correspondence with the prices of the competing crop and negative correspondence with its own farm harvest prices.

Sunil Nahatker and Pant Examined farm profitability and resource productivity in cultivation of chillies in Dhindwara district of Madhya Pradesh. The operational cost or variable cost was nearly the same on three size group. Out of the total operational cost, cost of fertilizer and manures was found to be the highest in small farms whereas cost of hired human labour was higher (around 18 per cent) in medium and large farms as against small farms (around 12 per cent).

Swaminathan, M.S., in his article “Synergetic Effects of the Co-ordinated use of Fertilizers and other Inputs” studied the fertilizer response function of local and high yielding varieties of rice and wheet. He mentioned that the test conducted on the Nitrogen responsiveness at the Indian Agricultural Research Institute on these crops (Rice and Wheat) responded well to 311 the three major nutrients.

Tandon, H.L.S., in his work “Sulphur Fertilizers for Indian Agriculture”, is of the view that sulphur is more recognized as the fourth nutrient in addition to nitrogen, phosphorus and potassium. He considered the deficiency and toxicity symptoms, among the crops Alfalfa, Banana, Cocoa, Coffee, Cotton, Groundnut, Maize, Oilpalm, Pineapple, Sugarcane, Tea, Wheat, etc., According to him sulphur improves the quality and marketability of the produce. This sulphur was not priced formerly. It was ignored. At present sulphur is the cheapest.
Tandon, H.L.S., Massick, D.L., and Ceccotti, S.P., in their work, “Elemental Sulphur-Based and Other Available Sulphur Fertilizers”, said that more than 60 fertilizers are used in agriculture world wide. They found out that the application of elemental sulphur can result in significant increases of 20 percent to 106 percent in crop yields. Magnesium Sulphate is produced and used most commonly in India. Copper Sulphate, Iron Sulphate, Manganese Sulphate and Zinc Sulphate are having sulphur content among micro-nutrient carriers.

Thanulingom and Venkateswaran conducted a study to examine the extent of benefits accruing to the farmers form the regulated market in Virudhunagar District. The cause for low utilization of regulated market was attributed to lack of credit facilities in regulated markets, higher credit facilities offered by the commission merchants and the behaviour of the market committee staff.

Tiwari, R.J. and Nema, G.K.96, in their article “Response of sugarcane to direct and residual effect of pressmud and nitrogen”, studied the direct effect of nitrogen in plant and nutrient uptake of sugarcane. They fund out that application of pressmud upto 6 tonnes per hectare showed positive influence on cane yield and nutrient uptake of sugarcane. Uniqueness of the present study.

Upender M., analyzed the factors influencing growth and instability in acreage production and productivity of groundnut covering the pre and post Green Revolution periods in Andhra Pradesh and all India. The annual average growth rates of area, production and productivity of groundnut were higher during the post-green revolutions period. The growth rates of area and production of groundwater in Andhra Pradesh were higher in the post-green revolution period than that of growth rates in the same period in all India.
Varavipour, M., Hasan, R. and Singh, D., in their article “Effect of Applied Phosphorus, Sulpher and Zinc on yield and up take parameters of wheat and Soybean growth on loamy sand”, studied the effect of phosphorus, sulphur and Zinc on yield and uptake of crops, a green house experiment on wheat and soybean.

**HOW THE PRESENT STUDY DIFFERS**

The present study is on the marketing of banana in Kanyakumari District. The study is unique and differs from the earlier studies in the following aspects.

1. Most of the studies conducted earlier relate to agricultural aspects and have given less importance for marketing. The present study deals with the marketing aspects and analyses the problems and prospects from the marketing angle.
2. The study area selected is Kanyakumari district in the State of Tamil Nadu and no previous study was conducted for analyzing the marketing strategies from the growers’ and intermediaries’ point of view.
3. The marketing strategies may differ among the growers and intermediaries and hence separate analysis is made to find out the effectiveness of marketing strategies followed.
4. The product is a pure agro-based consumer perishable product and the marketing strategies may be different from those of other consumer products.

Thus the study is unique in many respects from the previous studies.

In this chapter, an attempt is made in relation to the previous studies done in relation to agricultural products, fertilizer use, land holdings and marketing aspects.