Chapter II

REVIEW OF LITERATURE

This chapter reveals the findings of the research studies conducted previously on paddy marketing in various parts of the world. Section I provides the findings on the marketing and channels involved in marketing of paddy. Section II brings out the marketing cost margins and price spread in different channels. The last section furnishes the role of agricultural marketing system in economic development.

2.1. REVIEW OF LITERATURE RELATED TO THE MARKETING PRACTICES AND CHANNELS INVOLVED IN MARKETING OF PADDY

Centre for Agro-Economic Research (2001) has putforth the following suggestions. Varieties of rice which are found to be resistant or tolerant to pests and diseases should be distributed amongst the farmers. These resistant / tolerant varieties should invariably be area specific and for accuracy of this the involvement of the agricultural scientists is of utmost importance. In the training as well as field demonstrations more emphasis should be laid on cultural, mechanical and biological methods of control. Equal importance should be given on local and indigenous methods of pest control.
Farhad Ali (2001) estimated the growth population of the world is expected to exceed 8 billion in 2025. This has quite disturbing implications for the developing countries. The future increase in food supplies must be from increased biological yields as area expansion is not possible because land and water are becoming scarce. Area under rice crop is about 4.2 million hectare yield as area expansion is not possible with the production of 82.2 million tonnes. But, the productivity of rice is much less being only 2811 kg/ha as against 7,444 kg/ha in Ukraine. Over the past years, the rice yield has increased 170 per cent. To meet the further demand of 101,886 (1000 tonnes) in the year 2015 the existing technology and varieties cannot address the real problem. So to increase production various approaches are needed.

The Indian Seed Industry is actively involved in research and development which is equipped with adequate research facilities, necessary human resources and well-developed infrastructure to produce enough hybrid rice seed to meet growers’ demand. Some of the Indian states have come to adopt this latest technology, specially Andhra Pradesh, Tamilnadu and Karnataka where some progressive farmers are well-trained in hybrid rice seed production technology.

Kavitha (2001) says that the major reason why irrigation has become critical for agricultural development in India is the onset of monsoon and pattern of rainfall which is generally capricious in its incidence and variable in its amount. Rainfall in concentrated in a few months of the year and this is a serious problem for rice cultivation.
Ragini Jain and Shashi Dahiya (2001) suggested the potential internet tools which can serve as an aid to farmers as to increase the absorption of these technologies in agriculture sector and driving it closer to agriculture. Target of agriculture should be to provide by the marginal farmers (Rs.4742.23), the semi-medium arms (Rs.4521.29) and medium farms (Rs.4143.50). In the case of the non-farmers yield school farms the per hectare average cost of labour varies from Rs.4935.44 to Rs.3700.55. The cost of labour of the non-farmers’ field decreases with the increase in size of the group. The overall per hectare average cost of the non-farmers’ field school farms it is Rs.4133.74 which indicates a comparatively higher investment by the famous field school farms because of the use of more mandays per hectare.

And the cost of labour of the farms for pest control varies from 3.70 per cent (marginal farms) to 2.13 per cent (semi-medium farms) of the total cost of labour while the corresponding figures for semi-medium and medium non-farmers field school farms are 0.73 per cent and 0.82 per cent respectively. Marginal and semi-non farmers’ field farms have no such expenditure.

The relevant information to any farmer in a remote village by means of accessing hierarchy of information bases. Consultancy regarding diseases, pest-alerts, animal health, difficult wealth condition or any abnormal ground conditions are the key needs of the farming community.
A study on the increasing trend of production and productivity has been observed. In the pre-green revolution period, the growth in production was solely due to increase in area under rice in the state. In the post-green revolution period area under rice showed a decreasing trend even though the rate of decline is statistically not significant. In the post-green revolution period productivity shows a positive and significant growth. The decline in area was more than compensated by increase in productivity and hence, production registered positive growth during the post-green revolution period. From this it could be concluded that the green revolution has significantly contributed to increased production of rice in Tamil Nadu. For India, which is a grower of paddy in the world, there needs to be a concerted practice of water management approach to curtail methane emission due to wetland farming, because greenhouse effect trigger a trial consequences that have negative impact on overall agriculture and the environment (Staff Reporter, 2001).

Satapathy and Tripathy (2001) reveal that the borrowers had used higher amount of critical inputs which enabled them to obtain higher per hectare rice yield compared to their counterparts. Both borrowed and owned funds can be used in rice production. As regards optimization of resources, the credit recipients could get maximum profit from rice production through optimum use of credit financed inputs. The non-borrower farmers can also allocate their resources optimally by higher investment from own fund through increase in their non-farm income.
Suu and Kombairaju (2001) found that the compound growth rates were computed for area, production and productivity of rice based on the exponential function for three periods (like pre-green revolution period (1949 to 1965), post green revolution period (1966 to 1998) and the entire period under consideration (1949 to 1998). From the study an increasing trend of production and productivity has been observed. In the pre-green revolution period, the growth in production was solely due to increases in area under rice in the state. The post-green revolution period showed a positive and significant growth in productivity.

But during the last ten years there was no significant growth either in productivity or in production though the area has increased marginally (Suu and Kombairaja, 2001).

Kayarkanni (2000) reveals that human labour is the most important determinant of rice yield. It was followed by capital, fertilizer, seed cost and pesticides. One unit increase in these factors correspondingly raised the yield by 11.83, 11.05, 3.29, 2.79 and 0.12 units per acre. Hired labour, capital, fertilizer, seed cost and pesticides were found to be significant at 5 per cent level. Hired labour and capital have greater effect on yield determination.

Roy and Datta (2000) observed the development and private sector should ensure that the critical inputs, like quality seeds of recommended rice and wheat cultivators, pesticides and canal water necessary for productive rich-wheat farming are timely available.
Devaraja (1999) reveals that the trends of total disposal were positively associated with farm size. As regards marketed surplus it is observed that the overall average marketed surplus (11.43 quintals) was less than marketable surplus (16.55 quintals). This indicates that during the year of study cultivators carried over an average of about 5 quintals of paddy for future consumption.

Dinesh (1999) reveals the results of the experiment and it is interpreted that straw yield was significantly influenced by the treatment. This indicated that the problem during Thaladi season rice was restricted movement of syntheses from source to sink due to unfavourable weather. Hence it is suggested to conduct future experiments with some sold rice grain variety under foliar nutrition of chemicals which have stimulant effect to increase the movement of syntheses from source to sink.

Chavan (1999) made a study to determine the factors influencing marketed surplus of paddy in Maharashtra and found that as production increased by one quintal per hectare, the marketed surplus increased by 0.58 quintals indicating positive relationship between production and marketed surplus.

Reddy et al. (1999) reveals that the seed production technologies should be further refined to increase seed field to so that production cost can be brought down. Availability of quality hybrid seed in time at reasonable price is a prerequisite for the success of hybrid rice on large scale. One-third of irrigated rice lands could be easily covered under
hybrid rice by 2005 A.D. in the States of Andhra Pradesh, Karnataka, Tamil Nadu, West Bengal and Western parts of Uttar Pradesh and Maharashtra, where hybrid rice would be found more profitable and acceptable.

A study made by Selvaraj (1999) on the cultivation practices of small farmers in Thanjavur district shows that the area under paddy cultivation from 1994-95 was slightly decreasing due to non-availability of cauvery water in time for irrigation. But the productivity had increased over the period because of intensive cropping.

Bhende and Hanumappa (1998) in their study on agrarian structure in Karnataka stated that the area leased in by the small and marginal farms accounted for 54.54 per cent of the total leased in area whereas, the area leased out by these farms was less than 20 per cent of the total leased one area in the state. The reason for leasing in land by the small and marginal farms was to facilitate optimum use of their family labour and other resources.

In India, agricultural researches in situations need to be multiplied and reoriented. These institutions should focus their research efforts on the overall productivity of marginal and small farmers. They should also more attention to dry land farming. So far, effort has been mainly directed to obtain maximum production of single crops under the most favourable conditions. It is one thing to increase productivity in large farms through optimum use of modern inputs and quite another to increase returns, not
only on per hectare basis, but also on per working day basis. Expenditure on human labour can no longer be ignored in India. Seventy-eight per cent of our cultivators operate less than two hectares of land and majority of them do not have adequate irrigation facilities. It is towards them, that the researchers should direct their attention. Plant breeders should aim at evolving varieties which are better suited to face environment stresses such as drought, flood, salinity and disease. Also, more attention should be given to biofertilization of soil and regenerative agriculture.

During 1969-70 and 1989-90, the area of paddy production increased in Andhra Pradesh, Uttar Pradesh, Punjab and Haryana. The States of Bihar, Tamil Nadu, Orissa, Assam, Karnataka, Kerala, Jammu and Kashmir and Himachal Pradesh recorded a decrease in their relative share of total rice production in the country (Tejinder Kaur and Rangi, 1997).

Sidhu et al. (1997) reveal that 7.46 per cent of the demand for paddy seeds of the selected farmers was met by the department of agriculture, 6.22 per cent by Punjab Agriculture University, 3.52 per cent of National Seed Corporation, 3.45 per cent by authorised seed dealers. About 2.36 per cent of the total seeds were purchased from unauthorized seed dealers.

Ipsita Sen and Banerjee (1995) studied the relative strength of population per hectare of land and the yield rate in determining the volume of marketable surplus of some major and minor food crops. In
Punjab and Uttar Pradesh, it was the most important determinant of the volume of marketable surplus.

**Renganathan (1994)** describes the significant relationship between farmers’ exposure to mass media, radio, television and newsprint and their level of adoption in high yielding variety of seeds, chemicals, fertilizers, liquid and dust/granules plant production.

**Arora et al. (1993)** reveal that a little over two-thirds of area under paddy was cultivated by marginal and semi-medium holdings up to 4 ha in size. The holdings accounted for less than half of the total area operated in the country. The medium and large categories of holdings are of size 4 ha and above. These accounted for 53% of the total operated area in the country and were cultivated in little less than one-third of the total area under paddy. This would imply that the smaller holdings have a greater preference for paddy cultivation which arises from their innate desire to provide for the basic food grain needs of the family. They did not necessarily belong to the subsistence farming class and may even be selling a part of the farm produce for cash earnings. The medium and large holding, on the other hand, would obviously have a large marketable surplus to offer for sale in the market.

Study by **Bhann Pratap Singh (1993)** reveals that the average productivity of top four states – Punjab, Haryana, Andhra Pradesh and Tamil Nadu was 2688 kg/ha, which was higher than the average of the world and Asia. On the other hand, the productivity of the bottom four
states – Assam, Bihar, Orissa and Madhya Pradesh was only 1101 kg/ha, nearly half of the world average. In the rest of India also, productivity of rice was much below the world and Asian averages.

Malik (1993) in a study conducted in Haryana found that the payment of wages to labourers on large farms was higher than the wages in small farms due to the fact that the large operational holding required greater employment of casual and permanent labour.

A study conducted by Swaminathan (1993) in India has worked out the trends in area, production, productivity of rice during 1964-65 to 1988-89. The production of rice has increased to 70 mt of rice at the 1964-65 yield levels. We will need nearly 65 M.ha under rice i.e., nearly 23 M.ha. more that at present. As in other crops, the range in yield in different parts of the country is wide. Thus 1987-88, the average yields were 856,2210 and 3164 kg/ha in the States of Orissa, Andhra Pradesh and Punjab respectively. The percentage of rice area under irrigation in three states was respectively 33.2, 94.2 and 98.8. Globally, according to FAO Statistics the production of paddy (unmilled rice) went upto 485 mt in 1988 from 388 mt in 1978, representing an annual growth rate of 2.61 per cent. India’s contribution to this increase of about 100 mt of paddy during a ten years period was 25 per cent. Global rice exports are now at the level of 12 mt/year.
**Paroda and Siddiq (1993)** estimated an all time record production of 75 mt this year. The country has made a spectacular increase of 75 per cent in a short span of 25 years. The production revealed a steady and progressive annual growth rate from 2.65 during 1965-75 to 3.77 per cent during 1985-90 which was entirely due to a vertical yield. The increase in yield was from less than a tonne in early 1960 to 108 t/ha in 1990.

**Tandon and Shinde (1993)** reveal rice in India is being grown on normal as well as on problem soils. This can thrive on soils suffering from complex physico-chemical problems and nutrient disorders. The major problem soils are the saline-sodic soils, alkaline-calcareous soils, acid red and lateric soils and the acid sulphate soils.

**Upender (1992)** suggests that the following are the explanatory variables for marketed surplus function, the level of marketable surplus, family size in adult units, net annual income from non-agricultural sources, total area under cultivation, area under paddy cultivation, total paddy production and average price of paddy.

**Jagdish Prasad (1989)** found in an analysis of the spatial allocation of marketed surplus of foodgrains on sample holdings that the proportions of the village sales of all foodgrains are very high, indicating thereby the preference of the farmers to sell their produce at their door itself. This is on account of the poor transportation and communication facilities. However, the big farmers in the sample sold 52 per cent of their total surplus in the main market centre.
**Tiruvenkatacheri (1989)** in the study made in Thanjavur to estimate the operational efficiency of farmers found out that of all the districts in Tamil Nadu, Thanjavur district had a significant growth rate production of paddy followed by Chengalpattu and Dharmapuri.

**Loganathan and Vasantharajan (1988)** conducted a micro level study in Thanjavur district of Tamilnadu observed seasonal variation in the proportion of paddy marketed. It shows that the 60 per cent production of paddy in Kuruvai was marketed while it was 50 per cent in Samba and Taladi. The higher percentage in Kuruvai is due to the problem of drying grain and also the need to meet immediate cash requirements, for the cultivation of following Thaladi crop.

The small and medium farmers often resort to distress sale of paddy because of their poor retention capacity, lack of adequate, timely credit at reasonable cost, debt bondage and the consequent exploitation by middlemen such as money-lender cum traders. The absence of their own marketing society weakens their bargaining power and makes them unable to carry out their own storage processing and transport activities (Ready, 1987).

A study conduced in Bangladesh reveals that farmers did not feel the urge to sell paddy to the procurement centre because actual market price was always higher than the government procurement price (Akter and Islam, 1986).
Prabha (1984) found that the intervention of Government had little impact on market arrivals in regions with a sizeable surplus where there is a shortfall in production, open market prices tend to be higher and farmers try to evade the restriction imposed on them.

A study by Kainth (1982) reveals that the contribution of small, medium and large paddy cultivators is found to be 8.41, 17.08 and 23.51 per cent in their production and there is proportionate and direct relationship between farm size and marketed surplus.

Subbarao (1979) found that the procurement price of paddy was considerably lower than the market price for the entire time period studied by the farmer. The procurement price did not cover the cost of production and this is the reason for the collapse of producer’s levy introduced in Andhra Pradesh.

A study conducted in two villages in Chengalpattu district of Tamilnadu analyses the level of marketed surplus generated by different groups of farmer. The big peasant sold 87 per cent of the paddy produced. The marketed surplus of other groups such as medium, petty and landless peasants is calculated as 65, 25 and 26 per cent in their respective production of paddy. The first two groups contribute 92 per cent and later groups contribute the rest of 8 per cent in the total marketed surplus (Sivakumar, 1978).
Subbarao (1978) found non-price factors appearing to be more important for the price cultivated factors in explaining the variation procurement. Movement restrictions did not help procurement in the surplus districts in Punjab but widened the price differential between the surplus district and deficit district and encouraged smuggling in the surplus district.

Harrison (1972) studied the cost and returns structure of small and large farmer groups in Thanjavur district, Tamilnadu and found that small farmers used about 22 per cent more labour per hectare than the large farmers due to intensive use of family labour.

In another study, Kahlon and Vashistha (1968) found that the factors affecting the flow of marketable surplus are volume of produce, size of holdings, consumption habits of the people, size of family relative prices of different farm products and accessibility of market.
2.2. REVIEW OF LITERATURE RELATED TO THE MARKETING COST MARGINS AND PRICE SPREAD IN DIFFERENT CHANNELS

A micro level study conducted in Warangal district of Andhra Pradesh shows that there is a direct relationship between marketable surplus of paddy and farm size. The level of marketable and marketed surpluses is 55.52 and 46.34 per cent in production. The elasticity of marketable surplus with respect to output is more than the unity for large cultivators and it is less than the unity for medium and small cultivators. However, it is just above unity for aggregate of all farmers (Upender, 1992).

A study conducted in two village of Kurukshetra district in Haryana found that there is a positive relationship between farm size and marketable and marketed surpluses of paddy (Malik et al., 1992).

In Punjab, there is very little gap between output, marketable surplus and marketed surplus. Most of the rice produced in Punjab is sent outside the state. The quantity of marketed surplus for wheat has increased more than eleven-fold between 1963-64 and 1982-83, of paddy by about sixteen-fold between 1967-68 and 1983-84. The marketed surplus of wheat grew annually by 12.75 per cent between 1963-64 and 1982-83, that of paddy by 13.00 per cent between 1970-71 and 1982-83 while that of maize declined annually by 14.80 per cent between 1963-64 and 1982-83 (Singh and Indar Singh, 1992).
A study conducted in 1987-88 in 14 blocks of Punjab state analysed the level of marketed surplus of wheat and paddy in the different farm size groups. The marketed surplus of wheat is positively correlated with farm size. The percentage of surplus in production for the marginal (upto 1 ha), small (1-2 ha), medium (2-4 ha), large (4-6 ha) and very large (above 6 ha.) farmers are 56.31, 68.80, 75.59, 82.21 and 85.58 respectively. In the case of paddy, the percentages of surplus are 97.70, 90.06, 95.68, 99.26 and 98.26. The all-farmers’ wheat and paddy surpluses are 80.55 and 98.44 per cent respectively (Singh and Indar Singh, 1992). Since rice is not important in the consumption pattern of the farmers of Punjab, most of the paddy is marketed immediately in all size and classes.

Another study has found that the per capita rice consumption decreased approximately by 3 per cent during the period between 1961-65 and 1981-85 in India (Bouis, 1991).

The Report of the working group on Agricultural Marketing for 8th plan states that the agricultural economy has witnessed a successful transition from a subsistence, self-sufficient barter system to a commercial, production oriented surplus economy (Ministry of Agriculture and Directorate of Marketing and Inspection, Govt. of India, 1991).
Directorate of Agricultural Marketing and Inspection of India (1990) estimated the marketable surplus of paddy, wheat, jowar and gram at 42.71, 52.44, 32.85 and 40.30 per cent of their total production respectively. The percentage of marketable surplus in Madras State has been varying from 16 for ragi to 25 per cent rice. But the percentage of surplus for commercial crops is much higher than for food crops. The percentage varies from 62 for gingelly to 98 for cotton lint, and is 60 per cent for all agricultural produce.

A more recent FAO study (FAO. 1990) highlights the need to grow more foodgrains to meet the need of urban and other non-food producing segments of the population in developing countries.

In India, while the per capita availability of foodgrains has tended to fluctuate, the underlying trend has been one of increase. While in early fifties the per capita availability was 395 grams per day, it has fluctuated between 436 and 478 grams per day during the period 1982 to 1987 (Tyagi, 1990).

For economic development of a country, an increase in production must be accompanied by increase in marketable surplus. The rate at which agricultural production expands is an index of the pace of agricultural development while the growth in marketable surplus is an index of the pace of economic development (Basavarja et al., 1989).
Marketed surplus of agricultural produce plays a vital role in the economic development of a country. For an under developed country, a significant rise in the marketed surplus is a pre-condition for achieving a rapid rate of industrialisation. What a rise in marketed surplus does is (a) to make it possible to feed a growing non-agricultural labour force; (b) provide raw material for industrial development; and (c) where the surplus is exported, provide foreign exchange (Basavaraja et al., 1989).

During 1972 to 1983, the area under paddy increased in Andhra Pradesh, Bihar, Punjab, Uttar Pradesh, Assam and Haryana. States like Karnataka, West Bengal and Madhya Pradesh experienced no change in area under paddy. The states of Tamil Nadu and Orissa showed a declining trend (Praduman Kumar, 1989).

An analysis through three year moving average for per capita availability of foodgrains showed the availability of foodgrains to be within the band of 150 to 170kgs per annum for the period between 1950 and 1986 in India (Sarma, 1989).

A micro level study conducted in Thanjavur district of Tamil Nadu observed seasonal variation in the proportion of paddy marketed. It shows that the 60 per cent of production of paddy in Kuruvai was marketed while it was 50 per cent in samba and thaladi. The larger percentage in kuruvai was due to the problem of drying grain, and also the need to meet immediate cash requirements for the cultivation of following thaladi crop (Loganathan and Varadharajan, 1988).
Mahendra Dev (1987) analysed the rate of growth in foodgrains production in India during the last four decades (from 50s to 80s). He found that the rate of growth of foodgrain productions was ahead of population growth only in five states namely, Maharashtra, Punjab, Uttar Pradesh, Haryana and Andhra Pradesh. The growth rate slowed down in most of the states in 1970s compared to 1960s. However, the first half of 1980s witnessed a recovery in the rates of growth in some high growth states of the 1960s.

A study conducted in Chittoor District of Andra Pradesh indicated that the proportion of marketable surplus to total production as well as marketed surplus to total production shows a positive relation with the farm size. Further, for all the size groups excepting large farmers, the marketed surplus exceeds the marketable surplus, thus indicating distress sale of paddy among small and medium farmers (Reddy, 1987).

The proportion of acreage under foodgrains in Tamil Nadu has undergone a decline from 70.9 per cent of gross cropped area in the triennium ending with 1961-62 to 68.9 per cent in the triennium ending with 1971-72 and further to 67.1 per cent the triennium ending with 1981-82. Over the period 1961-62 to 1981-82, the proportion of area under paddy has increased from 34.6 per cent of gross cropped area to 36.6 per cent. On the other hand, the proportion of area under coarse grains (cholam, cumbu, ragi and other cereals) has registered a decline (Poduval, 1987).
Rao and Despande (1986) also analyse the inter-state variation in foodgrains growth rate. During the first sub-period (1952-53 to 1964-65), the annual growth rate ranged from 0.9 per cent in Uttar Pradesh to 4.2 per cent in Tamil Nadu. Technological changes seem to have widened this interval during second and third sub periods. Also, negative growth rates were recorded by Maharashtra, Rajasthan, Bihar and Madhya Pradesh in the latter sub-period.

Rao and Deshpande (1986) estimated the growth in Indian foodgrain economy for the two periods – pre-Independence period from 1891 to 1946 and post-independence period from 1952-1953 to 1978-79. Prior to Independence, the performance of foodgrains was weak with a near constant output, declining yield and modest growth rate in the area under foodgrain.

**TABLE 2.1 Growth performance of food grains in India**

<table>
<thead>
<tr>
<th>Period</th>
<th>Growth rate in (%) per annum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Independence period (1891 to 1946)</td>
<td>0.31 -0.18 0.11</td>
</tr>
<tr>
<td>Post – Independence period (1952-53 to 1978-79)</td>
<td>0.68 1.47 2.51</td>
</tr>
<tr>
<td>Pre-Green Revolution period (1952-53 to 1964-65)</td>
<td>0.98 1.51 2.51</td>
</tr>
<tr>
<td>Green Revolution period (1967-68 to 1978-79)</td>
<td>0.44 1.84 2.77</td>
</tr>
</tbody>
</table>

Post-independence period is divided into pre-green revolution period and green revolution period. The rate of growth in area under foodgrains has declined by more than 50 per cent in the second sub-period, but output and yield have increased considerably.

The share of paddy in total area under foodgrains was 23.4 per cent in 1950-51, 22.9 per cent in 1964-65 and 23.5 per cent in 1977-78. This shows the stagnation in area under paddy. Against this, the area under wheat has continuously increased from 7.4 to 8.4 to 12.5 per cent in the same period.

Another work by Shulkla and Agarwal (1986) observed the marketed surplus in hill regions of India that is states like Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram and Tripura. In this area, the larger marketed surplus comes from two categories: from the farmers operating the small and uneconomic holdings who have to make distress sale and from the farmers having relatively large holdings.

The marketed surplus for wheat and paddy in Punjab increased from 8 and 4 lakh tonnes during 1967-68 to 64 and 67 lakh tonnes, respectively by 1984-85. The share of Punjab in the central food reserve works out to about 60 per cent (Singh, 1985).

Fahimuddin (1984) gives evidence for negative relationship between marketed surplus and farm size. The study is conducted in Brahmpur village of Gorakhpur district in Uttar Pradesh. In a sample of
148 farmers, small holders marketed 71.71 per cent in production of paddy, a figure suggestive of distress sale. The proportion decreased with increase in holding size, with large holders marketing 63.00 per cent in production.

A study conducted in Western Salem, Eastern Salem and Central south Arcot in Tamil Nadu estimated the overall marketed surpluses of food and non-food crops. The marketed surplus is expressed in terms of proportion of value marketed to value produced. The percentage of marketed surplus is 50 for small farmers (upto 4 ha) and 68 for large farmers (above 4 ha) in the first region. It is 64 and 74 in the second region and 65 and 75 in the third region. In all the regions, the percentage of marketable surplus of non-food crops exceeds that for the food crops (George Bohle, 1984).

Kannan and Chakrabarty (1983) projected the demand for foodgrains for the period 1985-86 to 2000-01. The compound growth rate works out to 2.5 per cent per annum. Total demand for foodgrains in 2000-01 AD would be between 215.17 and 221.23 million tonnes. Demand for wheat grows faster than demand for rice. The wheat demand will increase from 21.84 million tonnes in 1970-71 to 55.13 in 2000-01; and the rice demand will increase from 37.74 to 90.35 million tonnes in the same period. The compound growth rates for wheat and rice are worked out as 3.6 per cent and 2.8 per cent respectively.
Rajagopalan (1983) analyses the area, production and productivity of paddy/rice in Tamil Nadu during 1956-57 to 1979-80, with three sub-periods, namely pre-green revolution (1956-57 to 1966-67), rapid transformation (1967-68 to 1971-72) and relative stagnation (1972-73 to 1979-80). The area under paddy/rice fluctuated between 2.3 and 2.7 million ha in the first period; between 2.4 and 2.7 million ha in the second period; and between 2.2 and 2.9 million ha during the third period. The rice production varied between 3.2 and 4 million tonnes in the first period; between 3.6 and 5.3 million tonnes in the second period; and 3.2 and 5.8 million tonnes in the third period.

Table 2.2 summarises the growth rates observed by the above study for different periods in Tamil Nadu

<table>
<thead>
<tr>
<th>Period</th>
<th>Annual growth rates in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
</tr>
<tr>
<td>Pre-green revolution (1956-57 to 1966-67)</td>
<td>1.82</td>
</tr>
<tr>
<td>Rapid transformation (1967-68 to 1971-72)</td>
<td>1.33</td>
</tr>
<tr>
<td>Relative stagnation (1972-73 to 1980-81)</td>
<td>-0.80</td>
</tr>
<tr>
<td>Over all (1956-57 to 1980-81)</td>
<td>0.39</td>
</tr>
</tbody>
</table>

For foodgrains as a whole, the all-India compound growth rate to production was 2.52 per cent annum in 1952-1965 and 2.77 per cent per annum in 1967-1979 (Joshi and Kaneda, 1982).

Table 2.3 indicates the area, production and productivity of rice (converted from paddy) in India during the ‘eighties and early’ nineties.

**TABLE 2.3** Area, production and productivity of rice in India 1980-81 to 1991-92

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (‘000 ha.)</th>
<th>Production (‘000 tonnes)</th>
<th>Productivity (Kgs./Ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>40,152</td>
<td>54,631</td>
<td>1,336</td>
</tr>
<tr>
<td>1981-82</td>
<td>40,708</td>
<td>53,240</td>
<td>1,308</td>
</tr>
<tr>
<td>1982-83</td>
<td>38,262</td>
<td>47,116</td>
<td>1,231</td>
</tr>
<tr>
<td>1983-84</td>
<td>41,244</td>
<td>60,097</td>
<td>1,457</td>
</tr>
<tr>
<td>1984-85</td>
<td>41,159</td>
<td>58,336</td>
<td>1,417</td>
</tr>
<tr>
<td>1985-86</td>
<td>41,137</td>
<td>63,825</td>
<td>1,552</td>
</tr>
<tr>
<td>1986-87</td>
<td>41,167</td>
<td>60,557</td>
<td>1,471</td>
</tr>
<tr>
<td>1987-88</td>
<td>38,806</td>
<td>56,862</td>
<td>1,465</td>
</tr>
<tr>
<td>1988-89</td>
<td>41,736</td>
<td>70,488</td>
<td>1,689</td>
</tr>
<tr>
<td>1989-90</td>
<td>42,167</td>
<td>73,573</td>
<td>1,745</td>
</tr>
<tr>
<td>1990-91</td>
<td>42,597</td>
<td>74,589</td>
<td>1,751</td>
</tr>
<tr>
<td>1991-92</td>
<td>42,500</td>
<td>73,660</td>
<td>1,733</td>
</tr>
</tbody>
</table>

The area under rice cultivation has increased marginally during the period 1980-81 to 1991-92. The production of rice has increased, specially since 1988-89, mainly because of the increase in productivity.

A study conducted by *Joshi and Kaneda (1982)* examined the variability in the yield of principal foodgrains in India during 1966-67 to 1977-78. The co-efficient of variation for the yield of rice during the study period widened, but for wheat it narrowed.

A study by *Kainth (1982)* reveals that the contribution of small, medium and large paddy cultivators are found as 8.41, 17.08 and 23.51 per cent in their production and there is proportionate and direct relationship between farm size and marketed surplus.

Another study conducted in West Bengal shows that the poor farmers do not have net sales and they are the net purchasers of paddy. The next group is the middle farmers who have a small volume of net sales. The third group consisting of rich farmers contribute more, and the surplus increases at a higher rate than the rate of increase of farm size (*Rudra, 1973 and 1982*).

A study conducted by *Arputharaj and Rajayam (1980)* in Tamilnadu has worked out the trends in area, production and productivity of paddy during 1966 to 1976-77. The annual growth rate for area under paddy in the state is 0.8205% in 13 districts, 9 districts in the state have shown negative growth rates for area under paddy. Production and
productivity growth rates are estimated as 2.3150 and 3.1621 / per annum respectively for the same period. This study reveals that the increase in the production of rice is mainly due to increase in the level of productivity. The negative growth rate in area under paddy is mainly due to changes of cropping pattern in favour of sugarcane cultivation.

There is a clear declining trend in per capita rice consumption in both rural and urban areas. Per capita consumption of wheat has increased significantly in rural areas and marginally in urban areas. The per capita consumption of all cereals in periods between 1961-62 and 1973-74 declined by 13.9 per cent in the rural areas and by 9.2 per cent in urban areas (George, 1980).

A farm level study conducted in Thanjavur district of Tamil Nadu estimated the percentage share of marketable surplus of paddy of marginal (32 per cent in the total number of 60 farmers), small (28 per cent), medium (28 per cent) and large (12 per cent), farmers as 5.63, 14.10, 36.22 and 44.05 per cent of production respectively. It shows a positive relationship with farm size (Kombairaju, 1980).

The mobilization of surplus resources from agriculture has come to be recognised as a mechanism of central importance for the development of agrarian economies (Mundle and Ohkawa, 1980).

A study conducted in Maharastra concludes that marketable and marketed surplus are negative in the cases of jowar and bajra and positive
in wheat. For total foodgrains, a negative surplus is observed up to 4 hectares, and it is positive above the 4 hectare level (Nadkarni, 1980).

**Krishnaji (1979)** observed inter-state and inter-district inequalities in per capita foodgrains production and productivity in India during 1950-53, 1960-63 and 1970-73. He classified the entire country into ‘rice region’, ‘wheat region’ and ‘other region’. The per capita foodgrain production in ‘rice’ and ‘other’ regions hardly changed during the study period and was estimated as around 170kgs per annum. However, the per capita production in ‘wheat region’ increased from 216kgs in 1960-63 to 329kgs in 1970-73. Co-efficient of variation for per capita foodgrains production for all regions had worked out as 0.3827, 0.3818 and 0.5064 for the above said sub-periods. This indicates the widening of inequality in per capita production.

A study conducted in two villages in Chengalpattu district of Tamil Nadu analyses the level of marketed surplus generated by different groups of farmers. The big peasants sold 87 per cent of the paddy produced. The marketed surplus of other groups such as medium, petty and landless peasants is calculated as 65, 25 and 26 per cent in their respective production of paddy. The first two groups contribute 92 per cent, latter groups contribute the rest of 8 per cent in the total marketed surplus (Sivakumar, 1978).

**Joan P. Mencher (1977)** summarises the need for growing more foodgrains. The list includes feeding the hungry, the rural landless poor
and small land-holders, enabling the owners of land to make a profitable living, and other reasons related to the state, to trade and earning forgiven exchange.

The problem of foodgrain production in 1970s was severe in many countries of the world. Domestic foodgrains production fell, while the demand for foodgrains grew rapidly because of population growth and concentration of such growth in urban area (OECD and FAO, 1977).

Another study conducted in 15 villages in Hoogly district of West Bengal analyses the nature of relationship between farm size and marketed surplus. The holdings with the farm size of 0.66 hectares or less, ie below the subsistence level, have sold their produce only due to distress. The level of marketed surplus increases at a rate more than proportionate with the farm size, and roughly it is a cubic function (Hati, 1976).

There is an increasing awareness that it is not enough to increase production of crops or animals, they must be marketed well. Increased production resulting in greater percentage of increase in marketable surplus, must be accompanied by the increase in demand from urban population (National Commission on Agriculture, 1976).

A study based on National Sample Survey (NSS) data observed the per capita consumption of foodgrains in different periods. The data is summarized in table 2.4.
TABLE 2.4 Per capita food grain consumption in India

<table>
<thead>
<tr>
<th>Cereal</th>
<th>Rural areas</th>
<th>Urban areas</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>8.77</td>
<td>8.13</td>
<td>6.90</td>
<td>6.14</td>
<td>5.61</td>
<td>5.38</td>
</tr>
<tr>
<td>Wheat</td>
<td>2.64</td>
<td>2.74</td>
<td>3.52</td>
<td>4.10</td>
<td>4.43</td>
<td>4.32</td>
</tr>
<tr>
<td>All cereals</td>
<td>17.53</td>
<td>16.19</td>
<td>15.09</td>
<td>12.47</td>
<td>11.65</td>
<td>11.32</td>
</tr>
</tbody>
</table>

Source: Directorate of Statistics and Economics and Ministry of Agriculture, New Delhi

Utsa Patnaik (1975) found that the holdings below 10 acres contribute 33 per cent and those below 15 acres 44 per cent of gross marketable surplus for all crops. This study stressed that the proportion of output available for marketing is fairly low on the smallest holdings, and increases with increasing average size, the range being from 20 per cent on the smallest to 63 per cent on the largest.

In another study, Kahlon and Vashistha (1968) found that the factors affecting the flow of marketable surplus are: volume of produce, size of holdings, consumption habits of the people, size of family, relative prices of different farm products and accessibility of market.

A cross section analysis in Indian villages from different regions shows that the relationship between farm size and level of marketable surplus is strongly linear in rich regions and it is likely to be non-linear in poor regions (Raj Krishna, 1965).
The marketable surplus in India is estimated to be about 31.4 per cent for rice and 32.7 for wheat in the production (Balasubramaniyam, 1961).

With the help of available literature and production statistics for the year 1958-59, Bansil (1961) estimated the marketed surplus for various foodgrains in India. The study estimated the marketed surpluses of rice and wheat as 30 per cent of production. For the other food crops, the surplus ranged between 16 and 27 per cent and for gram, 35 per cent.

Bansil (1961) identified that the following are the important factors, which restrict the marketable surplus of agricultural produce:

a) Implementing various land reform measures (reduce the size of holding and surplus);

b) Increasing income of the producer-sellers (reduce the cash need of these sellers); and

c) Speculative tendencies of farmers due to uncertainty about price (delayed sales).

Dharam Narain (1961) estimated the marketed surplus of all crops at the national level on the basis of data extracted from National Sample survey, Agricultural Labour Enquiry Committee Report, Farm Management Surveys, National Income Committee Report and various individual studies. Following are the two major findings of his study:
a) The marketed surplus as a proportion of value of produce declines up to 10-15 acres size category (other declining categories are 0-5 acres and 5-10 acres) and after that it increases steadily; and,

b) The holdings up to 10 acres in size contribute more than half (i.e., 54.4 per cent) in the total marketed surplus and holdings above this level contribute the rest of the surplus.

Kahlon (1961) observed the level of marketable surplus of wheat and rice during 1954-55 in Punjab and Pepsu State (integrated to Punjab in later period). The percentage of surplus of wheat in two places 24.8 and 28.9 per cent are in the total production. The percentage of marketable surplus of rice is estimated as 53.3 in Pepsu State. The marketable surpluses of wheat and rice in Hyderabad State for the same period are observed as 66.6 and 33.8 per cent of their respective production. This is evidence for the fact that the food habits of a particular region strongly influence the level of surplus for market.

While describing the factors determining the extent of the marketable surplus of a commodity, Kahlon specified that it depends very largely on the consumption habit of the people within the producing area, the nature of the crop grown (food crop or commercial crop), relative price levels of different farm products and the economic status of the farm population (Kahlon, 1961).
Population per acre of net area sown, cropping intensity, nature of crops grown and level of production are the factors determining the level of marketable surplus at the country level (Shastri, 1961).

What is far more germane to the process of development is the marketed surplus out of increased production. If this marketed surplus does not increase pari passu with increase in production, it may well contribute to a fundamental limiting factor on the tempo of industrial development by reducing supplies available for urban consumption, for industrialisation and export (Poduval, 1958).

2.3. REVIEW OF LITERATURE RELATED TO THE ROLE OF AGRICULTURAL MARKETING SYSTEM IN ECONOMIC DEVELOPMENT

Economic Development depends not only on production but also in marketing. Marketing should receive the same priority as production for attaining prosperity. Singh (2005) in his article “Improving food Marketing System – Some Policy Issues” has analyzed the maladies prevailing in food marketing in India and has suggested several measures for improving this system. According to him “A market mechanism can be a source of considerable development leverage or can be a barrier to development. The needed, improved performance of food (Agriculture) marketing system is no more likely to occur without investment in research, education and training than in farming and such programme should receive same priority consideration as agricultural production.”
Sunikumar’s (2003) “Role of futures markets in stabilization of agro commodity prices” expressed concern over the wide price fluctuations in the commodity markets and the absence of market based risk instruments and the plight of farmers towards less risky cultivation which perpetuates the growth of Indian agriculture.

Jayarathinam (2002) in his article entitled “farmers market (Uzhavar Sandhai) in Tamil Nadu A SWOT analysis” has suggested that the farmers should be educated on modern methods of farming by the department of agriculture.

The farmers’ Markets are established with three objectives of creating awareness, securing remunerative prices and protecting from the middlemen.

Bhagirath Singh (2001) has analyzed “developing infrastructure for post – harvest management, processing, marketing and agri-business and its enhancement of export potential in selected areas that have the comparative advantage.”

Kiran Sankar Chakraborth (2001) observes that “in the marketing of agricultural produces the farmer has been in all cases a price taker. Therefore, if the farmer’s share in the consumer’s price is inadequate he will not be encouraged for further production.”

Shanmuga Sundaram and Natarajan (2001) in their article “A study on Uzhavar Sandhai” (With special reference to beneficiaries
attitude towards Suramangalam Uzhavar Sandhai, Salem), have examined the operations of farmer’s market and found that farmers’ markets help the farmers to get a reasonable price for their produce avoiding all unwanted and unreasonable charges. The consumers were facilitated to get fresh vegetables at a cheaper price without any malpractice in weighing. Their investigation prompted them to suggest establishment of telephone facilities, extension of business time (working hours) and working of the market both in the morning and evening.

Patil et al. (2001), in their article, ‘urban demand for consumable primary agricultural products (fruits and vegetables) for Mumbai Metropolitan Regional population,” have estimated the demand for vegetables and fruits by 2025, as 6.82 lakh tonnes and 2.32 lakhs tonnes respectively. They felt that for such a heavy demand, cold storage and godown facilities were must.

Gopal Rao (2000) in his study “experience in agricultural marketing in India” states that it is only now that the developing countries have increasingly recognized that the agricultural marketing system plays a crucial role in economic development, not only by physically distributing increased production through incentives but also distributing the benefits of growth. As a result, many governments have now tried many approaches to develop the marketing system, with varying degrees of success.
Mittendrof (1998) in his study “the need for strengthening the agricultural marketing services” has emphasized the importance of passing on the benefits of growth to the farmers. He is of the view that “Governments of developing countries and aid donors had recognized increasingly that agricultural and food marketing system played a crucial role in economic and social development not only by distributing increased production physically but also by providing production incentives and by distributing the benefits of growth. Thus, Marketing helps passing on the benefits of growth to the farmers. Which is more important for increasing production. The efforts of the government and other agencies including farmers in increasing the production will yield fruits only if such benefits are passed on to the farmers who actually put in the efforts.”

Archana Sood (1990) observed that the arrival of agricultural commodities in the regulated markets is generally on the increase with the growing awareness among the farmers where their crucial role in getting remunerative prices and saving from the exploitation of the middlemen.

Nizamuddim Khan (1990) in his paper “Needing Remunerative Agricultural Marketing” has highlighted the various ills prevailing in agricultural marketing. According to him, agriculture marketing in India is suffering from different infrastructural, organizational and functional intersections. It is inefficient and non remunerative to producers, the sellers. Distress sales, especially in villages, where the common practice during the glut seasons. Small and marginal farmers were adversely
affected and they were forced to mortgage their surplus to the commission agents in order to obtain loans at the time when they were in distress. Inadequate infrastructural facilities like all weather roads and storage, farmers of small size, marketable surplus, non suitable linkage to the regulated and rural markets from the villages as well as producers, weak organizations were the significant factors which prevent the growers to fair price from their per unit of marketed surplus in the markets. Proper remove the ills of the agricultural marketing but in a way they will help farmers motivated towards higher production and continuance in agriculture.

**Vishwanatha Guptha (1990)** in his article “Rice Marketing in Tamil Nadu” subscribes that organized market will alone ensure fair price to producers as well as consumers. Farmer’s markets operate in the same line. He opines that, “if marketing of agricultural produce is properly organized, it can fetch a good price to the farmer and he will be inspired to produce more. The interest of the consumer will also be taken care of side by side. An efficient and properly organized marketing should, therefore, insure fair price to the producer as well as to the consumer.

For regulation and promotion of any economic and social activity government must initiate. For Agricultural marketing also such initiative is to be originating from the government. **Biswa and Parasher (1990)** have made certain observations and brought to light some facts. According to them during the last few years, the concepts of agricultural produce markets have been totally changed. Now, the Government had
taken the functions of regulating the marketing practices and providing *Mandis*, the market yards.

Seidhar and Shepherd (1988) in their work, “Marketing extension services for small farmers,” had indicated that it has been accepted that the farmers to increase production adequate attention needed to be paid to the fact that their increased output must be marketed at a rewarding price. Commercialization of the small farm agricultural sector essentially means the development of market-oriented production as opposed to the occasional sale of subsistence surpluses. Success in commercializing this sector would depend on the orientation of production to meet market demand and on the removal or reduction of a broad range of marketing constraints. Proper organization of markets for agricultural produce will not only remove the ills of the agricultural marketing but in a way they will help farmers motivated towards higher production and continuance in agricultural. Commercialization of agricultural and market oriented production are the prescription of the authors. Farmers market is an attempt in this direction namely commercialization as well as market oriented production. Hence the study is focused to understand how the farmers produce to meet the market demand.