Chapter- 4

Review of Literature
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REVIEW OF LITERATURE

4.1 Introduction:

This chapter is devoted to the review of literature relevant to the topic of the study. Review of literature plays a very important role in the overall research process. It starts from the very beginning of the research process i.e. from the stage of selection of the research problem. The documentation and review of relevant literature continues till the research work is concluded in its final shape. A researcher is expected to consult the relevant literature using various sources in order to identify the gaps in the available stream of the subject area. The gaps existing in the contemporary literature are the major determinants of the scope of a proposed study. The proposed study is expected to bridge some of the theoretical as well as methodological gaps in the existing literature as far as possible. Review of Literature helps not only in deciding the appropriate tools and techniques for finding the objectives of the research problem, but it also lends a support in the interpretation of research findings. Moreover, the obtained results may also be compared with the already published results in the relevant literature. Some of the similar studies which have direct relevance to the problem under investigation have been traced out. Many studies regarding levels of living have been made in the past. Most of these related to the study of one village or one town or one district of different State in India but the studies did not analyse various indicators of levels of living.

4.2 International Studies:

No. 1
**Marrtan D.C. Immeak and Jorge A. Alarcon (1992)** have been mentioned about "Household income, Food Availability, and commercial crop production by small folder farmers in the western highlands of guatemala". The study covers a population of small holder farm households in the Western highlands of guatemala and only a fourth land is under cultivation small holder farming systems, low agricultural productivity and poor access to major markets characterize this region. The population is predominantly indigenous. Major staple crops are maize and beans, and a major cash crop is wheat. The study brings together data from different sources. A farm production and household expenditure survey was conducted by the Ministry of Agriculture, Livestock and food among 1490 smallholder farmers in February-March 1987. Finding of this survey are to be diversified Farm households were indeed more market dependent; but the maize farmers also commercialized a significant share of their maize production. The net income-effect of crop substitutions depends on the relative net returns of the different crops and on the degree of crop sub situation.

As the result indicate, access to credit continues to a play a major role in the diversification and commercialization process, allowing small holder farmers to assume the greater risks associated with commercial crop-production. The largest relative income differences were among the smallest wheat and vegetable farms; a finding that is consistent with the conclusions from the Guatemala export vegetable crop study. The findings indicated that indeed greater vulnerability to lower availability of household — produced - food was present in the following cases: maize assumption among potato ad vegetable growers compared with maize farmers and potato consumption among wheat and vegetable. Main weaknesses of this study are:- the study analyzed the level of living of farmers of Gautmala is foreign study and also basically different to level of living of Indian farmers because the structure of agricultural production is different from our country, mainly relative to Haryana. So the study is not useful for Indian agriculture.

**No.2**

**Joel Grear and Erik Thorbooke (1986-87)** analyzed the seventy of food poverty among rural Kenyan small farmers (who constitute about 70% of the population), using a new methodology. The food poverty measure used is decomposable with population —share weights so that the contribution to total food poverty of groups with similar socio-economic characteristics can be
estimated and poverty profile desired. Results indicate that the household income per adult equivalent is the primary determinant of calorie consumption. It is probable that many of the factor that were found to be associate with lower poverty incidence in our profiler — for example landholding size per adult equivalent, market orientation, raising cash crops, the use of agriculture equipment and education, appear to be effective through their impact of incomes. The source of income appear to effect food consumption differentially, a somewhat larger proportion of income from own form production that of own-farm income is observed to be allocated to food consumption. One possible hypothesis regarding the generating mechanism of the above finding is that when may place greater importance on the satisfaction of the food needs than males do, and, in addition, they have the resources required if to do so. The study is related to an underdevelop country and fails to use the various components of the standard of living of the farmers.

No. 3

**Pk. Md. Motiur Rahman (1981)** made an attempt to examine the employment, wages and level of living of agricultural labourers in Bangladesh. Bangladesh, with a population of 90 million and an area of 143,998 square kilometers in 1981, is the eighth most populous country in the world. It has the fourth largest agricultural population, ranking next to China, India, and Soviet Union. Agriculture is the main source of living of the great majority of her population. This sector absorbs more than 60 percent of the total labour force of which 35 per cent are cultivators of different types and the rest are agricultural labourers. Low resource endowment (only 0.20 acres of cultivable land per person in 1981) coupled with the rapid rise of population and high concentration of land (Gini Index of concentration of land ownership distribution is 0.55 in 1981) in a few hands have resulted in an unprecedented increase of landless laborers in rural society. It has been observed that most of the landless workers engage themselves as agricultural laborers due to almost non-existence of diversification of the rural economic structure. It is generally believed that the agricultural sector has already been overextended since long ago and can hardly accommodate any more people. Therefore, in the present situation, if more labors are to be provided in this sector,

it will be quite reasonable to assume that they will be absorbed either as unemployed or underemployed. Over the years, the living condition of Agricultural labourers can be easily
characterised as experiencing continuous deterioration. An index known as ‘Exchange Entitlement of labour power- has been computed in this section to measure the living condition of the said group. This index tells us how much a laborer exchanges his laborer for a commodity or a group of commodities and thus explains the dominating cause of deterioration in level of living. The exchange of wage rate of agricultural labourers in the relation to the price of coarse rice may be observed in the study. The evidence reveals that agricultural labourers were in better position in respect of terms of exchange rate if rich during 1960s The evidences of 1970s and clearly 1980s clearly point to the dwindling situation, no matter which index is used for comparison of welfare or living condition of agricultural labourers.

It shows the fluctuation of values of index between 1960s and 1970s respectively. The trend in level of living is quite consistent with the trend of proportion to the poor between 1960s and 1970s. The study envisages that a large portion of agricultural labourers remain unemployed and underemployed throughout the year. Seasonal variation in employment opportunity is also widely marked in agricultural sector. The analysis reveals that there has been a sharp rise in landless labourers in rural areas. Presumably there has been a sharp rise in landless labourers. The real wages\$purchasing power and index of rice-exchange rate of wage for this group have fallen to a great extent. Deterioration of these phenomena is very pronounced in early 1980s as compared to 1960s and 1970s. Consequently the level of living of the vast majority of agricultural labourers has declined severely in the recent years.

No. 4

**Duffy, Richardson and Wohlgenant (1987)** estimated supply –inducing regionalized prices were developed for cotton. These prices were formulated as non-linear functions of effective support prices and lagged market prices. Acreage response equations for four cotton-producing regions in the united states were estimated and used to develop estimates of supply elasticities. Own-price elasticities of supply at the mean ranged from 0.116 (Delta) to 0.672 (southwest) in the short-run and 0.149 (Delta) to 1.080 (southwest) in the long-run. An acreage weight short-run elasticity of 0.35 at the mean was calculated as well as a long-run elasticity of 0.52.

No. 5
Misbah and Javed (2008) studied using the Nerlovian model has estimated the responses of cotton, wheat and sugarcane crops’ area to changes in their prices and other relevant factors in Pakistan. Time period covered in the analysis relates from 1970-71 to 2006-07. The coefficients of the area response models for respective crops were estimated through the Ordinary Least Squares method. The short run price elasticity of cotton area has been estimated at 0.263 while the long run price elasticity works out to 1.09. The short run price elasticity of wheat area during the study period has been calculated at 0.045 while the long run price elasticity comes to 0.105.

The short run price elasticity of sugarcane has been calculated at 0.229 while long run elasticity comes to 0.653. The conclusion of all this discussion is that there are powerful monopolies or oligopolistic structures in cotton, wheat, and sugarcane markets which distort the incentives for the producers resulting in wasteful and inefficient use of national resources. There is need to remove these distortions and correct market imperfections so as to make best use of the available resources and increase farm production and improve our competitiveness in world markets.

No. 6

Niamutullah and Khair-uz-Zaman (2009) determined the influence of market-price on wheat and cotton production and acreage by employing Nerlovion adjustment in time series data from 1981-82 to 2006-07 for rainfed area and from 1991-92 to 2007-08 for irrigated areas in NWFP, Pakistan. In single equation Nerlovion adjustment model, the short-run and long-run elasticity in terms of wheat production of market price were 0.0139 and 0.0274 respectively. Wheat acreage of market price worked out were -0.0166 and -0.0784 respectively and in cotton production of market price as 0.0118 and 0.0470 respectively and in cotton acreage of market price as -0.0295 and -0.168.

No. 7

Molua (2010) estimated supply response coefficients for rice in Cameroon. It was observed that the rice area grown may be increased 1.35% for a ten percent increase in relative world price to producer price. A ten percent increase in relative price of substitute maize crop accounts for 1.17% declined in rice area exploited. Stepwise examination of the effects of price, weather and governmental expenditure reveal that in the short-run a ten percent increase in current governmental expenditure for agriculture was increased area grown by 1.35% and 1.15%,
respectively. Irrigation could enhance area by 0.74% for ten percent increase in irrigation effort. The area supply response coefficients provide important implications for both expansions of local market and land resource availability. Increased competition could provide additional incentive for enhancing supply pursuant to changes in policies and institutions.

4.3 Indian studies

No.8

Sastri and Sharma (1959) examined the contribution of area and yield to increase rice output and presented a detailed analysis of the increase in production of rice during the first plan period. It was observed that in general, increase in the average yield contributed more to its output than the increase in area. Thus, according to them the yield was the main factor responsible for increasing the value of the crop output of rice.

No. 9

Sastri (1960) studied the contribution of yield and area in increased production of wheat. In analysis, he worked-out the percentage changes in area by $A/A_0 \times 100$ and changes in yield by $Y/Y_0 \times 100$ and drew the conclusion on these relative changes in area and yield in increase of production over time. The method provided only the relative changes of area and average yield in year 'n' over the base year and did not suggest that the contribution of area and yield resulted into increase in production. In his method, 100 percent change in production was not found only by the changes in area and yield. The author had shown that the increase in the production of wheat during the same period (First Plan) occurred more by way of extension of area than through higher average yield.

No. 10

Krishna (1963) revealed that price was more significant factor than the yield in desi cotton, irrigation capacity was the more important than price in case of American cotton, Bajra and wheat (irrigated), yield was more significant than price in rice; and rainfall was the most crucial
in unirrigated wheat, barley and gram. It was concluded that no general presumption in favour of irresponsiveness of crop to price in underdeveloped economics be held and the responsiveness varies as between different crops and regions.

**No. 11**

*Devi (1964)* studied the impact of changes in prices on the acreage allocation for rice, Cholam, ragi, cotton and groundnut in Madras taking two five-year periods of 1937-41 and 1959-63. She followed a method in which rank of change in price and acreage for different crops during two periods were examined and found that the acreage response of rice was much more than that of others.

**No. 12**

*Jakhade and Mujumdar (1964)* stated that the existence of close correspondence between the relative prices and acreage goes to suggest a possible policy implication. The third plan has explicitly stated that the price policy must ensure that the movement of relative prices accord with priorities and targets that have been set in the plan perhaps the ratio could be used, with in certain limits, as an instruments for regulating the shifts in acreage goes from one crop to another in the desired direction. In this connection, it may be relevant to refer to Clark’s article in which he has demonstrated that it is possible to assess with reasonable precision the magnitude of the shifts in acreage in response to a given change in prices.

Using a more sophisticated technique, he has estimated, on the basis of the empirical data for West-Bengal, that a 50 per cent rise in the prices of Jute, with rice price remaining the same, caused a reduction, on an average of 6, 67,000 acres. The point is that apart from operational problems, it seems possible to regulate the acreage under those crops by a suitable manipulation of the parity ratio.

**No. 13**

*Gupta and Majid (1965)* examined the effectiveness of relative prices in bringing about changes in acreage sown under sugarcane and paddy in Deoria district of Uttar Pradesh for the period 1949-61. They observed that a continuous expansion in acreage under sugarcane in relation to paddy might not altogether be a function of relative price of sugarcane and paddy. However, the net per
acre monetary return from Sugarcane was four times higher to that for paddy provided the explanation for increase in sugarcane acreage relative to that of paddy.

No. 14

*John (1965)* examined the response of area-output of sugarcane and rice to changes in the relative prices in Utter Pradesh during the period 1954-55 to 1962-63. Straight lines were fitted to price and output data of Sugarcane and rice. The results revealed that in case of both rice and sugarcane area and output were responsive to changes in prices. He further observed that being food crop continue to be grown irrespective of economic consideration.

No. 15

*Narain (1965)* studied the impact of price movement on area under cotton, jute, groundnut, sugarcane, rice and Wheat over the period 1900-36. The investigation showed that prices to be a decisive consideration in respect to areas farmers allocate to different crops, especially the cash crops.

No. 16

*Rao and Krishna (1965)* tested the efficiency of twelve different price expectation models and estimated that acreage response for Wheat using prices generated from the models. The estimated acreage response for wheat with the following equation:

\[ X = a + b_1p_{iw} + b_2p_{iA} \]

\( X \) is the acreage under wheat, \( p_{iw} \) is price index of Wheat (base 1952-53=100) \( p_{iA} \) is weighed price index of competing crops (Barley, Gram, sugarcane, Rapesed & Mustard). The best fit was the equation where acreage of prices in all preceding years was taken as the price. Seventy per cent of the variations in acreage were accounted by the change in prices. This indicated high degree response to price change.

No. 17

*Kaul (1967)* used Nerlovian estimated equation for examining the supply response to price for Wheat, gram, Bajra, rice, barley, Cotton and sugarcane crops. The results showed that price
elasticities in case of commercial crops like sugarcane and cotton were relatively in comparison with food grain crops. District wise analysis found that the influence of weather was more prominent in rainfed areas in relation to irrigated areas. But the inclusion of time variable to represent technology was probably not justified when lagged acreage and yield per acre were included in the model. Further, it would have been more logical to incorporate relative profitability as one of the explanatory variable.

**No. 18**

*Krishna (1968)* analysed the supply response to price for major agricultural commodities for the period 1914-45 in undivided Punjab using Nerlove’s adjustment model. He found that supply elasticity estimates for the Punjab region were positive and that they compared favourably with Nerlove’s estimates for the U.S. especially in the case of cotton and maize.

**No. 19**

*Pallai (1969)* estimated the impact on acreage, production and productivity of paddy in Kerala for the period 1952-65 by using simple regression technique. The result suggested that acreage under paddy was more dependent on lagged price than the current price. Production and productivity were found to be slightly elastic with respect to price.

**No. 20**

*Maji, Jha and Venkataraman (1971)* incorporated price and yield variance in supply response function. They obtained the ratio of the actual standard deviation of the price of the crop concerned to the standard deviation of the yield over the three preceding production periods. It may be considered to serve as the proxies for the variance in the subjective profitability distribution. The model was mainly a Nerlovian adjustment lag model. The incorporation of price risk measures directly into the model though not very fruitful avenue for future exploration. The three years standard deviation in the price may be substituted by more appropriate measures depending upon the nature of distribution of price variable. In this study, the risk elements were considered in the nerlovian framework and not in modified version as developed by Behrman.

**No. 21**
Kaul and Sidhu (1971) fitted "Acreage response to prices for major crops in Punjab" and found that the coefficient of variation as a variable in place of standard deviation had consistently given higher coefficient of determination. The improvements in results brought about by inclusion of CV as a variable was also reflected in the coefficient of adjustment in short and long run elasticities. It had also been demonstrated that maize, groundnut and desi cotton were a relatively high-risk crops whereas paddy and wheat were relatively low risk crops mentioned in the descending order of the risk.

No. 22

Madhavan (1972) conducted a detailed multi-crop study for Tamil Nadu considering the supply of four food crops and four cash crops for the period 1947-65 using nerlovian model. The price coefficient estimates turned out statistically significant in the supply of all crops, except rice in which case yield proved significant.

No. 23

Ram (1973) estimated aggregate supply response of cereals in different states of India. Thus his study carries limitation of inter-regional disparity. According to his study supply response in all cereal crops was very low not exceeding 0.4. The rice response was lowest. Irrigation was found to be an important determination of acreage under Wheat and Rice.

No. 24

Rathod (1973) study was aimed at empirically testing the hypothesis that if farmers respond to relative gur price then they should also respond to individual prices of gur and wheat (competitive crop). Then separately with different magnitudes, the association of gur price to cane acreage was more sizeable than that of wheat prices. To test this hypothesis, relationship incorporating both price and non-price variables studied in the log form. Main non-price variables entering farmers' decision to plant cane were, relative yield and cane acreage infested with pests and diseases. Role of relative yield was predominant. The results provided validity to the hypothesis that farmer also responded to both prices of gur and wheat. The response, however, was of different degree of magnitudes.
No. 25

Singh, Singh and Rao (1974) used logarithmic functions in estimating agricultural acreage response relationship. Logarithmic functions were preferred to linear forms because these provided readily estimates of elasticities and also they yielded better results than the linear forms. They also examined some methodological issues. According to them, the preference to Nerlovian adjustment lag model can be examined more in terms of its superiority with regard to the distinction it makes between short and long-run elasticities, to the elimination and/or reduction of the incidence of the serial correlation, and to its being able to present a more realistic supply situation by incorporating adjustment lag in the estimating model. Also according to them, research investigation should depend not only on simple or zero-order correlation. They should run regression analysis with alternate price specification(s) with regard to commodity’s own price(s) and as well as that of the competing or substitute commodity or commodities. According to them aggregate or macro-supply function must make adequate allowance for the inter-regional characteristics and their impact on the magnitude of supply and variations therein.

No. 26

Tyagi (1974) conducted a study with a view to exploring the possibility of building up models of farmers expectancy behaviour by carefully analyzing the nature and basis of farmer’s future price expectations and for using these models for generating expected prices which could be used explicitly for finding functional relationship between price of a crop and the acreage allocated to that crop. The study was based upon the response of the selected farmers from three villages in meerut district of western uttar Pradesh state. The expected prices generated with the help of expectational model for different expectancy groups when used in estimating the supply response showed positive response of farmers.

No. 27

Cummings (1975) studied supply response of paddy, Wheat, Barley, Jute, Groudnut, Seasum and tobacoo for producing states and districts in India for the period 1949-69 using Nerlovian
model. The author concluded that, in general, the price response was significant, though not always necessarily positive. Also, for several areas and for several crops, yield, rainfall and trend variables were even more significant determinants for the shifts in area.

No. 28

_Mishra and Marothia (1975)_ worked out 'Farm price structure in Madhya Pradesh' and revealed that agricultural prices were relatively higher than general price level in the state and harvest prices of all the crops shown an upward trend. Further, the cross elasticities were positive; though it was low among the crops indicated that the relative change in the price of a commodity had a positive change in the production of another crop. Not a single case was observed where the relative movement of price of a crop had adverse effect on the production of another crop.

No. 29

_Rao and Pandey (1976)_ studied the price responsiveness of paddy in Andhra Pradesh using the Nerlovian lagged adjustment model. The results showed a positive and significant impact of relative price of rice and the fairly quick adjustment behaviour of the farmers in different regions of the state.

No. 30

_Sharma (1977)_ examined the change in the value of aggregate output of food crops and non-food crops in the country during the period of 1960-61 and 1970-71. He decomposed the relative contribution of area, yield and price in changing value of output. On the basis of analysis, he concluded that price effect was the most powerful factor in the change of value of production of all the crops except tea. The second powerful force was the yield effect in case of food crops including oilseeds whereas area effect was the second one in case of all the non-food crops.

No. 31

_Vidya Sagar (1977)_ conducted a study in Rajasthan for the period 1956-61 to 1969-74 and covered 17 major crops. He concluded that the overall growth in aggregate farm production during the study period approximated 40 per cent, which implies an annual compound rate of growth of 2.4 per cent. Yield increases alone accounted for 63.64 per cent or nearly two-thirds of
the total output growth. The contribution of area, changes in the relative price structure and interaction between changes in thecropping pattern and yield were turned out to be 38.45, 7.82 and 3.5 per cent, respectively.

No. 32

Chowdhry and Ram (1978) used broadly three methods in their study (1) area as a function of the lagged acreage, relative price and trend variable, (2) industrial yield as a function of non-bearing area, current relative price, rainfall and trend variable (3) employment as a function of current relative price, area under tea and trend variable. They also developed additional model for output from area model and yield model. The area model considered by them is similar to that of Bateman. The yield model considered is similar to that of developed by French and Matthew. They have also computed output elasticity by adding area elasticity and yield elasticity. In their study, area response with respect to price was insignificant whereas the yield response was positive and highly significant. Therefore, yield response reflects output response.

No. 33

Kainth (1978) studied the impact of price movements on area under selected crops in Punjab and revealed that relative price movements had not significantly influenced the area or the production ratio of the individual crop in Punjab. The same conclusion was reached in the study of NCAER that the degree of responsiveness of the area of individual crops to changes in their prices in India was low and in most cases insignificant. Thus, it was concluded that farmers were responsive to the price changes although their response was low.

No. 34

Sawant (1978) analyzed the supply response of the paddy crop at district level for two time periods (1) 1920-41 and (2) 1950-64. Analyses were done for 14 districts selected from predominantly rice growing states. After evaluating three analytical models, partial adjustment model was chosen for analyzing the data. Her study revealed almost inelastic nature of the aggregate supply to changes in prices.

No. 35
**Bapna (1980)** studied the aggregate supply response of total agricultural production in Ajmer of Rajasthan for the period 1956-76 using ordinary multiple regression model. The study concluded that aggregate supply elasticity was positive, though not as larger as seen for individual crops and it was comparable to the elasticity coefficients observed in the developed countries like U.S.A. The supply placed price policy as a measure of growth in agriculture in its proper perspective in the policy kit of the planners.

**No. 36**

**Gupta (1980)** reviewed agricultural price policy and examined its impact on the income of farmers in India by using the data for the year 1965-66 to 1974-75. He found that agricultural prices had risen at faster rate than non-agricultural prices. The agricultural production as a whole was only insignificantly related to the relative prices. Per unit yield and marketed surplus were positively and significantly influenced by the relative or absolute prices, thereby increasing farmer’s income in India.

**No. 37**

**Kahlon (1980)** tested the hypothesis that farmers respond quickly and positively to absolute or relative price changes. The results supported the conclusion that farmers in India were price conscious in adjusting the area under rice cultivation. However, the degree of responsiveness varied according to the regions and periods.

**No. 38**

**Bhalla and Chadda (1981)** probed Punjab and established that the gains of the green revolution were distributed more or less in proportion to land-holdings. The inequality in the distribution of gains was more in the more developed areas and vice versa. The authors have further elucidated that the marginal and small farmers have lost their traditional edge of higher overall yield rate, presumably because of the introduction of the new agricultural technology in which the marginal and small farmers were not yet on a par with the higher categories. As a result, the marginal and small farmers are unable to meet farmers were nation to invest more on land to produce any surplus. With the result that they were handicapped in building up the asset structure. The main point of this study was to see the impact of green revolution on marginal and small farmers. But
green revolution come in 1966 before 37 years of Agricultural system. But now structure and techniques have changed. So the study is not relevant in the prevent confect.

No. 39

Rao et al. (1981) studied that the growth rates for production and productivity were of the same order during the pre-HYV (High Yielding Varieties) and HYV periods in spite of the decline in the growth rates of area in India. Among the important rice growing states, the growth rates for productivity and production were significantly higher in Uttar Pradesh, Madhya Pradesh. Growth rates of area at the country level were 0.88 percent in the HYV period as against 1.62 percent in the pre-HYV period. All the states show less growth rates in area during HYV-period except West Bengal.

No. 40

Sinha (1981) conducted a study based on the time series data (1969-70 to 1979-80) for states, viz., Andhra Pradesh, Punjab, Gujrat and West Bengal in order to decompose the changes in regional income into production effect and price effect. He concluded that about $\frac{3}{4}$th of the disparity in the regional income was due to price effect and it further increased with the introduction of new agricultural technology.

No. 41

Pandey and Sarin (1984) examined the acreage response of farmers for rice crop in different regions of Uttar Pradesh and for the state as a whole. The Nerlovian adjustment model was used for estimating the supply response for the year 1955-56 to 1972-73. The results showed that dependent and independent variables had different effects for each region. They further concluded that eastern region had possibilities to increase acreage of rice through irrigation.

No. 42

Pal and mazumdar (1985) studied the impact of price on area fluctuation of tobacco in west Bengal with a view to examine the possibility of area stabilization by devising a suitable price protection measure. They used Nerlovian adjustment lag model to analyses the supply response relationship. The estimating model has introduced harvest price of tabacoo relative to those of
wheat, potato and mustard as an independent variable. The model has also incorporated the price risk arising out of inter-year price variation. To examine the possibility of area substitution between tobacco and its competing crops, rank correlation coefficients were worked out. The results showed that the tobacco area fluctuation in west Bengal was not brought about due to area re-adjustment among tobacco and its competing crops. Moreover, relative price as well as relative profitability has been responsible for the existing area and protection measures would, therefore, likely to be ineffective with a view to stabilize tobacco area movement in future.

No. 43

George & Mukherjee (1986) analyzed that the annual growth rate of rice between 1960-61 to 1983-84 was only 0.15 percent in Kerala. While it was positive (1.14 percent) during 1960-61 to 1974-75 and turned out to be negative (-1.50 percent) during 1975-76 to 1983-84. The average annual growth rate of yield for the combined period was 1.01% and it was higher than that for the first period. While the growth rates of production were positive during first period and negative during second period. It was due to the dominant role played by the negative growth rates of area over the positive growth rates of yield.

No. 44

Singh et al. (1986) in their study 'Price policy for wheat and paddy vis-à-vis equity in Punjab' estimated net returns over cost A2 and cost C at current and base year prices and Gini-Ratio to measure the change in income over years due to change in prices from the cultivation of wheat and paddy. They concluded that price policy for wheat and paddy had contributed towards widening the farm income inequalities among the farmers during the study period. The decline in the real income of farmers, infact, would affect the real income of the agricultural labourers which might ultimately led towards greater inequality.

No. 45

Sharma and Singh (1987) indicated in Punjab agriculture that the rate of increase in product prices was the highest in gram followed by cotton (desi) and lowest in potato followed by bajra. On the other hand, in case of wheat and rice where the production performance was excellent, the prices had increased at a relatively lower rate. It was thus evident that the positive interaction
of the price policy with the technological developments had helped in increased production consequently, the terms of trade as reflected by parity index had been mostly unfavourable to the farmers. This required adjustment in output prices alongwith increase in productivity levels of various crops.

No. 46

Singh and Das (1988) reported that product price was the major instrument for enhancing the output supply and net income to the farmers. It was also observed that unless capital constraints were relaxed, incentive price policy alone would not be production oriented. The estimated equations for the cost of cultivation, cost of production and net crop income could easily be used by the planners to formulate long term factor-product price policies alongwith credit needs in agricultural sector to attain the desired growth and stability in production and income.

No. 47

Pal et al. (1989) observed that yield instability was the main source of production instability in all the crops except Sugarcane in India. Two time periods, 1950-51 to 1964-65 and 1967-68 to 1983-84 corresponding to pre and post technology periods respectively were considered for the analysis. The contribution of yield instability to production did not increase during the post technology period. However, area and yield became more covariate overtime in all the crops. This could be because of changes in acreage allocation between the crops made by the farmers as temporal changes in yields and prices, increased co-variability between area and yield can hardly be contributed to the improved technology. From early findings it could be concluded that improved technology was stable in nature.

No. 48

Sale et al. (1989) examined the determinants of acreage under Kharif jowar in Maharashtra state for the period 1959-60 to 1982-83. They have estimated six supply response model based on the generally accepted notion that current decisions are influenced by experience related to the past
decision or past behaviour. In their model, they included acreage of competing crops, which showed positive influence on Kharif jowar acreage, as independent variable.

No. 49

Suhag and Nandal (1990) observed that the terms of trade between the input and output prices of wheat and rice had moved against the farmers/producers. It was due to the fact that the procurement/farm harvest prices had not kept pace with the increase in the prices of inputs used for the production of these crops. The input prices had increased at a faster rate than the increase in the farm harvest prices.

No. 50

Ahmed and Bhowmick (1991) reported that farmers in Assam were not responsive for the crops considered in their study (i.e., rice, jute, rapeseed & mustard, potato and wheat). Acreage under these principal crops in Assam was mainly influenced by yield of the crops, lagged acreage and area under irrigation.

No. 51

Khunt and Amtani (1991) made an attempt to trace out whether any price and non-price factor are related to acreage and production fluctuations of cotton in Gujarat and concluded that price and non-price factors Viz: yield and irrigation were found to have strategic role in acreage allocation decision while rainfall has not exerted any significant influence.

No. 52

Janaiah et al. (1992) made econometric analysis of supply response of major commercial crops in Andhra Pradesh during the period 1956-57 to 1985-86. The Nerlovian lagged adjustment model (in double log form) was used to assess the area response of Cotton, Sugarcane and tobacco separately. Among these crops, cotton exhibited encouraging response followed by tobacco and sugarcane. Further, they concluded that the area allocating decisions of the farmers
for commercial crops predominantly influenced by changes in farm harvest prices of selected crops and their competing crops, price risk (for cotton) and one year lagged area under these crops.

No. 53

*Suhan and Nandal* (1992) indicated the dynamics of net income from wheat and rice in India and showed that net incomes had been continuously falling since 1970-71 despite their efforts to counter this retrogression by means of adopting land augmenting and productivity raising technology. The wheat-cultivating households experienced an annual shrinkage in their net incomes ranging from Rs. 10 to 81, while rice-cultivating households suffered in the range of Rs. 4 to 129. The erosion of cultivator's net incomes during the seventies and eighties was primarily accounted by the adverse price movements. The compound annual rate of decline of price margin over cost ranged from 10 to 31 per cent for wheat cultivators and from zero to 46 per cent for rice cultivators.

No. 54

*Browmick & Ahamed* (1993) fitted “Behaviour of Trend and Growth of Area, Production, Productivity & Supply response of major oilseed crops in Assam” and found that the production of oilseed crops had increased and this was due to increase in acreage only. There was a positive relationship between production and area of oilseed crops. Productivity was noted to be more or less stagnant, which could be attributed to poor adoption of improved technology. Acreage under oilseed crops in Assam was influenced by lagged area, lagged yield & lagged farm harvest prices.

No. 55

*R.S. Rao and P.K. Tripathy* (1993) Presented the paper to identification of marginal and small farmers and also their numbers and characteristics in the state of . The general procedure adopted in identifying the small and Marginal Farmers, as for example, in the report of
agricultural census of Orissa, 1970-71, contains an element of arbitrariness. For the state as a whole, the member of marginal and small farmers works out to be 50.39% and 42.9% respectively commanding an area of 17.66% and 51.34%. Looping into the inter-district variation one notices that Ganjam district in spite of having a lowest limit does not record lowest proportion of cultivators in the category of marginal and small farmers. In nine, out of thirteen districts, it also observed that in better irrigated districts, over 50% of the holdings are below one hectare size. An interesting conclusion brought by the paper out was that the relative shares of MARGINAL FARMERS and S.F. show a systematic tendency to vary with development.

The process of development creates more Marginal Farmers out of small farmers, a process of differentiation is set in to notion with the process of development. It suggests that the process of development creates conditions of generation of MARGINAL FARMERS out of S. Farmers. It is interesting to note on the basis of relatives shares, the resource base of small farmers is better than that of the Marginal Farmers which in turn is better than that of "large and medium" farmers. The basic argument of this hypothesis is that the richer sections of the peasants combine the money landing-trading-share cropping operations to dispossess the smaller peasantry off their land as most of the small peasants run short of income, due to the smallness of operation and the uncertainty of weather. The developed region has more Marginal Farmers and less of small farmers while the less developed region have less marginal and smaller farmers. As such even if the larger and medium peasants in the developed pockets have a superior efficiency over marginal and small farmers, they get subsumed by the other larger peasants in the backward region. This analysis is based on the report of agricultural census of Orissa, 1970-71. The main limitation of this study is that, the study is based on secondary data and ignores the primary data. Hence, the study fails to explain the real condition of farmers.

No. 56

V.G. Patel made an attempt to examine the present position of marginal and small farmers in Gujrat. From Gujrat Panchmahals district was chosen for this investigation. The total sample consisted of 50 farmers chosen at random from 5 villages. In Gujrat state during the fifteen years period of 1970-71 to 1985-86 the total number of holdings has increased from 24325 to 31453 thousand. It indicates that the additional area under marginal and small holdings has come from relatively larger holdings. V.G. Patel an elected that the process of sub-division and
fragmentation of landholdings in Gujrat has continued and it would be reasonable to believe that small and Marginal Farmers category is sure to expand in size in future. The inherent right to property and attitude of the rural people towards ownership of land are the main factors for such a state of affairs. Another important factor is the lack of employment opportunities in the rural non-farm sector.

The most important limitation relates to the paucity of production resources possessed by this category of farmers. The poor resources base prevents them from availing of the benefits of the modern farm technologies. Consequently, their economics condition remains weak. The low level of literacy and education also acts as a hindrance in improving their economic condition. This study addresses only credit problem of farmers and ignores other problems. So it does not take into account all the problems of framers. This study is fails to explain or analysis the components of level of living of farmers. So, study ignores the basic problems of level of living. The scope and subject matter of the study is very limited and no generalization of the topic.

No. 57

Satish Chandra Jha, measure and appraise the levels of living in rural households in Bihar. He explained three methods by which level and pattern of diet could be estimated. First, one could make estimation through consumers’ food balance sheet. Second, one could have the consumer survey. Third, one could try time series data. Findings are based on ‘farmers’ expenditure survey run by the Government of Bihar. The primary objective behind this survey was to estimate the cost of living indices and the parity price for farm people in Bihar. The average estimated figures on household expenditure for the state as a whole suggest that approximately 73.22% of the total household expenditure is allocated on food items. Relatively high level of food consumption in North Bihar and South Bihar region in comparison to Chotanagpur region could be roughly attributed to differences in the level of farm income between the peg ions.

The estimate range in total house hold expenditure rises from a low of Rs. 933.51 in smaller family size to a high of Rs.2861.91 in larger family size. One of the major explanation could be that per household income tends to be relatively low in small family size groups than in large size groups of family. This creates an opportunity to have a better level of living. The relative advantage to the large family group is that there are large numbers of earning members.
whose aggregate income maker a pool and thereby holds create conditions to enjoy relatively better level of living. Small family groups are at disadvantageous position in this respect. Feather, high asset worth of the big joint family becomes incentive force for the member to bid for a relatively high level of living. This study over emphases only one factor diet to see the living standard of the farmers of Bihar and ignores others. Moreover it is based on the secondary data, which does not reflect the real position due to time lag.

No. 58

B.K. Ghose and K.V. Patel (1991) made an attempt to examine the credit assistance extended to the marginal and small farmers in comparison with medium and large farmers. The amount of credit is analyzed with reference to its flow as well as stock dimensions, the reference period for analysis is July 1986-June 1987 for the flow of credit, and June 1987 for the stock of credit. The marginal and small farmers constituted 76.3% of the holdings and accounted for 28.6% of the area aerated from all India, but data on Meghalaya, Goa and union Territories were not available.

In concluding remarks by credit Scenario discussed in this paper that farmers served by the credit institutions it is a huge number. Marginal and small farmers do not seem to be suffering from any specific discrimination against them in term of allocation of credit. In terms of relative coverage of farmers by the credit institution, the situation is not very encouraging particularly, in respect of the marginal and small farmers. In concrete lines, the problem of farm credit is mainly reflected in relatively pure coverage of all the farmers put together. In some states, which are otherwise poor, the coverage by all the institutional needs to be enhanced through care—full planning. This study addresses only credit problem of farmers and ignores other problems. So it does not take into account all the problems of farmers. Other limitation of the study is that it is not related with level of living of farmers. The main problem of the farmers in India or in Haryana relate to low income and high expenditure and indebtedness. The study ignores the main components of living of life. So, study is not useful and no scope.

No. 59

Venkiteswaran (1984) observed changing cropping pattern and food economy of Kerala and said that paddy and coconut were two principal crops grown by the farmers in Kerala. High remunerative cash crops like coconut and rubber were being raised in the area while paddy
fields. Such shifts in the cropping pattern had already taken place in almost all the districts of the state. The paddy growers of the state were faced with the problem of rising operational costs, especially high wage rate. The cost of production of paddy in Kerala was much higher than in other state. So the cropping pattern took place in favour of coconut and rubber

No. 60

_Rajgopal (1989)_ found that the price spread regarding crops played a decisive role in selecting crops for production in Andhra Pradesh. He conducted a study for the state Andhra Pradesh to see the change in cropping pattern of the state. The area under tobacco crop was being substituted by the cotton crop. This was occurred due to the poor price for the tobacco crop. Price of the commodity was one of the important factors which determine its economic viability and feasibility for further production or substitution.

No. 61

_Vivekanand & Satyapriya (1994)_ fitted “Karnataka’s changing cropping pattern” and observed that there was a shift in the cropping pattern from a strong cereal base towards commercial crops, like oilseeds, pulses and sugarcane. The share of area under all cereal crops declined from 55 per cent to 47 per cent between 1956-57 and 1989-90. The relative share of non-cereal crops in the total area exception of cotton increased. The change had been quite considered in the case of oilseeds (12.23 per cent to 19.77 per cent) and sugarcane (0.52 per cent to 2.16 per cent). Maize crop was a new entrant in the cropping pattern of the state.

No. 62

_Ali & Singh (1995)_ observed the growth and fluctuations in area, production and productivity of wheat in Chhattisgarh region of Madhya Pradesh for three time periods, first period i.e. from 1970-71 to 1979-80, second period from 1980-81 to 1989-90 and total period of 1970-71 to 1989-90 was termed as period third. The variations in wheat area were computed to be more in first period as compared to second and third period and it was 8.74 per cent. Districts like Raipur, Durg, and Bilaspur showed greater variability in wheat area. Madhya Pradesh had higher variability regarding yield during period third. In respect to production in both periods first and
second was less than 20 per cent, in which the period third it was greater than 20 per cent. Thus production showed highest variability than area and production.

No. 63

Pratap S. Birthal and M.K. Singh (1995) analysis, based on household data, examines the "Structure of Rural Income Inequality" in Western Uttar Pradesh. Ever since the introduction of new farm technology. Issues concerning growth an income distribution have been at the centre stage of rural development policies in most or the developing countries. Given the unequal distribution of land, it has been increasingly realized the growth in agriculture alone may not bring about substantial reductions in the levels of rural poverty but it may have adverse effect on distributional equity. Thus growth promoting policies have been supplemented with equity oriented measures so as to counterbalance the economic inequalities due to uneven distribution of land. Observations in this paper are based on primary data collected from 150 rural households selected from three villages of Moradabad district in Western Uttar Pradesh. The district has experienced tremendous growth in its agriculture during the last twenty-five years. It is well-served by irrigation, credit, agricultural extension, transportation and marketing infrastructure.

About 58 percent of the total workers in the district are engaged in cultivation and 11 percent are agricultural workers. The distribution of land is highly in egalitarian as 80 percent of the holdings are of less than two hectares in size and accounts for 41 percent of the total area. Whether animal husbandry is a primary or secondary source of income, it is one of the important occupational activities in the rural areas. There are about 230 animals per 100 hectares of land with buffalo and cattle as the dominant species. The information on various aspects of income sources was obtained from the selected households for the agricultural year 1991-92. the sample consisted of 51 landless, 75 marginal (less than 2.5 acres), 10 small (2.5-5.0 acres). 11 medium (5-10 acres) and 6 large (more than 10 acres) farm house hold. However, three households (one each from landless, medium and large category) have been dropped in the analysis due the incomplete information.

No. 64
Sawant and Achuthan (1995) analysed that there must be an upsurge, a significant one, in the growth of aggregate production and productivity in Indian agriculture and it could not be attributed merely to a favourable weather. The fact that the role played by yield improvement in inducing higher output growth had been more important than that of expansion in area. In further, base of agricultural growth and making it more sustainable, the requirement of policies and programmes were realised.

No. 65

Tripathy (1996) worked “Growth and Trends in Area, Yield and Production of Rice in Orissa” for two time periods 1970-71 to 1979-80 and 1980-81 to 1989-90. During the first period rice production in the state had declined at an annual rate of 1.43 percent to which area and yield contributed -0.91 and -0.53 percent respectively. Results showed that the output of rice during the second period grew at an annual rate of 1.43 percent and this was contributed solely by per-hectare yield. This was due to increase in irrigation facilities and larger coverage under high yielding varieties and the area under rice experienced declaration due to diversion of area to oilseeds and pulses.

No. 66

Ramulu (1996) estimated the supply response of sugarcane in Andhra Pradesh by using the data from 1973-74 to 1989-90 in Andhra Pradesh. Ho found that the influence of relative price was significant in affecting acreage in all the sample districts as well as for the state of Andhra Pradesh as a whole except in West Godavari (At 10 per cent level of significance.).

No. 67

Acharya (1997) observed that with the improved availability of staple cereals at declining real prices, the farmers in several regions of India diverted the resources from low yielding coarse cereals to other crops, which helped in increasing the availability of other commodities. The area under coarse cereals declined by 72.1 lakh hectares during 1984-85 to 1994-95. While the area under oilseeds, vegetables, fruits, sugarcane showed positive growth rates. The expansion in area
under these crops occurred owing to both increase in the gross cropped area and shift away from low yielding cereals.

No. 68

Borthakur et al. (1997) observed “Growth and instability in the production of Rapeseed & Mustard in Assam” and indicated that compound growth rate of production of the crop was 5.73 per cent during 1978-79 to 1990-91. Expansion of area under rapeseed & mustard took place rapidly with 6.62 per cent. The growth rate of yield was positive (0.78 per cent), but insignificant indicated stagnation in yield of rapeseed & mustard in Assam as a whole. Moreover, growth in production was accompanied by increased production instability. Hence, suitable price support policy, crop insurance scheme might be helpful to safeguard the farmers against production instability.

No. 69

Borthakur & Krishnamoorthy (1997) emphasized that increased production instability could be attributed directly to area instability, as the co-efficient of variation increased from 4.84 per cent to 36.23 per cent during 1951-67 to 1967-91 in Assam with respect to Rapeseed & Mustard. The increase in co-efficient of variation in yield during this period was very minimal. In second decade, production exhibited highest co-efficient of variation of 31.86 per cent, followed by area (21.79 per cent) and yield (5.46 per cent). However as a result of decreasing yield instability, area instability alone was responsible for higher production instability in the second decade. Lal (1997) estimated that area, production and productivity of sugarcane in India increased significantly during 1951-94 with moderate year to year fluctuations.

Despite registering significant increase in the productivity over the years, it was the increase in the area which had contributed to larger share in the ever increasing sugarcane production. On average compound growth rates of sugarcane area during study period was highest in Gujarat, followed by Karnataka, Tamil Nadu. On the other side this figure was highest in Uttar Pradesh and lowest in Punjab. The area under sugarcane increased because of large scale adoption of high yielding varieties and remunerative price paid to the sugarcane growers.

No. 70
Bhalla and Singh (1997) found that introduction of yield raising new seed-fertilizer technology in agriculture during the mid 1960s had led to a marked increase in the growth rate of agricultural output. During the first 20 years i.e. from the 1962-65 to 1980-83, the impact of the new technology in transferring traditional agriculture by and large confined to the northwestern and southern states. Further, the magnitude of the change during the period although significant, was not able to make a visible dent on structural rigidities with respect to: (a) the growth rate of output; (b) crop diversification; (c) labour force diversification.

No. 71

Parhi, Pati and Parida (1997) studied the effect of lagged price of groundnut on its acreage as well as in the price of fertilizers in the groundnut growing district of Orissa and found that 97 per cent variation in the acreage allocation in response to the lagged price of groundnut. Combined effect of lagged price of groundnut and current fertilizer price on area was observed highly significant. Thus, this indicated that the farmers of the selected districts were more responsive to acreage allocation to groundnut due to its lagged price in anticipation of more profit.

No. 72

Patel and Shiyani (1997) indicated that the compound growth rates of gross incomes and prices of all the food grain crops were highly significant in the periods. The rate of increase in FHP of pulses crops was relatively higher during the second period, while a reverse was the case with cereal crops. However, the rate of increase in gross income was higher only in tur during the second period over that of first period. Though the variability in gross income reduced to some extent for all the crops during period-2 (except tur), still it was of higher order.

No. 73

Naik et al. (2001) studied that changing in cropping pattern were due to the changing preferences for food products in India. He observed that per capita cereals consumption in rural India was declining gradually, the decline being mainly spread over wheat and jowar. The urban data also showed a decline in per capita consumption in cereals. Wheat and jowar showed negative growth rate during nineties. While oilseeds and maize showed positive growth rate. But the negative
growth rate of pulses was a cause of serious concern. There was a shift in the cropping pattern towards the non-staple food due to shift in the consumption pattern.

**No. 74**

*Jain & Naik (2002)* revealed that wholesale price index of the crops like potato, jute and pepper showed high variability during 1991-99 in India. In the case of soybean and cotton low price variability was likely due to government policies. Farmer’s decision regarding allocation of land under crops was influenced by their prices except sugarcane. Production instability was lower during 1991-99 as compared to 1980-90 was resulted due to acreage and production variability yield variability.

**No. 75**

*Shende (2002)* studied the impact of prices on acreage of major crops. The study reported that farm harvest price had positive and significant effect of rice, wheat etc. Further, he says that farm harvest prices emerged as the strongest factor to determine the rice, wheat, maize and sugarcane acreages.

**No. 76**

*Nampoothiry (2003)* found the change in cropping pattern in favour of rice and wheat in India. The gross cropped area under wheat had doubled, 18 per cent during the period of 1950-51 to 2000-01, and the share of rice moved up marginally from about 29 per cent to 31 per cent. This was mainly due to increase in the minimum support prices (MSPS) of rice and wheat and this leading to shift in area from oilseeds and pulses. The area under pulses declined from 18 per cent to 14 per cent of the gross cropped area.

**No. 77**

*Singh et al. (2003)* analyzed that Uttar Pradesh commanded the maximum area under sugarcane. The area under sugarcane registered a significant and positive growth rate in all the regions of
the state as the state as a whole. The sugarcane acreage registered a compound growth rate of 1.60 per cent per annum at the state level. Sugarcane production registered a significant and positive growth rate. The state as such registered a growth rate of 3.48 per cent per annum. Sugarcane productivity registered significant and positive growth rates in different regions. It registered a growth rate of 1.85 per cent per annum in area.

No. 78

Singh & Srivastava (2003) estimated that the central region registered higher variability in sugarcane area in India. Sugarcane production and yield variability was again maximum in the central region followed by the eastern and western region. Area instability was the major source of production instability. It was possible that most of the fluctuations were due to pricing and sugarcane payment policies. This was an area that needed to be investigated.

No. 79

Job et al. (2004) analysed rice production instability in Kerala and inferred that area under rice showed the highest instability during autumn season. This might be due to the lack of adequate irrigation facilities in the state and high input prices. Yield instability was observed to be the highest during the winter season for the state. This may be due to the uncertainties in weather particularly rainfall. During the sowing season crop may get rain, but towards the end of the season drought occurs which adversely affect the yield. Variability in production noticed due to the variability in area.

No. 80

Jahagirdar et al. (2004) emphasized that cotton was the important cash crop of the people in Maharashtra state. Production and productivity of cotton were found to be highly inconsistent in the state. Due to the introduction of high yielding varieties there was some increase in the productivity, but after 1970s it could not be maintained further. Due to introduction of innovation there was positive growth rate for area under cotton in five districts of Maharashtra ranging from 0.72 to 1.97 per cent, but during 1980 onwards there was positive growth rate only in one district, other districts indicated negative growth rates ranging from -1.74 per cent to -5.48 per cent.
No. 81

Job and Nandamohan (2004) concluded that area under rice in Kerala showed a significant negative growth trend for all of the seasons. Though the trend in productivity was positive but it was not significant. Although there were some positive growth trends in area for the state as a whole, but in overall found a decline in production. The decline had been steeper in area than in production. The trend of decline in area under rice showed that farmers were cultivating rice in more suitable areas only. The improvement in productivity was mainly due to the disappearance of marginal lands.

No. 82

Rao & Parwez (2005) estimated that sorghum was a major cereal during 1950s in India. But the area under sorghum continuously declined over last three decades which had taken away by the crops like cotton, groundnut, maize, pearl millet etc. Cotton and groundnut were the most important competing crops of sorghum in most of the sorghum growing states of India like Andhra Pradesh, Gujarat, and Karnataka states. Sorghum was considered as inferior commodity as against the fine cereals such as wheat and rice with respect to consumption of people. The prices of sorghum were also low and thus had not encouraged the farmers to go for sorghum cultivation.

No. 83

Samui et al. (2005) studied that Maharashtra had registered a considerable change in sugarcane production during different phases of green revolution. Introduction of high yielding varieties and adoption of advance technology led to significant rise in sugarcane yield and production during extended green revolution era (1970-80). But in post green revolution phase (1980-2001) decrease in yield of sugarcane played a negative role in the sugarcane production. Sugarcane production, declined because the area brought under this crop was rather non- traditional due to limited water resources and many other factors. The area under this crop showed a positive growth rate in all the districts of Maharashtra.

No.84
Devraj et al. (2006) fitted “An Analysis of Growth and Instability of Chickpea (Gram) production in Madhya Pradesh” and said that the state as a whole had showed significant growth rates in area (0.98) per cent and positive growth rate of 3.50 per cent and 2.49 per cent in case of production and yield respectively. Half of the area under chickpea in the state suffered from low growth rate in production.

No. 85

Meenakshi & Gayathri (2006) examined “Instability in Cereals Production: An Analysis of Tamil Nadu” and confirmed that change in the interaction between change in mean area and yield variance had been an important contributor to the cereals production instability in Tamil Nadu state. Therefore, efforts should be made to stabilize cereals production in the state. Buffer stock policy was to be effectively implemented as an immediate safeguard against production instability.

No. 86

Sadeesh et al. (2006) concluded that there were no much variations in area, production and productivity of groundnut in India during the period of 1971-72 to 2002-03. A large scale variation was noticed in rapeseed & mustard. It was 30.08, 46.63, and 26.03 per cent for area, production and yield respectively. Among total oilseed crops production, highest variation was recorded while the area and productivity recorded no much variation. He further remarked that oilseeds play an important role in helping ecological balance and this had received little attention. Several oilseeds can be utilized to improve soil fertility. There was a need for proper policies to concentrate on increasing the production, productivity of oilseeds by increasing area under cultivation and encourage the farmers to use appropriate amounts of inputs like fertilizers, improved seeds and water.

No. 87
Tuteja (2006) examined the acreage response for pulse crops in major producing states of the country between 1980-81 to 2001-02. Elasticities of lagged acreage, lagged relative price, lagged relative yield, price risk and pre-sowing rainfall very significantly across the individual pulses in different milieu. However, uniformity in the acreage response behaviour of farmers growing rabi pulses as well as kharrib may be noticed. The impact of previous year’s acreage was found most profound on area allocation under gram at the national level and in growing states. The highest coefficient of lagged acreage was estimated for Maharashtra (0.77) and the lowest for Rajasthan (0.13). Another factor affecting area under gram appears to be lagged relative price. The highest coefficient of lagged relative price was estimated in Andhra Pradesh (0.23) followed by Maharashtra (0.19).

No. 88

Mohammad, Javed, Ahmad and Mushtaq (2007) estimated the supply response of wheat in all the agro-ecological zones in Punjab using the modern technique of cointegration. Wheat acreage is significantly influenced by price of wheat, and other competing crops such as cotton and sugarcane. Among the non-price factors irrigation and rainfall has a positive effect on wheat acreage in the short-run. The wheat supply elasticities are found to be inelastic both in the short- and long-run. The long-run own-price acreage elasticities were 0.53, 0.46 and 0.49 in cotton, rice and mixed zones respectively.

No. 89

Babu et al. (2008) stated that Tamil Nadu was one of the leading states in agriculture. It provides livelihood support to 56 per cent of the population. Area, production and productivity of major field crops like black gram and green gram had declined. Among the field crops, maize only crop had enormous growth in area as well as production. High demand from poultry unit and high price variability might be the reason for high growth of maize crop. Productivity was noted to be more or less stagnant which could be attributed to poor adoption of technology.

No. 90

Ray & Kumar (2007) studied that credit availability from both institutional and non-institutional sources had made a significant contribution on the change in cropping pattern in the state of
West Bengal. He further revealed that profit per acre from non-foodgrains cultivation was larger than from foodgrains. Despite this higher profitability, the factors like food security, high cost of cultivation, non-availability of credit at the right time and in right quantity were hindering the wholesale shift of cropping pattern towards non-foodgrains cultivation. The study concluded that the government must design an appropriate crop wise credit policy which can ensure food security.

No. 91

Mythili (2008) examined that changes in cropping pattern between 1960-2001 indicated shifts from foodgrains to non-food grains especially from coarse cereals and pulses to oilseeds, sugarcane and non-food crops in India. Southern and western regions were more diversified over the years, and the shift took place mainly in favour of oilseed crops in Karnataka. Climate-conditions and government-supported programmes favoured this crop. Irrigation is one of the crucial variables to explain area shifts among crops. When more area was being brought under irrigation the crop which was cultivated previous under rainfed, was expected to respond more.

No. 92

Gajja et al. (2008) revealed that area and production under wheat increased in the arid region of Rajasthan but with comparatively high instability in the production. The rate of increase in productivity registered relatively more stable growth rate compared to area and production. The study also indicated the positive influence of own harvest price lagged by one year on Current area allocation under wheat crop but under same situation price of competing crop had negative influence on it. The allocation of area under wheat cultivation was also affected by current irrigation facilities.

No. 93

Kumar and Tanaja (2008) concluded that the agricultural growth performance of Uttar Pradesh from mid 1960s to mid 1990s undoubtedly spoke of the successful implementation of new technology package in the various crops. But the growth of foodgrain production had declined from 2.63 per cent per annum in the period 1984-85 to 1993-94 to 1.28 per cent per annum during 1994-95 to 2003-04. It raises serious doubts about the sustainability of state’s food
production. For future agricultural development there was a need for higher level of growth in total for which it was suggested that state needs to emphasize higher public investments in agriculture, increased focus on irrigation and building up rural infrastructure.

No. 94

Misbah and Javed (2008) studied using the Nerlovian model has estimated the responses of cotton, wheat and sugarcane crops’ area to changes in their prices and other relevant factors in Pakistan. Time period covered in the analysis relates from 1970-71 to 2006-07. The coefficients of the area response models for respective crops were estimated through the Ordinary Least Squares method. The short run price elasticity of cotton area has been estimated at 0.263 while the long run price elasticity works out to 1.09. The short run price elasticity of wheat area during the study period has been calculated at 0.045 while the long run price elasticity comes to 0.105. The short run price elasticity of sugarcane has been calculated at 0.229 while long run elasticity comes to 0.653. The conclusion of all this discussion is that there are powerful monopolies or oligopolistic structures in cotton, wheat, and sugarcane markets which distort the incentives for the producers resulting in wasteful and inefficient use of national resources. There is need to remove these distortions and correct market imperfections so as to make best use of the available resources and increase farm production and improve our competitiveness in world markets.

No. 95

Chand & Raju (2009) concluded that the area under all crops including foodgrains and non-foodgrains showed a big increase in instability during 1968 to 1988 as compared to the period 1952 to 1965 in India. After 1988 showed slightly lower instability as compared to first phase of green revolution, but it was much higher as compared to the pre green revolution period. Adoption of improved technology was found to be associated with variability in area and production of crops in Haryana. Instability in the yield of all crops increased by 2.8 per cent after 1988 but it was low as compared to pre revolution period. Instability in production declined by 5 per cent during 1989 to 2007. Yield instability was the major source of instability in foodgrains production.

No. 96
*Kumaravardan et al. (2009)* analyzed that area under Paddy, jowar, bajra had steadily declined over the whole study period in Tamil Nadu. Data had been collected for a period of 26 years from 1980 to 2005. The yield which was growing at a healthy rate of around 5 per cent during (1980-1990) had declined in (1991-2005). The combined fall in area and yield had led to decrease in foodgrains production after liberalization. Commercial and oilseeds crops on the whole had fared well which confirmed the prospects and potential of diversification in the state. The decision of farmers to take up a particular crop in the current season depends on factors like lagged area, lagged price. These factors were observed a positive and significant influence on its acreage.

From the above studies it can be concluded that the crops like wheat, rice, cotton and rapeseed & mustard showed positive growth rates. Innovations and application of modern technology favoured these crops. On the other side the crops like gram, jowar and sugarcane showed negative growth rates. This was due to limited water resources and less prices paid by the govt.

**No. 97**

*Malik et al. (2009)* analyzed that rice-wheat cropping system (RWCS) was the most important cropping system supporting more than 600 million people of India. But now the farm employment is falling, rental value for leasing the land is increasing, spending on inputs was increasing and credit conditions tightening with frequent defaults in payment of loans by farmers were, therefore, locked into a system where their income was not increasing. Such issues brought about the issue of diversification of rice-wheat cropping system to alternative cropping systems and other high value enterprises. Many new opportunities based on conservation agriculture which can raise productivity, cut costs save water and soils have appeared to give stimulus to the productivity through a more sustainable place of natural resources in rice-wheat cropping system.

**No. 98**

*Sood & Sharma (2009)* revealed out the fact that Punjab had witnessed a drastic shift in the cropping pattern mostly in favour of mono-cropping (rice-wheat) from multi-cropping practices. A significant chunk of area, which was earlier under maize, millets, groundnut and cotton, has
come under water intensive enterprises like rice during kharif and from gram to wheat during Rabi season. The area under cereals had also consistently increasing from the last two decades, from 74 per cent in 1990-91 to 79 per cent during the year 2003-04. Furthermore among the cereal crops, rice and wheat together occupies more than 95 per cent of the total area under cereal crops and 84 per cent of total cropped area under cultivation in 2003-04. Therefore, crop diversification with respect to both in space and time was badly affected and in each day, the scenario of diversification was going to be worse.

No. 99

Anjani Kumar and Parduman Kumar (2011), tried to analyse rural poverty and agriculture growth in India and several efforts and inventions by the Govt. departments, National and International Agencies and Civil societies continuous to persist in India. The study has brought out the importance of agriculture productivity, farm wages and rural literacy.

No. 100

Amanpreet Kaur, J.L. Sharma (2011), to meet the more diverse and difficult challenges in agriculture, adequate financial support is required, but it is much below that required level. Therefore, Govt. has to create a favourable policy and development support environment for private sector to fill the investment gap in agriculture sector.

No. 101

Pawandeep Kaur and Gian Singh (2011), The analysis of consumption expenditure of the weaker sections in Muksar, Punjab reveals that large share of total consumption expenditure by these categories is allocated to non-durables items followed by services, social religious ceremonies and durable commodities.

No. 102

Sukhpal Singh (2011), concluded that the policy either ignores smallholders or pays lip service to their concerns. Smallholders are not organised and farmers unions have not represented their interests separately though everything is said to be in the name of small farmers.
1. Agriculture — Includes income in crop production

2. Livestock - Includes income from livestock.

3. Farm labour - Includes wage receipts by the household members in return for their supply for farm work.

4. Non-farm labour — Includes non-firm wage earnings of the households

5. Business and art crafts - Include income from business and artcrafts (shop-keeping, trading, pottery, carpentry, blacksmithy, etc.)

6. Salaries — Include salaries of the households if employed in public or private sector.

7. Transfers — Include internal external remittances by family members (other than the head of the household), gifts, pensions, etc.

Paper shows the distribution of households having access to different income sources. Most of the households earn income from more than one source. Agricultures, livestock and wage labour are the main sources of income in the selected villages. Agriculture undoubtedly is one of the main occupations of the land owning households, however many of the marginal land holders also work as wage laborers. The landless households earn their livelihood mainly by working as wage laborers. As such 34 and 25 Percent of the households have reported having received income by working as wage labourers in and outside agriculture respectively. Livestock-keeping is an important occupation for both farm and non-farm households as 77.33 percent of the sample households reproved livestock as one of their income sources.

Agriculture is the main source of income and accounts for 47.88 percent of the total income, followed by livestock (20 percent) and farm labour (8.11 percent). The non-farm sources together contribute about 24 percent to the total income. A disaggregated view of non-farm income shows that salaries contribute the most to non-firm income. Business and artcrafts comprise the second largest component of non-firm income followed by wages and transfers. As a result of limited access, there is a wide variability in non —farm incomes. The coefficient of variation is the highest for salaried income. Followed by business and artcrafts, transfers and non-farm. On the country, agriculture and livestock incomes showed lower degree of variability.
As expected, the contribution of agriculture to total inequality is the highest (71.52 percent) because of its maximum contribution to total income and high degree of correlation with total income (R=0.75). Since agriculture is identified as the main source of income inequality. Livestock which is the second largest source of income is moderately correlated to total income and contributes 15.78 percent to total inequality. Similarly the incomes from salaries business and art crafts and transfers have a moderate degree of correlations with total income and contribute 13.14, 7.95 and 6.39 percent respectively to total income inequality. Both the farm wages and non—firm wages are negatively correlated with total income and thus make negative contribution s to total income inequality to the extent of 11.81 and 2.97 percent respectively. Besides, whether a source in inequality —increasing or inequality decreasing is decided by relative inequality coefficient which is defined as the ration of proportional contribution of as source to total inequality to its share in total income value greater than on classifies a source as inequality —increasing or vice versa. Agriculture salaries, business and artcrafts, And transfers are identified as equality- increasing income sources, while livestock farm —and non-farm wages reduce income inequality. The share of firm wages in the total income is small and an increase income of any other inequality-decreasing source. Particularly livestock. Would weaken the effect of farm wages on total inequality. Reducing inequality through redistribution of land is a remote possibility because of decreasing size of land holding and the prevalent socio-economic and political environment.

Thus the equity oriented policy measures should emphasize on the development subsidiary activities and non-farm employment opportunities as well as creation of other income generating activities which are less dependent on land. However, the results indicate that there is a need for an improvement in skills and formal education of the lower income groups to increase their access to non-farm income generating activities. The study has analyzed the impact of income sources on rural income distribution in western Uttar Pradesh. Though the results could not be generalized due to small sample size. Yet they offer some useful insights into the dynamics of rural income distribution. Agriculture by virtue of its being the dominant source of income in the rural areas is the main source of income inequality which, by and large is a result of uneven distribution of land. Livestock is the second largest contributor to rural income and is the most equally distributed source of income.
The non firm sources account for about one-fourth of the total income and the distribution of income from these sources is highly egalitarian. Agriculture, salaries, transfers, land business and artcrafts are identified as inequality—increasing sources of income. While livestock, farm wages reduce income inequality. The results suggest the need for effective implementation of land reform measures, development of small farms and subsidiary activities, and increasing opportunities for employment in and outside agriculture to narrow down inequalities in rural income distribution. However in view of the decreasing size of land holding it may not be possible to increase the opportunities for employment in agriculture and to enlarge the productive asset base of the lower income groups by providing them more land. The policy measures thus need to emphasize on development of subsidiary activities that require little or no land and creation of opportunities for employment outside agriculture to reduce inequalities in rural income. The study is useful to see the structure of rural inequalities. But main problem of this study is to understand the formula and the mathematical equations used in explanation and inequality. So it is very difficult to understand the basic problem and concept.

1.4 Haryana State Studies:-

No. 103

Singh and Kumar (1976) analysed the impact of price and price variability on acreage allocation in Haryana for wheat, rice and bajra. They found that farmers in the area considered were responsive to changes in relative prices and price variability of wheat, rice and bajra as the coefficient had the right positive sign and were significant in most of the cases. Similar, responses to the changes in yield and yield variability were observed. The values of Nerlovian coefficient of adjustment were found low which meant that although the farmers were adjusting to the changing levels of price, price variability, yield, etc., yet the adjustment was not rapid.
Singh et al. (1980) fitted “Acreage yield, Price and Gross Income Variability of Selected Crops of Dry Farming Area of Haryana” and found that the area under almost all crops in dry land areas of Haryana had been fluctuating as a result of weather fluctuations, extension of irrigation facilities and prices. The study showed that the yield and income variations were lower for all those crops which had higher area under assured irrigation as compared to those with comparatively less area under assured irrigation. More paying crops had greater variability of income as compared to less paying crops.

No. 105

Singh and Rai (1980) computed the variability of selected crops in dry farming area of Haryana for acreage, yield, price and gross income. They found that in almost all cases, coefficient of variation was more than 20 per cent both in term of yield and income and crop insurance may give some income stability to the farmers. Price variability of all the crops in dry farming areas of the state was also observed high except wheat, which had support price.

No. 106

Singh and Panghal (1980) estimated the percentage contribution of area and yield in increasing production of major crops in Haryana during 1960-61 to 1977-78. They found that increase in the production of rice and bajra was almost equally shared by the increase in area and yield. Increase in area under wheat contributed about 61 per cent and yield about 39 per cent in the increased production of wheat, which showed that the plateau had not reached in the productivity of this crop.

No. 107

Sharma et al. (1987) reported that one per cent increase in harvest price of bajra was expected to increase the bajra acreage by 0.18 per cent in Haryana during the period 1960-61 to 1980-81. The impact of lagged harvest price on production and productivity of bajra crop was found not-significant. It was inferred from the analysis that the lagged harvest price and area lagged by one year had positively influenced the allocation of land for bajra cultivation.
Sharma et al. (1987) examined that lagged harvest prices and area lagged by one year positively influenced the allocation of land for bajra cultivation in Haryana. Correlation between lagged harvest prices with area of bajra was very high and significant. Increase in the value of bajra production during 1960 to 1980 was mainly from price effect (41.52 percent) followed by yield effect (14.33 percent). The remaining 42.71 percent contribution was due to the total interaction effect between area and yield, price and yield, price and area, yield and price.

Mahender Singh Malik (1988) submitted thesis to the Maharshi Dayanand university Rothak with the name of the summary, standard of living, of the people in rural areas in district Jind (Haryana). The Study has been undertaken with purposes to know the standard of living of the people in rural areas in district Jind by studying the pattern of working, income consumption, saving, indebtedness, education, culture and their living conditions and to find out the different solution and suggestion to maintain and raise the standard of living of people in rural areas and to stress on area planning. For the purpose of the study 500 sample households have been selected from 10 villages of district Jind. According to standard of living, the rural house-holds are divided into four categories. In category use, the households having low standard of living, normal standard of living, good standard of living and high standard of living. It can be concluded through this analysis that the standard of living of the people in rural area is concerned that decreasing savings, excessive borrowings for unproductive purposes and increase in income not in the proportion to increase in whole sale price index indicate the worse economic condition of the people living in rural areas.

Economic condition directly effect the levels of standard of living up to some extent. Due to the worse economic condition the standard of living of the people in rural areas is below normal or normal in most of the cases. As far as the preference revealed by the household in terms of consumable items, it broadly emerged that people care more for better cloths and less of food. This study includes all kinds of farmers to know their living standards so it does not explain clearly the ground realities of marginal farmer. It is concerned only with Jind district of
Haryana. So findings- of this study cannot be generalized for whole state, because different districts have different economic conditions.

No. 110

Bhat et al. (1989) emphasized that there had been a diversion from cereal economy to market economy which was a healthy sign for the development of agricultural sector in Haryana. The foodgrains includes rice, wheat showed increase of 10.16 per cent in the area allocation from 1970-71 to 1983-84. While in case of oilseeds and fruits & vegetables accounted an increase of 130.76 per cent and 100 per cent respectively, in area allocation. In case of pulses there occurred a decline by 2.04 percent

No. 111

Dahiya (1989) in Sonepat district Haryana state assessed the magnitude and cause of agricultural indebtedness. A total number of 104 farmers were randomly selected for the collection of necessary data from the four selected villages. Study spotlighted that most of the farmers were under debt. The level of debt per hectare was the highest in the case of small farmers and the lowest in the case of large farmers. A major portion of the total debt was owed to institutional sources. The diversion or productive credit to unspecified purposes was more in the case of small farmers than in the case of medium and large farmers. Three factors viz, total amount of borrowed funds diverted to unspecified purposes and consumption expenditure were mostly responsible for indebtedness of these people. Study discuss about magnitude and cause of agriculture indebtedness. But study does not explain the condition of income and expenditure pattern of Marginal Farmers. So, study ignores the major components of level of living of a person.

No. 112

Sharma & Pandey (1992) studied the changing scenario of cropping systems in Haryana and observed that with the expansion of irrigation facilities, there had been a shift in area in favour of more remunerative and less risky crops like wheat, rice, cotton and rapeseed & mustard and this resulted into a decline in area under bajra, jowar, maize, barley and gram. As the role of weather factor still remained a predominant one in the case of agricultural enterprises, a considerable
effect of weather fluctuations was observed on the area, production and productivity of the field crops.

No. 113

Suhag (2000) analyzed that price effect was quite powerful and dominantly positive for all crops like- jowar, gram and sugarcane in Haryana. The price factor and its interaction with the other components contributed the entire rise in the production. Its contribution in change in production was about 85 per cent, while area and yield effects contributed only 5 per cent.

No. 114

Bhatnagar and Nandak (1994) observed highly significant Interaction between area and yield had played a significant role in increasing the production of wheat for a period of 25 years i.e. 1966-67 to 1990-91 in Haryana. Further, the production had increased to a larger extent by adoption of high yielding varieties, good irrigation facilities, good consumption of fertilizers, and adoption of proper technology and also good harvesting prices of wheat. Thus, wheat being a relatively much less risky crop as compared to other Rabi crops emphasized the farmers to increase the area under wheat.

No. 115

Suhag et al. (2000) examined that over 82 percent of the increase in production of foodgrains was contributed by yield improvement in Haryana state. While that of productivity advanced from 59 to 77 per cent. The relative share of area to an increase in production had declined from 21 to 14 per cent for coarse grains, gram and sugarcane, the area effect was negative. The growth in sugarcane production was entirely due to the yield effect with negative area contribution. The dominantly positive price effect to the value of output revealed that market prices did a remarkable role in the changing scenario of agriculture in Haryana state.

No. 116

Ergano et al. (2000) revealed out the fact that farmers in Haryana preferred to grow specific crops e.g. paddy and wheat in cereals, rapeseed, mustard in oilseeds, cotton (American) in commercial crops. The increased diversification in cereals was due to the treatments of paddy
and wheat as separate commodities. The study further claimed that number of tractors, fertilizers consumption, and rainfall assured irrigation and number of regulated markets favoured these crops.

No. 117

Singh, Pannu and Patela (2003) studied the acreage allocation under oilseeds in Haryana by selecting the oilseeds crops grown in the state and found that the regression coefficient for lag year area showed positive impact in case of rapeseed-mustard in Bhiwani and Hisar districts. In the state as a whole lag year area of rapeseed-mustard and groundnut has positive and significant impact on current year area. The regression coefficient for lag year price of rapeseed and mustard depicted positive and significant impact in Bhiwani district and in the state as a whole. But in Hisar district impact was non-significant. The impact of lag year price of wheat was found to be negative on current year of rapeseed-mustard and groundnut. Similar findings were found for the state as a whole in case of groundnut.