2. REVIEW OF LITERATURE

The knowledge of similar research work previously carried out relating to the problem under study is useful as it provides a guidance and helpful in understanding and formulating the whole methodological framework. In this chapter, a review of past research relating the production and marketing management of grapes and strategies for increasing productivity and profitability and other relevant aspects are presented under the following sub- heads.

2.1 Patterns of growth in area, production and productivity of grapes in the study area.

2.2 Production and resource management in grapes production.

2.3 Cost and returns in grapes cultivation.

2.4 Feasibility of investment in grapes cultivation.

2.5 Marketing channels and to estimate price spread in grapes marketing.

2.6 Constraints in production and marketing of grapes and suggestions to overcome the constraints in production and marketing of grapes.

2.1 Patterns of growth in area, production and productivity of grapes in the study area.

Handiganur (1995) studied the growth rates of area, production and productivity of grapes in Bijapur district from 1978-79 to 1992-93. Growth rate analysis had showed an increase of 7.12 per cent of area in Bijapur district and an increase of 0.6 per cent in area, 2.80 per cent in production and 2.0 per cent in productivity of grapes was observed in Karnataka state. The increase in production and productivity was due to the use of improved cultural practices, increased use of manures, fertilizers and plant protection chemicals.

More (1999) studied the growth rate in area, production and productivity of banana in Nanded district, Parbhani district and Maharashtra state as a whole (4.50%) due to suitability of climate to cultivate banana in addition to more awareness of farmers towards horticultural crops in Nanded district. In Nanded district production growth rate had shown higher growth rate (21.04%). The higher growth in production was contributed mainly by significant increase in area coupled with productivity. The growth rate of productivity was high (1.43%) in Maharashtra state as a whole as compared to Nanded (1.40%) and Parbhani (0.90%) district. It was due to the
use of improved cultural practices, higher use of manures and fertilizers, more use of other inputs and also increased yield levels in other districts of the state.

Gangal (2002) studied the growth rate in area, production and productivity of banana in North Karnataka and Karnataka state as a whole. The growth rate in area (6.69%) in Karnataka state between 1980 and 2000 was substantially higher than all the other major banana growing states and all India average.

Shivanand (2002) studied the growth rate in area, production and productivity of banana in north Karnataka and Karnataka state as a whole. The growth rates in area (6.69%) in Karnataka state between 1980 and 2000 were substantially higher than all other major banana growing states and all India average.

Todkari(2010) studied the grapevine cultivation in Solapur District. The growth rate of grape area is flexible from region-to region and time to time according to environmental factors. The area of grapevine cultivation increasingly very slowly in study region and it decrease in the last decade. After the development of Thomson seedless, Sonaka and Tas-A-Ganesh varieties, the grape area increasing continuously.

Varghese (2004) conducted a study on trend analysis in area production and productivity and price behaviour of cardamom in Kerala. He reported that the percentage annual trend growth rate of area production and productivity of cardamom are -1.216, 414 and 5.512 respectively.

Saraswat and Rane (2006) conducted a study on production and marketing of peach fruit: a case study of Rajgarh area of district Sirimour in Himachal Pradesh 50 farmers were randomly selected for the detailed study. The compound growth rate with respect to area and production shows that the area under peach increased at the rate of 4.31 per cent per annum. The highest area under peach was recorded in Sirmous district, whereas district Mandi registered the highest rate of production growth in the state i.e., 9.32 per cent per annum. The district wise production scenario indicate that there are variations out of 12 district only 4 district have registered a positive growth in production i.e., Solan (22.55%) followed by Una

2.2 Production and resource management in grapes production.

2.2.1 Root stock:

Prakash and Shikhamony (1993) studied effect of drought on development of grape vine orchard and reported that the highest yield was recorded in Arka Kanchan bundded on
St. George and the highest number of bunches per vine were observed by Arkawati budded on St. George whereas, the lowest number was observed in scion on own root.

Ramteke et al. (1999) studied the response of Tas-A-Ganesh vines of Dogridge rootstock to imposed water stress. They observed that withholding irrigation during fruiting season has reduced significantly the shoot length and internodal length which ultimately affect on fruiting percentage and yield.

2.2.2 Training:

Shaikhamany (2001) studied the training of grape vine canopy-techno-economic analysis at National Research Centre, Pune. The study revealed that in vigorous vines foliage density was more in bower leading to poor light interception, less ventilation, more disease, less labour efficiency in thining and dipping of cluster in growth regulator solution in case of seedless varieties. Whereas, gable system of training helped to overcome the disadvantages associated with bower system. It is recommended only for vine with vigorous growth. When vine vigour is inadequate, grapes are subjected to sunburn due to spure canopies and direct exposure to sun. Although higher yields are harvested on bower in favourable years, the average yield over the productive life span of vines is more in gable system. In the final analysis, the benefit-cost ratio was high in gable system compared to bower on a long run.

Peterlunger et al. (2002) The studied effect of training system on Pinot Noir grape and wine composition. The study examined the effect of four training systems on the adaptation of Pinot Noir. Simple Gyot, Double Guyot, Horizontal spurred cordon and vertical spurred cordon were assessed during four years (1992 to 1995). The training systems affected yield but showed little or no impact on grape and wine composition (sugars and wine phenolics). Sensory analysis could not show relevant differences among training systems. Therefore, the selection of training system may be made according to the vineyard management choices and mechanization possibilities.

2.2.3 Pruning:

Chougule and Bhujabl (1994) reported that unfuritfulness was more in delayed foundation pruning and this can be improved by adopting sub-cane pruning along with application of growth retardant (Cycocel).
Ranpise (2002) conducted investigation on standardization of number of buds on main and sub-main cane for sub-cane pruning to increase fruit fullness in grape cv. Thompson Seedless. Among the various sub-cane treatment sub-cane pruning treatment with seven buds or eight buds on the main cane and five buds on sub main cane was found to be significantly superior for increasing 65.66 per cent fruitfulness and 10.76 per cent increase in yield per vine.

### 2.2.4 Fertilizer management:

Chandak (1985) studied micronutrient studies in Thompson Seedless grapes and reported that average weight of bunch, total yield per vine, average weight and volume of berry were increased which ultimately result in highest yield per vine when treated with foliar application of micronutrients to Thompson Seedless grape vine.

Sally-Jean Bell and Alan Robson (1999) studied the effect of nitrogen fertilization on growth, canopy density and yield of *viitis vinifera* L.cv. *Cabernet sauvignon*. Maximum vine vigour was observed upon addition of 100 g N/vine. It appeared that excessive nitrogen fertilization was an unprofitable exercise as it provided no further benefits in terms of vine productivity.

Sharma (2001) studied integrated nutrient management for grapes and observed that use of chemical fertilizer alone cannot sustain the soil health and productivity over a longer period of time. A number of organic sources are available. The proper management of it can solve the problem of nutrient imbalances and poor physical conditions, poor microbial population, etc. The essence of the integrated nutrient management is the combined use of inorganic, organic and biofertilizers in order to sustain the productivity of the crops.

### 2.2.5 Water management:

Magar (1987) studied irrigation method for grape and stated that with existing water resources, the drip irrigation method for grape was the most suitable. It does not only save the water to the extent of 60-70 per cent but also increase the yield of grapes to the extent of 20-25 per cent without affecting grape fruit quality and leads to increase fertilizer use efficiency.

Tambe *et al.* (1997) studied the water management techniques in grapes. It was observed that inadequate soil moisture leads to weak growth, delayed maturity and less
fruitfullness, while excessive moisture resulted into poor production due to slow growth, decreased bud burst and root rotting. The most critical stages for water management are formation of fruitful cane (40-60 days after April pruning), and berry development (60-120 days after October pruning). The grapevine gardens can be managed at stress or at shortage of water by adopting alternatives such as ideal canopy management, use of rootstocks, sub cane pruning system, use of chemicals, use of mulches and use of growth retardants.

2.2.6 Disease and pest management:

Rawal (1993) studied management of powdery mildew on grape in Punjab and observed that the induction of early sprouting in grape vines in an environment conductive for the development of powdery mildew helped in the establishment of the disease in vineyards. Due to high maximum summer temperature (above 35°C) prevailing during the vegetative growth phase, symptoms on foliage remain undetectable and its presence when felt by growers on berries is too late a stage to be controlled with wetable sulphur. One prebloom and two post bloom sprays of eryosterol biosynthesis inhibitors, traidimefon, cyproconazole and penconazole from the traizole and fenarimol from the pyrimidies effectively controlled powdery mildew in a three year trial on both berries as well as foliage.

Indi (2004) studied alternative used of systemic and non systemic fungicides for the control of powdery mildew of grape and observed the alternative use of systemic and non systemic fungicides for the control of powdery mildew of grape vines. The results of three years study indicated that the introduction of wetable sulfur sprays in between the sprays of ESBI fungicides resulted in further reduction in the powdery mildew disease intensity on leaves and bunches to the tune of 1.38 to 2.17 and 1.55 to 2.11 per cent, respectively as compared to the spray at systemic fungicides alone. The fungicides viz., triadimefon 0.1 per cent, penconazole 0.05 per cent and mychlobutanil 0.05 per cent either alone or alternated with wetable sulfur 0.25 per cent were more effective than the others.

2.2.7 Plant Growth Regulators:

Desai et al. (1980) studied effect of different chemicals on keeping quality of Thompson Seedless grape and reported that matured Thompson Seedless grapes dipped in
Benzyl adenine (BA) at 10, 15 or 20 ppm and in NAA of 25 ppm as the best for retaining significantly higher sugar content and TSS than that of untreated grapes.

Orth (1991) studied effect of dipping Muscat Seedless with Gibberellic acid at different flowering stages on berry set and berry size and reported that average berry size at harvest was reduced by early dipping, but slightly enhanced by later dipping. Berry shape was changed from round to elongated with early treatments.

Tambe (2002) observed effect of Gibberellic acid in combination with brassinosteroid on berry size, yield and quality of Thompson Seedless grapes. It indicated that the application of GA\textsubscript{3} in combination with brassinosteroid was found effective for cell elongation and cell division which lead to increase berry size, yield and quality of Thompson Seedless grapes.

2.3 Cost and returns in grapes cultivation.

2.3.1 Marketing in general:

Singh (1983) conducted the study on marketing management of grapes through co-operatives in Ludhiana district of Punjab. The budgeting technique was used to estimate the cost of assembling, grading, packing, transportation. The budgeting analysis showed that though co-operative marketing, the net returns, could be increased by reducing marketing cost and increasing gross returns by selling at the right place. When the produce was marketed through co-operative marketing society, cost decreased by 21.30 per cent while returns increased by 24.55 per cent.

Singh (1986) studied the marketing management of grapes in Punjab and observed that marketing study is the careful and objective study of market. It provides management with factual information as a basis for marketing decisions. Grading is the process of setting up standards to the produce. It adds value to the produce. Packaging, beside, giving protection make produce attractive. Distribution of produce is also important function of marketing management. It involves the decision relating to selection of channel and their management.
Madan (1988) studied the role of pre-harvest contractors in the marketing system of mango in Karnataka. The study revealed that 80 per cent of the total harvest is marketed by pre harvest contractors. Gross returns for the pre harvester contractor were around 37 per cent of the gross receipts from sales. He suggested that elimination of pre harvest contractor was enable the farmers to raise their share from 36 per cent of the sale proceeds to 70-80 per cent.

Subrahmanyam (1988) studied the marketing of horticultural crops in Karnataka and suggested that there is a need to control the activities of commission agents. For this purpose there is a need to introduce auctioning, grading, selling by weight etc. for orderly transaction. For elimination of pre harvest contractors and to improve marketing, steps like advancing production and market credit etc. to be taken. The co-operative societies should be developed as a real alternative channel of trade.

2.3.2 Grading and packing:

Pannu and Sidhu (1963) studied the economics of grading of oranges and found that the graded fruits fetched a premium of 12.9 per cent over the ungraded fruits.

Raghubanshi and Sharama (1977) stated that grading was a common yard stick to measure the quality variation. It helped in creating the mutual confidence between buyers and sellers. The consumer got the quality he wanted and producer got better returns.

Shrivastava (1979) in his study on transport and storage of grapes pointed out the need for quicker and proper transportation facility. He concluded that the rectangular bamboo basket having the horizontal partition reduced the wastage of grape considerably, than the conventional baskets. Moreover, fruits like grape should be transported as quick as possible and should be stored so that the quality is not deteriorated even for a distant market.

Parthasarathy (1990) studied packaging of fruits and vegetables. He observed that farmers were resorting to traditional method of packaging for fruits and vegetables rather than modern packages. Some of the farmers simply filled the truck without any packaging for some fruits and vegetables. He suggested the need for educating growers, traders and consumers about the important of the need and necessity of packaging though it cost a bit more.
Satpute (1999) studied on the economics of production and marketing of grapes in Solapur district revealed that the grapes were graded into three grades (Grade I, II and III). The Grade I produce was observed to be 49.78 per cent. It was noticed that highest quantity (57.03 per cent) of produce was packed 4 kg boxes. More than 50 per cent grape growers transported the produce by both trucks and tempos.

Mohite (2002) in his study of marketing management of grapes in Dhule district observed that 23.96 per cent grape growers followed early October pruning (15 August –15 September). The grapes were graded into three grades, Grade I produce was observed to be 52.16 per cent. It was noticed that highest quantity (51.13 per cent) of produce was packed in 4 kg boxes.

### 2.4 Feasibility of investment in grapes cultivation.

Talathi et al. (2001) studied economic feasibility of kokum plantation established on the research farm coming under Konkan region of Maharashtra and they stated that, this crop will play unique role in improving the incomes of rural people and it will generate lot of employment opportunities for rural masses. Further study indicated that, crop is equally remunerative when compared to other crops, and the cost incurred on the establishment of kokum orchard per hectare worked to Rs.56,699/- and pay-back period was 9 years. Net present value (NPV) was positive at 14 per cent discount rate within the stated period and Benefit cost ratio was greater than one. Internal rate of return (IRR) was also greater than the opportunity cost of capital and hence investment in kokum plantation could be considered favorably.

Koujalagi and Kunnal (1992) evaluated financial feasibility of investment in pomegranate orchard in Bijapur district of Karnataka. The study showed that the per acre net present value for the entire life period of the project was found to be Rs. 8,283.81. the discounted benefit cost ratio (at 12 per cent discount rate) was 1.53. The pay-back period was 6.56 years and internal rate of return was 15.55 per cent.

Chitra et al. (1997) in the study on economics of ber production in and around Hyderabad city of Andra Pradesh found that, the payback period in ber cultivation was 4.42 years and the benefit cost ratio was 5.25 indicating the profitability of ber cultivation. The net present value worked out was Rs.12, 061. The IRR was 73.54 per cent which was higher than the lending rates of commercial banks. The results of the study indicated that even though ber cultivation required
relatively higher initial capital investment compared to other fruit crops, the returns were higher during the bearing period and economic indicators clearly indicated that the production of ber was economically viable.

Krishna Rao and Ramanna (1997) conducted study on Profitability of Mango cultivation in drought prone areas: A case study of Anantapur district of Andra Pradesh. The capital productivity measures indicated that the investment on mango garden in the region was profitable proposition. The investment can be recovered by the farmers in 11.5 years and the benefit cost ratio was 1.46:1. The positive net present value indicated the soundness of investment made in the mango cultivation. The internal rate of return also indicated favorable nature of return.

Sundaravardarajan and Ramanathan (2003) reported that B: C Ratio and IRR for new cashew plantations were 1.42 and 34.36 per cent, while for old cashew plantations it was 1.06 and 17.17 per cent respectively. Further, they suggested that need to create an awareness to adopt improved verities (HYV), which not only reduce the cost of cultivation but also to increase the net income among the different size group of farmers.

Anand (2005) conducted study an economic analysis of production and marketing of papaya in North Karnataka. The capital productivity measures indicated that the investment on papaya garden in the region was profitable proposition. The benefit cost ratio was 3.51. The positive net present value indicated the soundness of investment made in the papaya cultivation. The internal rate of return also indicated favorable nature of return.

Gangwar et al. (2008) undertake study on economic evaluation of Peach cultivation in North Indian plains by calculated with the help of different investment appraisal methods. The Net Present Value (NPV) worked out to be Rs.44807, the Benefit Cost Ratio (BCR) as 1.41 and Internal Rate of Return (IRR) as 22.20 under the present value summation method. Under the amortization method also the Net Present Value (NPV) and Benefit Cost (BC) ratio were similarly at Rs. 42877 and 1.28 respectively, indicated that Peach cultivation in Panjab and Uttarakhand (North Indian Plains) were a profitable venture.

Raikar (1990) in his findings of the study indicated that per ha. NPV was found to be Rs. 28,440.58 in case of small orchard, Rs. 16780.84 in large orchard and Rs. 21034.59 in average orchard. The B:C ratio at 12 per cent discount ratio was 2.87 in small orchard 12.25 in large
orchard and 2.49 in an average orchard. The payback period was 8.90 years, 9.38 years and 9.18 years in small, large and overall orchards, respectively. The internal rate of return was found to be 20:22, 17:88 and 18:88 per cent in small, large and average orchard respectively.

Azad and Sikka (1991) in their study on production and marketing of temperate fruits applied project evaluation measures to study the economic viability of fruits such as apples, peaches, plums and apricots. The net present value was Rs26257.00 for apples, Rs. 89222.00 for peaches, Rs. 117837.00 for plums and Rs. 160541.00 for apricots. The internal rate of return was 22, 33 and 47 per cent respectively. The benefit cost ratios were 1.36, 3.87, 4.62 and 5.10 respectively.

Hugar et al. (1991) examined the economic potentiality and viability of Guava cultivation under scientific management. The study revealed that the net present worth was Rs 7, 38,042 per hectare. The benefit cost ratio, internal rate of return and payback period were found to be 3.88, 57.82 per cent and six years respectively.

2.5 Marketing channels and to estimate price spread in grapes marketing.

Satpute (1999) observed that the six marketing channels of which Channel III (Producer – Commission agent – Retailer – Consumer) was the most common one through which 35.61 per cent quantity was disposed. The price premiums received per quintal between different grades, markets and marketing agencies and sale during different months were found to be considerably high.

Undirwade et al. (1992) conducted a study on marketing of grapes in Dhule district and observed that farmers preferred to sell their produce to pre harvest contractors (66.67 per cent). The producers share in consumer’s rupee was highest (75.93 per cent) in Channel; Producer-Retailer-Consumer. The marketing cost was highest (Rs. 142.88/qt) in Channel-Producer – Wholesaler – Retailer – Consumer. There was no much variation in net profits earned by retailers in different channels of marketing.

Pagire (1995) conducted study on marketing of grapes in Maharashtra. He observed seven marketing channels and observed that 51.10 per cent grape growers marketed their produce through Channel – Producer – Commission agent – Retailer – Consumer and the quantity sold through the Channel: Producer – Export trader by 18.40 per cent sample grape
growers. The Channel: Producer – Retailer – Consumer was followed by all the sample grape growers, however, the quantity sold through it was only 5.70 per cent.

Deshpande et al. (1992) conducted a study on price spread in different channels of marketing of grapes in Latur district. They identified following channels. Channel I (Producer – Aditya – Retailer – Consumer). Channel II (Producer – Wholesaler – Retailer – Consumer). Channel III (Producer – Retailer – Consumer) and Channel IV (Producer – Consumer). The study revealed that the minimum marketing cost of Rs. 76.60 per quintal of grapes was in the Channel IV. The Channels I and II had the highest marketing cost of Rs. 166.95. The producer’s share in consumer’s rupee was maximum (91.43 per cent) in Channel IV.

Mohite (2002) in his study of marketing management of grapes in Dhule district observed five marketing channels were identified. Channel III (Producer – Commission agent – Retailer – Consumer) was the most common one through which 44.29 per cent quantity was disposed. The per quintal net average price received in Channel III was Rs. 1660.07. Nearly 30-40 per cent share was galloped by various market intermediaries.

Singh and Singh (1977) concluded the study of marketing of grapes in Haryana and Found that grading and packing together formed 72.60 per cent of the total marketing cost in the primary market and 64.13 per cent in the terminal market. Transportation accounted for another 10.96 per cent and 34.24 per cent of the total marketing cost for sale in these markets, respectively. They found that producer got the maximum share of the consumer’s rupees (71.48 per cent) by selling produce to retailers through commission agents in the primary market. The producer share in consumer’s rupee was minimum (53.70 per cent) when sold to the pre harvest contractor.

Deshmukh (1990) reported that more than 95 per cent of the grapes of Tasgaon farmers in Sangli district were sold through pre harvest contractors and wholesalers. Grape growers received higher returns by selling produce to retailer in sub-urban area because of savings in commissions and market charges. The per quintal marketing cost of grapes incurred by per harvest contractor was Rs. 194.00. The expenses incurred on account of various items like transportation including loading and unloading has major share (36.08 per cent) in the marketing cost. Commission charged by commission agents constituted 26.81 percent in the total marketing
cost. Packaging cost accounted for 20.61 per cent. Gross marketing margin of retailers who purchased grapes directly from the producer was Rs. 342 per quintal with selling price of Rs. 700 per quintal and the expenditure of retailer was Rs. 55 per quintal.

Sale and Nawadkar (1992) conducted a study on Impact of Producer’s Associations on Marketing of Grapes and Bananas in Jalgaon and Sangli districts of Maharashtra, where producers association are actively engaged in marketing of banana and grapes, respectively. The results showed that the cost on account of transport, commission of wholesalers and marketing agencies was lower for the member of producers association than for the non members. The members of producers association could therefore, derive relatively higher profit margins from fruit trade than the non-members.

Dangat (1997) studied marketing of grapes through co-operative in Pune district and pointed out that co-operative marketing societies not only give technical guidance to members but also arrange transport and sale of grapes. The average area per farm under grapes was 1.23 ha. The average grape production per farm was 33-63 tonnes (27.42 tonnes/ha). The growers had three varieties, viz., Tas-A- Ganesh, Sonaka and Sharad Seedless. The sample grape growers sold the produce in different markets viz., Mumbai, Delhi, Ludhiana, Dubai and England through co-operatives as well as independently. About 16 per cent of the produce was sold in the garden itself. More than 50 per cent of the produce was sold in Delhi and Ludhiana markets. About 23 per cent of the produce was marketed in Mumbai market. The per kilogram cost of marketing of grapes worked out to Rs. 6, Rs. 7, Rs. 12 and Rs. 16 in Mumbai, Delhi, Dubai and England markets respectively. The average per kg gross price realized for grapes in these four markets worked out to about Rs. 10.50, Rs. 17, Rs. 20, Rs. 43 and Rs. 55 respectively.

Gawade et al. (2000) studied the marketing of grapes in Tasgaon region of Sangli district for organized and unorganized cultivators. They concluded that amongst the marketing cost, packaging material cost constituted the highest percentage followed by commission charges and transportation. As regards the sale in different market places 78 per cent of the total produce was sold in Mumbai market followed by Delhi (16.98 per cent). The per quintal price received was higher in Delhi market (Rs. 2059.20) than Mumbai market (Rs. 1974.80). The per quintal price received was higher in co-operative organization (Rs. 2000.01) than through commission agent (Rs. 1910.60).
Bagal (2003) studied the marketing of grapes in selected area of Sangli district and it revealed that 16.15 per cent of marketed quantity of grapes was exported from Tasgaon area. In case of domestic marketing the proportion sold was the highest in Mumbai market followed by Pune, Kolhapur and Sangli market. The per quintal cost of marketing of domestic market was Rs. 1123.68 in outside the state and Rs. 685.94 for within the State market respectively. The per quintal average net price realized by the grape growers was Rs. 1511.78 for domestic market and Rs. 1500.06 through marketing on farm sale, respectively.

It would be revealed from above studies that the share of producer’s in consumers rupee was relatively very low in case of fruits. Selection of proper channel for marketing. The produce is an important aspect in the marketing. The post studies have revealed various marketing channels and have pointed out the profitable marketing channel. The studies on price spread revealed that the aspect such as packaging charges, packaging material, transportation, charges of commission agents etc were the items on which producer incurred maximum in the total market cost.

2.6 Constraints in production and marketing of grapes and suggestions to overcome the constraints in production and marketing of grapes

Govinda Reddy et al. (1997) identified the problems of mango growers in Srinivasapur region of Karnataka. The major constraints faced by mango growers at the production level were lack of knowledge on the application of balanced fertilizers (88% of respondents) followed by lack of awareness on drip irrigation (84%) technology, heavy rain and wind during flowering and fruit development stage (82%) , non- availability of credit (80%), non-availability of labour (78%), high cost of inputs (74%) , lack of knowledge on proper plant protection chemicals (63%), lack of knowledge on technical guidance (43%), high incidence of pests and diseases (36%) and the availability of quality grafts (26%). The major constraints in mango exports were lack of nearby processing units, storage facilities, precooling units, knowledge in chemical treatments of units, regulated markets and improved harvest. Other problems were exploitation by middlemen, lack of grading etc.

Khunt et al. (2001) studied economics of production and marketing of pomegranate and found that dying of young plant, problem of mite, inadequate irrigation water and its poor quality and short supply of electricity were major problems faced by pomegranate growers of Bahavnagar district.
Pagire and Jadhav (1998) studied the problems in the marketing of grapes in Maharashtra and concluded that, there was high cost of packing material, high cost of transportation and non-availability of pre-cooling and cold storage facilities etc. The number of grape growers who reported the above problems constituted 88 per cent, 83 per cent and 82 per cent, respectively of the total sample. Nearly, 50 per cent of the grape growers faced the problem of non-availability of skilled labours. About 78 per cent grape growers opined that there was undue delay in payment by the commission agents and about 93 per cent grape growers reported that the rate of commission charges was too high and the commission agents generally deduct the unauthorized deductions from the payments.

Satpute (1999) in his study on economics of production and marketing of grapes in Solapur district revealed that the farmers were facing the marketing problems such as costly packing material, lack of cold storage facilities, high commission charges, unauthorized deductions and lack of efficient market information system etc.

Kamble (2001) studied the economics of production and marketing of grapes in Sangli district. He reported that the farmers were facing the problems such as non-availability of technical guidance, costly insecticides/pesticides and growth regulators, non-availability of skilled labours at proper time, high wage rated, etc. The problems regarding marketing were as costly packing material, high commission charges and lack of efficient market information system, etc. at producer’s level in the area.

Senthilnathan and Srinivasan (1994b) studied the problems in poovan banana cultivation in Trichy, Lalgudi and Kulithali taluks of Rrichirapalli district of Tamil Nadu. They reported that, in Trichy taluk 20 farmers expressed high initial investment, 16 wind damages, 12 price fluctuations and 10 disease problems. In Lalgudi taluk, 17 farmers expressed high initial investment, 11 price fluctuations, 13 diseases incidence and nine wind damage. In Kulithali, disease incidence expressed by 2, wind damage by 20, initial investment by 18 and price factor by 14 farmers.

Deorukhakar et al. (1995) studied the constraints in technology adoption of cashewnut cultivation in the Sindhudurga district of Konkan region, Maharashtra. They found that two third of the growers opined that there was no need to use of fertilizers and plant protection chemicals, high cost of fertilizers (13%) and plant protection chemicals (27%) were
other constraints expressed by the cashew growers. They further reported that the 41 and 32 per cent of the respondents expressed the high cost of improved planting material and irregular supply of this input, respectively.

Gunjate (1997) reported problems of cashew plantation management at regional fruit research station, Vengurla, Maharashtra, he observed that some problems in cashew plantation management that non-availability of right kind of inputs, inadequate funds, nonavailability of suitable form equipments and machinery, non-availability of qualified and experienced personnel. It was necessary to make available the grafts of the choicest variation in all the region replanting the gaps should be done as early as possible and it should never be lift beyond second year. The prophylactic sanitary measures recommended found to be quite affective against stem and root bores.

Mali et al. (2001), studied economics of production and marketing of banana in Jalgaon district of Maharashtra. The study identified that high cost of transportation, non availability of sufficient credit by the institutions in time, high price fluctuations, the problem of cheating in weighing of produce and lack of suitable grading of the produce according to quality as main problems in production and marketing.

Nagesh (2006) conducted study on entrepreneurial behaviour of pomegranate growers in Bagalkot district of Karnataka. The study identified production problems like lack of technical know-how, scarcity of labour, pest and diseases, lack of adequate credit facility. The farmers in the study area expressed also marketing problems like involvement of intermediaries, high cost of packaging material, high transportation charges.

Rane and Bagade (2006) studied economics of production and marketing of banana in Sindhudurg district of Maharashtra, the study revealed that farmers were facing the problem of bunchy top disease of banana and also aphids of banana in production of banana.

Vasudev and Choudhary (1999) identified problems of productions and marketing of tomato in the regions of Andhra Pradesh, lack of grading facilities, absence of market information and spoilage and malpractices were the major problems in tomato. They have concluded that providing these facilities can improve the marketing efficiency and will help the farmers in realizing better prices.
Karpagam (2000) conducted a study on turmeric growers of Tamil Nadu state and reported the problems such as price fluctuation, high cost of inputs and scarcity of labour, few respondents expressed the problem of non-availability of credit.

Govinda Gowda (2002) in his study on sustainable grape cultivation reported the important constraints in grape marketing as, no fixed price, low price, lack of regulated markets, exploitation by middle men, lack of cold storage facility, no guidance on marketing aspects and lack of transportation facilities. Further, constraints perceived by them in availing credit were non availability of credit in time and inadequate quantity of credit.

Sunil Kumar (2004) in his study on tomato growers in Belgaum district of Karnataka reported that, majority of the farmers (75.83%) faced the problem of technical knowledge and guidance about improved cultivation practices as well as post-harvest technology. Whereas 65.00 per cent of the respondents faced the problem of high fluctuation in market price, followed by high transportation cost (62.53%), labour shortage and high wages (55.83%) and lack of irrigation facilities and power shortage (46.66%).

Raghavendra (1997) in his study on knowledge and adoption behaviour of arecanut farmers of South Canara district of Karnataka suggested that, programmes relating to providing loans and subsidies to the farmers especially small and marginal group, to develop the sources of irrigation need to strengthened.

Chikhale et al. (1998) in his study on adoption of improved cultivation practices by orange growers in Maharashtra reported that, cent per cent of the respondents suggested to extend the facility of crop insurance scheme for the orange orchard so that the risk of failure can be covered and to provide subsidy for chemical fertilizers and pesticides. Imparting training about preparation of vermicompost, organizing visits of orange growers to the ideal orchards were the important suggestions given by the orange cultivating farmers.

Lakshmisha (2000) in his study on cashew reported that, there is need for integrated pest management (IPM) approach to manage the pests effectively in long range.

Babanna (2001) in his study on arecanut in Shimoga district suggested that, educating farmers in identification and control of pests and diseases, provision of remunerative price in time, labour availability and encourage the farmers to adopt the production technologies in arecanut cultivation.
Vedamurthy (2002) in his study on the management of arecanut gardens and marketing pattern preferred by arecanut farmers of Shimoga district in Karnataka state suggested that, educational activities needs to intensified by the extension and other agencies, irrigation facility, loans and subsidies to farmers especially for small and marginal farmers group, to develop the source of irrigation.

The above studies indicated that the lack of competition among buyers, absence of skilled labour, seasonal shortage of labour, absence of cold storage faculties, difficulties of transportation, large number of middlemen, unregulated markets, lack of proper grading and standardization, lack of packing, etc. were the major production and marketing management problems. In order to overcome these problems there must be well established production and marketing functions.