2. REVIEW OF LITERATURE

2.1 ADOPTION OF ORGANIC PRODUCTION PRACTICES BEING FOLLOWED BY HORTICULTURE GROWERS

Ashwathaiah and Krishna (1973) conducted study on adoption of improved practices by potato growers in Belagavi district noticed that all the respondents used improved seeds followed by 86.00 per cent were found to applied recommend dose of FYM. Adoption of recommended spacing and application dose of nutrients noticed with 74.30 per cent and 65.70 per cent of farmers respectively but plant protection measures were not adopted by 78.60 per cent of potato growers.

Shanmukappa (1978) found that 90 per cent of the arecanut growers of Shimoga district had adopted manuring, intercultivation, intercropping, drainage and plant protection measures.

Thimmappa (1981) reported that cent per cent of coconut growers of Tumkur district were practiced recommended variety, manuring and intercultivation followed by contour bunding (99.17%). It was found that practices of keeping recommended spacing and irrigation were noticed with 44.17 and 33.33 per cent respectively.

Gurunathreddy (1983) noticed that all the respondents of Banana growers in Tungabadra project area of Karanataka, All the respondents adopted the recommended variety, planting material and deepen the pit to three times loosen the soil and weed control. Similarly majority of the respondents followed the practices like recommended spacing (98.00%) and planting season (96.00%). However practices like application of farmyard manure and plant protection chemical were noticed with only 8.67 per cent of the respondents.

Patil and Jadhav (1987) conducted a study in north–west Maharashtra and reported that 56 per cent of onion growers adopted improved varieties and recommended seed rate. The other recommended practices adopted namely seed treatment, application of organic manures and fertilizers and plant protection measures were followed by 25, 20 and 46 per cent of the responded respectively.
Nikhade and Poteder (1989) reported that comparatively more numbers of banana growers (41%) were found to adopt inter cultivation operations followed by manure application (40%) and only 7 per cent of the respondents adopted plant protection measures.

Lianbika and Nimhade (1993) conducted a study on pineapple growers in Mizoram state, reported that 30 per cent of the respondents were applied organic manures where as 24 per cent respondents followed intercropping and none of the respondents were found to adopt the practice of seed treatment and plant protection measures.

Shylaja et al. (1993) conducted a study on the adoption of technology and constraints in Banana production in Trivendrum district of Kerala revealed that the adoption was very low for all the recommended practices except for preparation of suckers (83.00%). The extent of adoption of recommended organic manures and irrigation were noticed among 28.80 per cent and 48.10 per cent of the respondents respectively but the recommended fertilizer was not adopted of any of the farmers.

Venugopal Reddy and Ratnakar (1993) reported that 53.33 per cent of Mango growers of Khammamm district of Andhra Pradesh adopted intercultivation. The practice of organic farming and plant protection measures was observed with 37.50 per cent and 18.33 per cent of respondent respectively.

Jirli (1996) revealed that more than fifty per cent of the respondents (64%) were high adopters of mechanical pest control package, insecticides of plant origin, neem seed kernal extract was adopted by 59 per cent of respondents, while 29 per cent of respondents were low adopter but 12 per cent of vegetable growers were medium adopters.

Nirmaladevi and Manoharan (1997) conducted a study on guava cultivation in Kamaraj district of Tamil Nadu and reported that cent per cent of the respondents were found to apply farmyard manure and 45 per cent respondents were found to adopt mulching practices.
Raghavendra (1997) reported that all the organic arecanut growers had adopted the practices like weeding, harvesting and processing completely while 68 per cent of the respondents were practicing application of green leaf manure and compost.

Resmy (1998) in the study an analysis of sustainability of organic coconut and banana intercropping in Kerala state, reported that, majority of the respondents adopted the practices like organic matter application (78.3%) followed by mulching (63.3%) and ideal age of seedling (60%). The recommended method of planting seed and weeding were practiced by 51.66 per cent and 45 per cent of the farmers respectively. The recommended time of applying green manure and bio-fertilizers were noticed with 38.33 per cent respondents.

Mercy Kutty and Karippai (2000) reported that a majority of adopters were used bio-fertilizers in cultivation of Banana crop (96.87%). Similarly 87.50 per cent of farmers in coconut and 78.12 per cent of farmers in vegetables were found to use biofertilizer.

Rajendra Chopke (2000) conducted study in Akola district of Maharashtra state and reported that 85.4 per cent of farmers were medium adopters of Bio-control measures whereas only 8 per cent of them were noticed in high adoption category and remaining 6.56 per cent were low adopters of Bio-control measures.

Thimmareddy (2001) study of ten farmers conducted on organic cultivation of field crops reported that 90 per cent of the respondents were used farmyard manure for crop production, followed by 70 per cent of the respondents were applied plant extracts for pest and disease control. The practice of green manuring, vermicompost and mulching was noticed among 50.00 per cent and 40 per cent of the respondents respectively. Lastly the practice of compost, vermiliquid and sheep penning was noticed with 30 per cent and 20 per cent of the respondents respectively.

Govind Gowda (2002) conducted a the study on analysis of adoption of sustainable farming practices among grape growers of Bijapur and Bangalore rural district of Karnataka state, more number of grape growers adopted the practices like intercropping (53%) followed by green leaf manure (47%). The application of oil cake and vermicompost was noticed among 6 and 2 per cent of the respondents respectively.
Ramesh and Shantha (2002) reported that on extent of adoption of organic farming practices in Pudukkotti district of Tamil Nadu, high majority of the respondents were found to adopt the practices like in situ incorporation of crop residue (98%), followed by application of neem oil cake (96%). It was noticed that 95 per cent of the respondents adopted the green leaf manure (95%), spraying of leaves extract (92%), and application of farm yard manure (90%). It was found that application of compost (80%), use of Azosperillum (70%) finally collection and destruction of egg larvae and pupa of pests (67%). It was found that use of light traps and recommended crop rotation were noticed with 45% and 43% of respondents respectively.

Catherine Green and Amy Kremen (2003) opined that U.S. farmland managed under organic farming systems expanded rapidly in the year 1999 to meet consumer demands in both local and national markets. The U.S. Department of Agriculture (USDA) implemented national organic standards on organic production and processing in October 2002, following more than a decade of development and new uniform standards are expected to facilitate further growth in organic farm sector. USDA’S organic standards incorporate an ecological approach to farming–cultural, biological and mechanical practices that foster cycling of resources, ecological balance and protecting of biodiversity. An increasing number of U.S. farmers were adopting these systems in order to lower input costs, conserve non renewable resources, capture high–value markets and boost farm income.

Anwer et al. (2010) conducted field experiment on influence of varying adoption of organic sources of nutrient on growth and yield of coriander was conducted at NRCSS, Ajmer during rabi season of 2003, 2004 and 2005. The experiment comprised of absolute control, three levels of sheep manures (5.0, 7.5 and 10 t/ha), vermi-compost (2.0, 3.0, and 4.0 t/ha) and recommended dose of fertilizer with and without bio-fertilizer was laid in randomized block design with three replications. The organic sources of nutrients were applied one month before sowing and coriander seeds were inoculated with Azotobactor and sown after drying in shade. Based on three year study it was found that all organic and inorganic sources of nutrients with and without bio-fertilizer proved superior and exhibited higher yield over absolute control. Application of bio-fertilizer as sole as well as in combination with sheep manure, vermi compost and recommended doses of fertilizer resulted higher growth, yield attributes
and yield over absolute control. The association of bio-fertilizers with all sources of nutrients proved beneficial and resulted higher growth and yield over without bio-fertilizer. Application of 7.5 t/ha sheep manure with biofertilizer resulted highest growth and yield attributes as well as seed yield over respective lower and higher levels but increasing level of vermi-compost with and without biofertilizer (2, 3 and 4 t/ha) exhibited higher growth and yield over their respective lower levels. Thus, it is inferred that application of 7.5 t/ha sheep manure is better for realizing higher yield, net return and BCR under lower fertile soil with respect to available nitrogen.

Gopal Thape and Kanokporn (2010) stated that consistent with the national agriculture promotion, the government of Thailand has implemented organic vegetable farming as pilot projects in several provinces. This study analyzed that level of adoption and extent of organic vegetable farming at farm household level in Mahasarakham province based on data collected from 172 vegetable farmers. The results has been indicated that slightly more than half of the sample farmers were grown organic vegetables, although the extent of the area under organic vegetables varied from one farm household to another. The result of the logistic regression analysis performed to find out the factors that determine the adoption of organic vegetable farming, found significant influences of several factors including women’s leading role in Organic Vegetable Farming motivation by government and NGO’s motivation by community members and farmers group, attendance in training, satisfaction with price of vegetables and the intensity of pest hazard. Moreover the Linear regression analysis carried out to explore the determinants of the extent of organic vegetable farming at household level revealed three significantly influencing factors, namely the amount of organic fertilizers such as farm yard manure and compost produced by farmers themselves, perception of the harmful effect of inorganic pesticides and the length of experience in growing vegetables.

Guruswamy and Gurunathan (2010), explained there was increasing in production and productivity in chemical or conventional agriculture and India was able to satisfied partly the food security. It was found that organic practices which is emerging practices in many countries around 20 per cent all over the world for the last fifteen years. So study was done about present status of organic production, productivity, management of diseases, weeds, manures, harvestings, post harvesting etc
Doris Lapple and Tom Van Rensburg (2011), opened that based on the fact that not all farmers adopted a technology at the same time, it was argued that the distance between groups was important because early, medium and late adopters responded differently to economic and non economic factors when they consider whether to take up organic farming or not. The individual effects on adoption between the groups were identified by the use of multinomial analysis. The results provided evidence that there were significant differences in the characteristics between the adopter groups. The findings also revealed that the factors that affect adoption play a different role for early, medium and late adopters particularly with regard to farming intensity, age, information gathering as well as attitudes of the farmer. More specifically, early adopters were the youngest to adopt organic farming and their decisions were found to be less profit related compared to other groups. Late adoption was constrained by risk considerations, while environmental attitudes and social learning were identified to important determinants for all adopter groups. Overall, the findings strongly suggest that for policy measures to effective, the current state of diffusion has taken into account.

2.2 SOCIO-ECONOMIC CHARACTERISTICS OF ORGANIC FRUITS AND VEGETABLE GROWERS

Education

Ajaykumar (1989) reported that 27.00 per cent of grape growers in Rangareddy districts of Andhra Pradesh had education up to college level, 38.00 per cent of respondents studied upto graduation and none of the respondents were found to illiterate.

Gotyal (1989) conducted study on lime growers in Bijapur district of Karnataka and reported that 25.00 per cent of respondents were illiterate and educated up to primary school, 20.00 per cent of the respondents were graduates. Only 16.60 per cent and 12.67 per cent studied high school and PUC level respectively.

Jayale (1992) observed that 15.83 per cent of horticulture crops growing respondents were illiterate, 18.33 per cent each could read only and could read and write, while 8.34 per cent of respondents each had education upto primary and middle
school level. Nearly one fourth of the respondents (22.50%) studied up to high school level and only 8.33 per cent of the respondents were graduates.

**Shrinivasreddy (1995)** explained in a study on mango growers of Kolar district reported that 28 per cent of the respondents were educated up to high school level, 25 per cent of the respondents were illiterate, and 19 per cent of the respondents studied up to primary school level and only 7 per cent of the mango growers had education up to graduation level.

**Saravanakumar (1996)** revealed that 27.50 per cent of the mango growers studied up to college level, 24.33 per cent and 9.16 per cent of the respondents were educated up to primary school level and graduation level respectively. Only 1.67 per cent of the respondents were illiterates.

**Angadi (1999)** reported that 30.00 per cent of the pomegranate growers had studied up to middle school followed by 20.62 per cent of the growers with the education up to high school, while 22.50 per cent of the respondents were illiterates, only 3.75 per cent of them had received primary education finally graduation was done by 12 per cent of the respondents.

**Palaniswamy and Sriram (2000)** explained in their study to measure extension participation of farmers revealed that majority of the farmers belonged to medium education level (53.06%) while 21.77 per cent and 25.17 per cent belonged to low and high education level respectively.

**Venkataramulu (2003)** conducted study on chilli growers in Guntur district of Andhra Pradesh observed that majority of the respondents had studied up to primary school (25.83%) followed by illiterates (22.50%).

**Moulasab (2004)** explained in the study on mango growers in North Karnataka indicated that more than 23 per cent of growers were educated up to primary school followed by higher secondary school 16.16% and 4.16% of them were illiterates.

**Family Size**

**Rangi et al. (2002)** revealed that 56 per cent of the respondents had family size up to five members in the family, whereas, 44 per cent of them had family size of ten members. The later categories of respondents were living in the joint family.
Devalatha (2005) revealed that 63.33 per cent of the SHG groups of Gadag district consist of medium family size (4-6), whereas, 30.85 per cent of the respondents consists of large family size (above 7 members) and 5.82 per cent of the respondents consists of small family size (1-3).

**Land holding**

Gotyal (1989) conducted in the study on lime growers in Bijapur district reported that 42.67 per cent of the respondents had 16 acres of land and only 2.66% respondents had more than 40 acres of land.

Jayale (1992) observed that majority of horticulture crops growing respondents (63.33%) had medium land holding upto six hectares and 24 per cent of the respondents had small land holding up to two hectares. Only 13.34 per cent of the respondents had land holding above 6.10 hectare.

Srinivasreddy (1995) conducted study on mango growers in Kolar district of karnataks reported that 41.00 per cent of the respondents had less than 12 acres of land and 36.00 per cent of the respondents had 12 to 32 acres of land whereas, 24 per cent respondents had more than 32 acres of land.

Sarvankumar (1996) noticed that, majority (64.18%) of the Mango growers in Dharmapuri district had medium land holding (10 to 30 acres) while 21.66% and 14.66% had small and big land holding respectively.

Angadi (1999) in a research study on pomegranate growers of Bagalkot district of Karnataka found that, majority of respondents 62.50 per cent of the respondent had medium farm size and 31.25 per cent had big farm size, finally 6.25 per cent of the growers had less land holding.

Karpagam (2000) conducted study on turmeric growers in Erode district of Tamil Nadu observed that majority of respondents 40.83% had medium land holding and 31.66% of the respondents were noticed in semi medium land holding category.
Mass media use

Srinivasreddy (1995) noticed that, majority of mango growers (53.00%) had low level of mass media participation followed by high level of mass media participation (36.00%) and medium (11.00%) level of mass media participation.

Saravanakumar (1996) observed that 24.33 per cent of the mango growers of Dharmapuri district subscribed newspaper and farm magazines read them regularly, while 42.50% and 42.86% of the respondents regularly listened and viewed the agricultural programmes respectively.

Vedamurthy (2002) in his study on arecanut growers of Shivamoga district of Karnataka observed that, relatively more number of growers (48%) were medium mass media users. While 37 per cent of the growers had high mass media users and 27.33 per cent were of low mass media users.

Shashidar (2003) reported that 41.11 per cent of the plantation crops respondents belonged to medium level of mass media participation followed by low level of mass media participation (35.56%), whereas 24 per cent of respondents were noticed in high mass media participation.

Moulasab (2004) conducted a study on mango growers of North Karnataka found that 74.17 per cent of the respondents were possessor of television whereas subscription of farm magazine and news paper was noticed to the extent of 32.50 and 6.67 per cent respectively and 43.33 per cent of respondents were occasional viewers of television programmes.

Sunil Kumar (2004) conducted a study on tomato growers of Belagavi district revealed that 59.17 per cent of the respondents were occasionally listening agricultural programmes in radio. Whereas 30 per cent of the respondent practiced to watch agricultural programmes in television occasionally, it was noticed that 70.86 per cent and 85.00 per cent of them never used to read the newspapers and farm magazines respectively.
Extension participation

Gotyal (1989) reported that majority of the lime growers never participated in field visits (70%), discussion meeting (74%), extension tours (66%) and training programmes (64.67%). It was found that, 63.33 per cent of the respondents participated occasionally in the field demonstrations.

Yogananda (1992) observed that, majority of the coconut growers (78.33%) not participate in educational tour followed by 61.00 per cent of the small coconut growers not participated in meetings, educational tour and training programmes.

Sarvankumar (1996) reported that, majority of the respondents never participated in demonstrations (83.34%), training programmes (70.83%) and discussion meeting (67.50%). It was noticed that 68.33% and 54.17% of the mango growers were found to participate occasionally in field day and extension tours respectively.

Angadi (1999) noticed that, majority of the pomegranate growing respondents not participated in various activities like, discussion with extension personnel (98.76%), group meetings (75.24%) and training programmes (72.50%). whereas regular participation in demonstration and krishimela were noticed with 43.75 per cent and 38.13 per cent of the respondents respectively.

Sunil Kumar (2004) conducted a study on tomato crop growers in Belagavi district of Karnataka revealed that, it was found that 24.00 per cent of the growers participation in demonstration followed by 22.90 per cent of respondents participated regularly in agricultural exhibition. Majority of them never attended in the activities like training (66.67%), educational tour (94.17%) and field visits (92.05%).

2.3 RELATED TO MARKETING CHANNELS FOR ORGANIC PRODUCTS

Viktoria and Zoltan (2003) opined that the national ecological production is highly export oriented. The development of the inner market was a very slow process for which are incomplete knowledge, limited solvent demand, wrong approach and limited purchase possibilities. In the supply of the few organics stores they found about 10% organic food which was compensated by the wide choice. Organic foods were not able to get into super markets because of the limited goods provision and the high production costs, low supply characterises attract was due to their special quality and
traditionalist. The development tendency of the organic market in Hungary moves in the direction of home delivery service and local market, these enterprises reach considerable initial success and their further development can be expected.

Leroux and Matthew (2009) reported that an investigation of the relative costs and benefits of marketing channels used by typical small-scale diversified vegetable crop producers was conducted. Using case study evidence from four small farms in central New York, the study compares the performance of wholesale and direct marketing channels, including how the factors of risk, owner and paid labour, price, lifestyle preferences and sales volume interest to impact optimal market channel selection. Given the highly perishable nature of the crops grown along with the risk and potential sales volume of a particular channels, a combination of different marketing channels was needed to maximize overall firm performance. Accordingly, a ranking system was developed to summarize the major firm – specific factors across channels and to prioritize those channels with the greatest opportunity for success based on individual firm preferences.

Timothy A. Park (2009) opined that organic farmers faced heightened pressure in developing of different marketing channels and in bringing competitively with increasingly sophisticated marketing participants in the supply chain for organic products. This research assists producers by identifying specific farm and demographic factors that enhance earning given the choice of marketing outlet. The two significant selectivity coefficients confirm that organic earnings when marketing through a single outlet are biased upward since farmers who were better suited to market through multiple outlets have already moved away from this marketing strategy.

Akali Sema and Prabin Das (2010) Nagaland organic pineapples were known for its unique taste and high quality in terms of less fibre, high juice recovery, high TSS, less acidity and high vitamin C content. In fact, it was considered as one of the best pineapples. However, marketing had always been a major constraint. In order to showcase this high quality of organic pineapple of the state and to explore various avenues for direct marketing by availing the central scheme of NHB, Central Institute of Horticulture in collaboration with National Horticulture Board and ICCOA assisted Organic Pineapple Grower’s Society of Nagaland to market their pineapples at Delhi. The pineapple growers were exposed to retailers and wholesale markets at Karnataka
and New Delhi to study the markets. They were also trained on post-harvest handling of pineapple and marketing tips by concerned experts. Later, an exhibition cum sale was organized at Delhi w.e.f. 25\textsuperscript{th} - 27\textsuperscript{th} July, 2010. For this purpose, three consignments consisting of 3504 fruits were sent by train from Dimapur to Delhi and the fourth consignment of 12000 fruits was sent by parcel van. The first three consignments reached Delhi in good condition and were sold out in no time at Dilli Haat and fetched immense publicity. The consumers really liked the flavor and taste of Nagaland pineapples and the demand was huge. However, the last consignment of 12000 pineapples was delayed due to negligence of railways, leading to damage of whole produce. During this whole process, many issues came to light. Some market entry barriers \textit{viz.}, high cost of transportation, high cost of packaging boxes (ICAR designed), short shelf life (< 10 days) leading to higher post harvest losses during transit, low wholesale rate of pineapple at Delhi were some of the main reasons that resulted in lower returns for the growers.

\textbf{Swati Sharma and Divya Vyas (2011)} opined that the organic sector for developing countries is still small and typically a niche market. The inherited tradition of organic farming is an added advantage for India. India can emerge as a major exporter of organic produce. Global trade in organic products is growing phenomenally as consumption of organic food has grown annually at more than 25 per cent over the last ten years, and expected to touch 25 per cent of total food consumption by 2010. Greatly increasing numbers of organic product consumers around the world result in a supply–demand gap that auger will for producers, processors and distributors of organic products. They had opined that global consumption growth rate over the next 3-5 years fairly high (25-30 percent), particularly when compared to most other categories of foodstuff. Organic farming and agribusiness in the organic products from India was likely to receive boost when the regulatory framework for proper certification and export promotion was put in place by the government. The government and the exporters should taken up this task of locating organic farms in the country and encourage them to continue with organic farming.

\textbf{Erin Silva et al. (2014)} certified organic vegetable growers were surveyed in order to investigate in USA the relationship between farm characteristics, marketing strategies and farmer’s perception of their profitability and quality of life. The data
collected from this survey indicated that farmers were selling into markets through community-supported agriculture tend to more likely to dissatisfy with their profitability. Conversely, however, the survey data indicated that farmers selling into other markets, particularly wholesale markets and restaurants/institution are significantly more likely to dissatisfy with their quality of life. Thus, it appeared that farmers were making trade-offs with respect to entering markets that allow for greater financial rewards but may lead to a lower quality of life.

2.4 CONSUMER AWARENESS AND PREFERENCE TOWARDS ORGANIC PRODUCTS

Sushilkumar and Jabir (2011) study conducted on the analyzing the factors affecting consumer awareness on organic food products in India. Two hundred respondents covered the national capital, New Delhi and Uttar Pradesh capital, Lucknow. Growing the demand for consumers concerns on organic food products safety, health and environment, resulted increased demand for organic food across the world includes india. The organic product industries in india are export oriented with rapid production growth. As the state of consumer knowledge on various attributes of organic products are fundamental for inducing the demand of organic food products, study understood that the level of consumer awareness becomes important. Based on awareness on organic products label, potential consumer of organic products grouped into 5 categories namely humanists, food phobic’s, health eaters, environmentalists and hedonists by using factor analysis. Then legit regression model has been estimate d to identify the most likely socio demographic and other factors affected the consumer awareness of organic products.

Parichard (2012) reported study on consumer perceptions and attitudes of organic food products in Northern Thailand, This research drawn on the survey of 390 samples, the adoption of organic production and processing was highly determined by market demand. So that it was reflected in consumer perception and attitude towards organic products. Result indicated that the main reasons for purchasing organic food products were an expectation of healthier and environmental friendly means of production. Organic buyers tend to higher educated than those who not buy them.
Suganya and Saravinth (2014) conducted study on analysis of consumer’s preference towards organic products based on product price. Organic farming growth in India helped to consumers to choose healthier organic food products. In the year 2013-14 organic food products around 1024 million MT of which 194088 MT for export. The health benefit of organic products as well known and it has increased the demand for organic products within the country. There was very much demand for organic products, there was a considerable resistance to organic products due to price difference with respect to non-organic products. Price was played significant role in consumer preference towards organic products. This study aims at understood the significance of pricing, its effects on consumers and the consumer reaction towards price rise.

Huynh Viet Khai (2015) conducted a study on assessing consumer preferences of organic vegetables: A case study in the Mekong Delt, Vietnam. An increasing the consumer demand in organic vegetables for environmental and health quality has been generated the movement of organic vegetables in terms of high products. to analyze consumers willingness to pay for organic vegetables, so that majority of the consumers were interested in only organically grown vegetables and they were willing to pay an average price premium of 59 per cent for organically grown vegetables. For the health and food safety concern consumers were likely to buy those who have higher income accepted to buy organic vegetables with higher price than conventionally grown vegetables.

2.5 CONSTRAINTS FACED BY ORGANIC VEGETABLE GROWERS

Shashikumar (1987) reported that study on organic potato in Hassan district of Karnataka state that the major problems faced by farmers while marketing of potato were fear price fall, weight loss in storage, lack of improved storage facilities, high cost of transportation and higher commission charges.

Saxena and Singh (2000) noticed that, 70.90 per cent of organic farmers in Malwa region of Madhya Pradesh, had the constraints of non-availability of good quality bio-fertilizers, followed by 63.40 per cent of the respondent opined that lack of knowledge and skill methods of compost making. It was found that 59.10 per cent of the respondent opined that lack of awareness about the time concentration and method of application of bio-fertilizers. It was noticed that, non-availability of vermin compost in adequate quantity were expressed by 43.63 per cent of the farmers.
Sadaphal et al. (2001) noticed that, a high per cent (98.00 per cent) of onion growers of Raighad district of Maharashtra had the problem of lack of knowledge about seed treatment followed by costly manures (94.00 per cent) and heavy weed infestation in the field (90.69%), lack of knowledge of preparatory tillage and high labour charges were highlighted by 88.00 and 82.14 per cent of the respondents respectively. It was found that non availability of manures in required quantity (64.00 per cent), non – availability of labour in time (44.44 per cent) and non availability of preparatory tillage implements in time (27.00 per cent) were the other highlighted constraints among farmers.

Thimmaredyy (2001) reported that, the majority of the farmers (70.00%) of North Karnataka expressed the constraints of no separate market for organically grown produce followed by 40.00 per cent of the respondents expressed the problem of decline in returns in the initial period of 3-4 years of organic farming. Similarly the labour problem was expressed by 30.00 per cent of the respondent whereas 20.00 per cent of the respondents expressed the problems of non–availability of organic pesticides and lack of published literature on organic farming. only 10 per cent of the respondents expressed the problem of non–availability of good quality compost, no support and encouragement from sugarcane factory management to produce sugarcane by organic methods, no remunerative price for organic produce and discouragement by people in continued adoption of organic cultivation.

Sunil Kumar (2004) conducted a study on tomato growers in Belagavi district of Karnataka reported that majority of respondents (75.83 per cent) opined the constraints of technical knowledge, whereas 65.00 per cent of the respondents expressed the problem of fluctuation in the market price followed by high transportation cost (62.53%), labour shortage and high wages (55.83%). finally 46.66 per cent of the farmers expressed the constraints of lack of irrigation facilities and power shortage.

2.6 SUGGESTION EXPRESSED BY FARMERS FOR STRENGTHENING ORGANIC PRODUCTION AND MARKETING

Kamble et al. (1987) conducted study in Ahamdnagar nagar district of Maharashtra, 20.02% of the farmers suggested that arranging training on organic method demonstration in the aspects of treating seeds with bio-fertilizers. It was found that
18.20 per cent of the respondent opined that, supply of certified seeds followed by 16.36 per cent of the farmers supply of bio–fertilizers with wide publicity and finally organizing training classes were suggested by 7.27 per cent of organic growers.

Venkataramani (1991) highlighted the constraints that lack of concerned to develop environmentally safe farming practices that tested and adopted intensively by the farmers.

Gowri Shankar Rao (2000) in a study on sustainability of rice farmers in North Coastal Zone of Andhra Pradesh observed that farmers opined that, use of FYM helps in soil productivity (97.50%), crop rotation with pulses one can sustain the rice cropping system (94.16%). They suggested that to arrange the field visits to the farmers adopted sustainable organic farming practice (77.50%), providing the subsidies to meet the cost of inputs for sustainable agriculture (75.80%) and development of organic package of practices to maintain sustainability in yield (74.00%). Similarly the need for bio–control measures in maintaining agriculture productivity (35.00%) and formation of rice growers association with sustainable practitioners as members (27.50%) were also highlighted for strengthening for organic cultivation.

Thimmareddy (2001) conducted study on organic farming in north Karnataka reported that, high per cent of the farmers (70.00 per cent) expressed the need for research on organic farming for their relevance and rationality. The suggestions expressed that making proper arrangements for marketing of organic produce and issue of certificate to organic farmers for identification and stoppage of subsidies on chemical fertilizers was expressed by 50.00 per cent and 40.00 per cent of the respondents respectively. It was noticed that 30.00 per cent of the respondents opined that subsidies on organic inputs like bio–fertilizers, neem oil and vermi compost etc. It was found that 20.00 per cent of the farmers opined that to encourage for exporting organically grown produce.

Shashidhara (2006) conducted study on management of eco friendly practices by vegetable growers in North Karnataka observed that more number of respondents (83.12 per cent) opined that availability of pest resistant varieties followed by 73.75 per cent of the farmers opined need of training on eco-friendly practices. It was found that two third of respondents expressed the need for encouraging farmers to grow organic
vegetables through subsidies, technical guidance *etc*. It was noticed that, 68.75 per cent of the respondent suggested that strict quality control measures for pesticides (65.62%) and use of bio-pesticides and bio-fertilizers (61.85%). Use of bio-agents to control pests (56.87%), premium price for organically grown vegetables (53.75%), educating public and farmers about environmental issues (36.25%) and introducing environmental education at secondary level (26.62%) were suggested by the respondents to promote organic farming.

### 2.7 STUDIES RELATED TO ORGANIC VEGETABLE PRODUCTION ASPECTS

**Naik et al. (2012),** conducted a study in Belagavi district, large number of growers practices of organic cultivation of chilli. Thirty samples has been selected and analysed by budgeting technique. It was noticed that, cost of cultivation of organic and inorganic chilli was Rs. 18337.00 and Rs. 19115 respectively. It was noticed that, yield of organic chilli was 4.10 tons where as yield of inorganic chilli was 4.86 tonnes. It was found that, market price for organic chilli and inorganic chilli were Rs, 9830 and Rs, 6300 respectively. It was noticed that, the transportation cost including loading and unloading for organic chilli was Rs 265 per tonnes where as Rs. 285 for inorganic chilli. It was noticed that commission charges for organic and inorganic chilli were Rs 644 and Rs 432, respectively. It was noticed that, marketing cost for marketing of organic and inorganic chilli were Rs 3726 and Rs, 3485 respectively. It was noticed that, gross returns of organic chilli were Rs 40290 per acre as against Rs, 30583 for inorganic chilli. It was found that, net return of organic chilli Rs, 18227 were higher than that of inorganic chilli. Hence it is advisable for the farmers to convert to organic vegetable farming which minimizes the environmental degradation and also brings higher net returns.

**Ravi et al. (2015),** Small holding organic farmer’s attitudes, objectives and barriers towards production and of organic fruits and vegetables in India: A multivariate analysis has been adopted for the study, It was found that, Indian small holders (< 2 ha) were faced the challenges to enter and sustain in the organic farming sector. The study was conducted through field survey methods during early 2014. Random sampling techniques was used to draw the sample (n=127) and data collected interviews methods.
Collected data were analyzed by using descriptive factor and two step cluster analysis. It was found that, the results of factors analysis based on attitudes revealed that five factors including ‘Market’, ‘Support’ ‘Environmental’ ‘benefit – cost’ and ‘community’ factors explained 70.05 per cent of the total variance. Then factor analysis was based on objectives acknowledged the presence of three latent factors including “economic”, “Environmental” and socio – cultural factors explaining 77.90 per cent of the variance. in the same way, four factors were identified based on the factor analysis on sixteen barrier variables, representing “production”, “Marketing” Techno-managerial” and “Economic & Financial” barriers explained 68.52 per cent of the variance. Then, 3 clusters emerged on these attitudes and objective factor scores represented 45 per cent, 24 per cent and 31.50 per cent of sample size. All three clusters had different level of orientation to produce organically on the basis of each factor. The ‘market and economic’ factors were most important in two clusters followed by ‘government support’ and environmental factors, third cluster was fairly different towards the organic fruits and vegetables production.

2.8 STUDIES RELATED TO EXPORT OF ORGANIC PRODUCTS

Ashok Kumar Maurya (2014) conducted a study on organic farming and profitable export business of organic product: an evolutionary study in Indian context, the consumption of organically produced products are scanty in India because most of the people believe that, it was the concept of developed countries and also price of products also high. Most of the consumer of the organically grown products belonged to the developed countries. Production of organically grown cotton was more than 837293 MT in India had achieved the status of largest organic cotton farmers in the world in 2009-10 and has been captured more than 50 per cent of the total worlds organic cotton market. Other organic products like oil seeds, sugar cane processed foods etc are performing well in international market.

Deshmukh and Babar (2015) a study conducted on status on organic farming in India, India’s total area under organic certification was 4.72 million hectares in 2013-14 and its global rank was tenth. The CGR of cultivation of organic area of India was
11.52% of which wild collection was 12.57 per cent and remaining area was 7.45 per cent during the year 2005-2013. Compound growth rate of export quantity of organic products of India was 51.50 per cent and export value was 11.75 per cent during 2002-03 to 2013-14. It was noticed that India exports nearly 135 organically grown products of which the share of oil crops in total organic export quantity was around 26.74% followed by cotton 24.48% and basmati rice 11.81% in 2013-14. It was noticed that, India exported organically produced products to all the countries of the world of which the largest share goes to EU around 44.12%, followed by USA 19.2%.