Chapter 2

Literature Review

2.1 Introduction

This chapter presents the review of literature relevant to study. Literature review gives background of the study and related issues. It also serves purpose of finding out gap exist in the earlier studies conducted so far. The present review is classified into three parts: 1) Cropping pattern in India. 2) Cropping pattern in Maharashtra. 3) Statistical analysis of growth and instability in agricultural sector of Yavatmal. These classifications allows researcher to expose the research
problem in depth. Study conducted by (Raj, 1983) found that average rate of growth of agricultural output over the past three decades was same in India and China. In both the countries, there have been sharp fluctuations in output due to natural factors. The study also indicated that the role of prices was under rated and even neglected. Prices and other incentives suggest that substantial increases in output would have been possible only after the other constraints were effectively relaxed.

2.2 Relevant Literature on Agricultural Development and Cropping Pattern in India

(Gomatee Singh, 2012) explores a close relationship between the socio-economic status of the farmers and cropping pattern adopted by them. They always try to maximize their profit whether belong to the large, medium, small or marginal category of land holdings. As (Gomatee Singh, 2012) found that the most important factor influencing the cropping pattern are; price, yield, tradition, crop prospect and labour. The large farmers by and large belong to high economic status. They can take risk in changing their cropping pattern and they grow those crops which give them higher monetary benefits. They prepare the land for wheat in Rabbi Season and for rice and sugarcane during kharif season. Medium farmers prefer wheat in Rabbi and sugarcane in kharif season. The small or marginal farmers generally go for vegetable cultivation which provides them seasonal income for sustainability.

According to (Surinder Sood, 2012) those who thought that good crops in the past seasons made farmers better off but the truth is that most of them are
worse off. Badly hit are those farmers who close to switch crops to improve their economic status lot but thanks to government policy and falling global prices for supporting farmers to survive.

It is seen by (Bhattacharya, 2011) that unbalanced use of fertilizers, lack of use of high yielding quality seeds, inadequate use of manures and micronutrients, insufficient and poor water management, lack of proper marketing arrangements in the neighbourhood, lower access to electrified irrigation sources, insufficient extension services and lesser interest in agriculture all these factors resulted in improper crop management and farming practices. He suggested for promoting research in agricultural sector. It should incorporate properly to high crop yields and increased crop productivity on a sustainable basis.

(Singh and Grover, 2011) concluded that in case of rice cultivation, one percent increase in cost of irrigation, zinc sulphate and machine labour, farming will not be remunerative to the farmers. Human labour would increase the productivity of rice. However recently, wheat cultivation has been found more profitable for the growers. It is true that farmers produce food for the billions and at affordable prices.

(Reddy, 2011) found that productivity, growth and diversification towards high value commodities have played a key role in changes of the value chain of the production. In his study, he considered only the crop sector for decomposition analysis to validate sources of growth in value production from the crop sector. The crop sub sector growth is higher in post liberalisation period compared to pre liberalisation period.
(Bhattacharya, 2011) indicated that research should explore how farmers are being facing the constraints while increasing crop yields and provide farmers with appropriate technological packages for specific locations to bridge the yield gaps. Institutional and policy support to farmers was crucial for ensuring agricultural input supplies, farm credit, price incentives and adequate marketing system in a holistic manner for increased crop productivity on a sustainable basis.

(Das and Barman, 2010) give stress on foot hill situation in Assam. The supply of human labour and bullock labour is greater than working capital. The optimal plans could be made effective only when the constraints on resource availability are removed. Agricultural in West Bengal has registered a rapid rate of growth in output during 1977-95. The provision of large amount of agricultural credit in the post bank nationalisation period has played a catalytic role in accelerating agricultural growth through change in cropping pattern towards commercialisation of agriculture in West Bengal (Ray, 2009).

It is observed by (Ray, 2009) that credit plays a substantial role in effecting a significant change in cropping pattern in favour of more remunerative crops. A change in crop pattern towards commercialisation of agriculture, need to be encouraged so there is a need of design an appropriate crops wise credit policy to ensure food security. (Fazlur Rahman, 2009) attempt to discuss the adoption of innovation is to ensure sustainable agricultural productivity. Crop productivity depends on the availability of water, its proper use and management.

Vijay and Pattnaik, (2009) concluded that Odisha and Andhra Pradesh have gone through three phases- post independence period, green revolution period and after eighties period- and two turning points- subsidies and support to
agriculture sector- of income in agriculture. Odisha witnessed declaration over the three phases due to land constrained system and Andhra Pradesh adopted acceleration in the income originating in agriculture sector due to science based agriculture and increasing market interaction.

Bhalla and Singh, (1996) concluded that in the year 1992-95, there was a distinct change in cropping pattern away from Corse cereals towards oilseeds and other commercial crops, this shift was particularly strong in Maharashtra. However agricultural growth and crop diversification was not accompanied by any significant change in labour force diversification. Kalamkar, (2006) in his proposed work used Herfindahl Index and Entropy Index measures of crop diversification in the empirical analysis.

Vyjlij, (2009) used weaver’s formula for crop combination. Using Cobb Douglas function (Tupe and Kamat, 2010) concluded that contribution of individual input in the agricultural gross domestic product of India (AGDP) is dominated by area under irrigation, minimum support prices and cultivable area. (Gatade and Pol, 2012) used Raffiullha method to understand the crop combination in their proposed work.

The Gibbs and Martin Index of diversification 1962 used by (Ratnaparkhi, Rajade and Wasnik,2008 ). (Singh and Grewal 1996) calculated the compound growth rate of area, production and yield of rice for India and for the different states using the function y=abt . (Joshi and Sharma,1995) estimated the compound growth rate of area, production and yield of rice for the period 1970-71 to 88-89 for various coastal districts of India using the growth equation y =abt.
Gajja, (1994) analysed the productivity variation and land irritability class in Kakrapar canal command area in Gujarat state. The result showed that the farmers in the command area allocated large acreage to high water requirement crops as compared to low water requirement crops because they had high profitability and low yield uncertainty than the latter ones. As cropping pattern is based on soil water relationship, they observed that any diversion from the suggested cropping pattern could lead to salinity and water logging which ultimately leads to a decline in farm production.

Krishnakumari and Swaminathan, (1992) examined the changes in cropping pattern, crop combination, crop area and diversification of crop enterprises in Tamil Nadu. The result revealed the period for 1956-57 to 1989-90 observed negative association between area and productivity growth. This suggested the change in cropping pattern. One feature observed was that the expansion of irrigation resulted in the lowering of instability in output. This situation led to a shift in the cropping pattern in favour of non-cereal crops.

One of the pioneering study made by (Gulati and Sharma, 1990) explains on cropping pattern change, Intensity of various crops, direct-indirect employment as well as their environmental effects etc. Desirable cropping pattern related to a cropping pattern which is oriented towards above factors.

2.3 Cropping Pattern in Maharashtra

The impact after new economic policy on Maharashtra’s agriculture with reference to socio economic factors like cropping pattern has been documented in the various studies. (Bank of Maharashtra Report 2012) reveals that special state
level bankers committee for Maharashtra state focuses on flow on credit to agriculture especially crop loans during current kharif season in Maharashtra state convey that the major crops grown in Maharashtra state are jowar, Bajra, Paddy, Maize, Oilseeds (Groundnut, Safflower, Soybean), Pulses (Tur, Gram), Sugarcane, Cotton, Fruit crops (Mango, Grapes, Orange) and vegetables. The state has 18.9% of gross cropped area (GCA) under irrigation. As compare to 44.3% of all India GCA. Yet the state is large producer of food grains. Apart from traditional strengths in sugarcane, cotton and onion Maharashtra has emerged as one of the leading horticulture states in the country showing a path of diversification to other states.

National Sample Survey’s estimates based on July 2009 to June 2010 convey that cereals constitute more than 90 per cent of food grains consumption of the people in the state. There is a deficiency in the production of cereals whereas, surplus production of pulses. Soya bin-wheat cropping sequence application of fertilisers as per soil test values is the best option for higher productivity, with higher monetary returns and organic nutrient (Jadhav, Waghmode, and Mote. 2011).

Shao and Mahapatra, (2008) explore the determinants of the state domestic product for the period 1981-82 to 2002-2003. They found that there is strong inequality of agricultural income among the states are mostly in the western and southern regions. On the other hand poor performing states are from eastern and northern region. (Maharashtra Govt, Report, 2008-2009) elaborates that Yavatmal is a rain fed area. Most cultivable land was occupied by cotton and soybean. The command area utilised for gram and wheat respectively. Kharif
season had grown major crops in Yavatamal district. Area under cropping pattern specialised in intercropping system (cotton + Tur).

The rice-groundnut system was the most profitable cropping pattern in the command area of Natuwadi, Dist. Ratnagiri for maintaining the soil fertility (Nikam, Veerkar and Devrukhakar, 2006). The above analysis shows that modelling techniques were used by different authors for different locations within the study period 1991-2012 in their research. (Kalamkar, 2006) in his proposed work used Herfindahl Index and Entropy Index measures of crop diversification in the empirical analysis.

Kalamakar, (2000) emerges through his work that during overall period of study (1991-98) growth in area of main crops in Maharashtra revealed mixed trend except Jowar, Bajra and wheat. Whereas commercial crops output (sugarcane) recorded remarkable increase due to the more area under the crop. Productivity (yield) growths as well as shift in cropping pattern were major factors for the growth of crop output in Maharashtra state. There has been considerable growth in the use of crucial inputs such as irrigation, high yielding variety seeds and chemical fertilizers.

Vyas, (1996) concluded that most of the areas where irrigation introduced, the cropping pattern was more diversified, especially if there was proper regulation of water delivery. According to (Kulkarni, 2000) cropping pattern is nothing but the predominance of growing one or more crops in the area year after year forms a regular feature of cropping. As sugar factories began to establish in Maharashtra one after another, methods of growing sugarcane also developed simultaneously pushing up the average yield of sugarcane from 40 tons per acre
to about 60 tons. However, industry needs promised source of raw material which only could be provided by a sustainable cropping pattern under irrigated agriculture.

According to (Rathod and Naik, 2009) agricultural production is influenced by physical, socio-economic, technological and organisation factor. An endeavour is made her to study the crop combination region in Yavatmal district. The crop data has been computed with the help of Doi’s methods of crop combination. The study region covers 13,582 sq.km (4.4%) of the state and a population of the 2077144 (2.63%) of the state in1991 Census of Yavatmal district.

Sarkar, (2009) observed that modern agriculture spreads well beyond the traditional production of food for human and capital feeds. The pre industrial period saw massive changes in agricultural practice and in mechanisation. Agriculture practice includes the application of chemical fertiliser, insecticides, pesticides and fungicides, soil make up, nutritional needs of farm animals and analysis of agricultural products. HYVP seeds germinate faster. It is grown in an extended growing area. These crops have capabilities beyond those of naturally occurring plants.
2.4 Statistical Analysis of Growth and Instability in Indian Agriculture

(Parthasarthi, 1984) measured the growth rates and instability in agricultural production for different districts of Andhra Pradesh. He used Schulz’s techniques of 1953 for observing year to year variation as one of the approach to measure instability. He concluded that degree of instability in agricultural production was high in all the districts. It was higher for food grains than for all groups.

The district of North Coastal Andhra combines high instability with low growth. Nalgonda district in Telangana was rather unique in having experienced high growth rates of production with low instability. The post green revolution period showed a higher degree of instability. The district which achieved higher growth rates were also subject to greater instability.

(Pawar, 1983) observed that growth rate of agricultural production in India has been falling and causing considerable anxiety. This was due to static level of production of pulses, inadequate oilseed production and cyclical fluctuations in a sugarcane production. It was concluded that growth rate of agricultural production must be increased in order to avoid imports of food grains and other products. The importance of an integrated price policy for removing imbalances in cropping pattern was also emphasized.

(Ray, 1983) examined the pattern of growth and instability in agricultural production in India for the period 1950-80. We came to know instability in production turned out to be relatively low during the fifties and it showed the tendency to increase in the following decades. The major source of instability
turned out to be yields fluctuations. The correlated changes in area, yield and cropping pattern showed increasing tendencies to rain force the variability in output growth rates.

(Gill, 1983) underlined the importance of governmental policy in the overall cropping pattern. He blamed the government for its policy of stagnation between 1972 and 1974. He emphasized on cooperative reforms, irrigation expansion and investment policies and held Punjab peasant responsible for this success that is always willing to take the risk of trying new technologies and new ways.

(K. Visweswara Reddy, 2010) concluded that cotton area is respond by irrigation facilities but not prices by providing better marketing conditions minimum support process by the government, providing new technology at cheaper process to the growers, the production may be raised in Kurnool district. (Mahendran R. 2006) made a mark on studied area that the change in cropping pattern was significant. The farmers are unaware of ground water exploitation and falling water table area under high water consuming crops should give way for low water consuming crops should give way for low water consuming crops without affecting the livelihood of the farmers.

According to (Vasanta K. 2013) there is an urgent necessity for the economy to speed up efforts to evolve climate-crop varieties, cropping patterns and management policies. As the temperature increases the rice production falls. Complete crop failure is possible if severe drought takes place during the odd seasons. (R. Vijay, 2009) concluded that the agrarian sector in Orissa is not influenced by science based agriculture and so does not have a break in the yield
series and increased market interaction also has not played an important role in initiating growth in the economy. Andhra Pradesh economy has witnessed a transformation with increasing role played by science based agriculture and increasing market interaction while in case of Orissa, agrarian economy continues to be land constrained system.

Karunakara, (2003) suggested that keeping in view the substantially and ecological problems created by rubber there is need to introduce legislative measures to divert area from rubber to rice. The study made by (Hement kumar, 2013) brings out a clear relationship between land degradation and agricultural productivity. The strength of the impact of land degradation on agricultural productivity increases with severity of land degradation.

The findings of (Marothia, 2007) clearly indicated that there is no evidence of crop diversifications in the agro-climatic zones as well as in the state even after a massive emphasis placed on agriculture diversification, particularly after the formation of the state. Study made by (Vivekanada, 1994) concluded that changes in the cropping pattern towards relatively high valued crops have given force to increase in the aggregate value of agricultural output through.

2.5 Conclusions

In the present chapter, relevant literature on the cropping pattern in India, and Maharashtra are referred for finding gap in the study conducted earlier. We focus on study period of earlier study, research techniques used by them and conclusions drawn by them. We also observed the policy implications of earlier studies with their limitations. Thesis in-depth exercise created the foundation of
the present study. We find that studies relating to cropping pattern concluded that cropping pattern were instable and after economic reforms it went in favour of cash crops from the food crops. Reason being is better support prices and need of cash for meeting day to day livings expenses.

Maharashtra specific study conducted by (Kalamakar, 2000) for the period (1991-98) concluded that the growth in area of major crops in Maharashtra reveals mixed trend except Jowar, Bajra and Wheat whereas commercial crop’s output (sugarcane) recorded remarkable increase due to the more area under the crop. Productivity growth and shift in cropping pattern were major factor for the growth of crop output in Maharashtra.
REFERENCES


