CHAPTER-7

SUMMARY AND CONCLUSION
7.1 SUMMARY:

Agriculture plays a strategic role in the economic development of a country by providing food for the existence of mankind and raw materials to industries. India is an agricultural country; nearly 70 percent of people are engaged in agriculture. Inspite of this, India is facing shortage in some of the agricultural commodities so agriculture in India has to be thoroughly reorganized and improved in order to grow more not only for attaining self-sufficiency in food to meet growing demand of the population, but also for attaining exportable surplus to earn valuable foreign exchange. Besides meeting the food requirements, it must also raise the level of income of the farmers. One such crop, which helps in meeting the food requirements and raising the level of income of farmers is gherkin, as compared to dry chillies.

Gherkin and dry chillies are a vegetable food and commercial crop. As an all weather vegetable, it dominates in the vegetable market throughout the year. Being a short duration crop, it fits well in the cropping pattern of the farmers and fetches high returns per unit of area and time. It is a good source of food for the rich and poor a like. It is a rich source of water energy and carotenoids and moisture. It also contains mineral and vitamin ‘C’. As compared to dry chillies from an important source of vitamin ‘C’ i.e. ascorbic acid, in ripe chillies the vitamin ‘C’, content has been found to be much higher than in tomatoes. Besides being rich in vitamin ‘C’ chillies are also sources of vitamin ‘A’ and ‘B’ to some extent.

The present study aimed at examining the progress of gherkin and dry chillies cultivation in Haveri district in order to gauge the improvement in economic conditions of the growers. This farm practice has of favourable and beneficial impact on the economic conditions of the farmers engaged in this
endeavour. The district has potentialities for further development in this area and hence it is worth while to encourage it with faith and full strength. This hypothesis is tested in the light of the development of cultivation of these crops in Ranebennur and Savanur talukas of Haveri district.

Gherkin production in India achieved an important break-through in the year 2004-05 with the yield of 6686 kg/hectare exceeding the world average of 15082 kg/hectare for the same year. In India, area under gherkin was about 20000 hectares for the year 2004-05. Andhra Pradesh, Tamil Nadu and Karnataka are the important gherkin growing States in the country. As compared to dry chilli yield of 1263 kg/hectare exceeding the world average of 8333 kg/hectare for the same years. In India, area under dry chilli was more about 859200 hectares for the year 2004-05. Andhra Pradesh, Maharashtra, Karnataka, Orissa, Tamil Nadu, Madhya Pradesh and Rajasthan have been the important dry chillies growing states in the country.

The average annual area under cultivation of gherkin in India is 18285.71 hectares as compared to dry chillies increased to 858843.42 hectares. The average annual production of gherkin in India is 121790285.7 tonnes as compared to dry chilli is 7778169.42 tonnes. The average annual yield per hectare of gherkin in India is 6660 kgs, as compared to dry chilli is 976.42 kgs.

The average annual quantity of export of gherkin is 75246059.80 tonnes as compared to dry chilli in decrease from 86609 tonnes. The average annual value of export of dry chilli is Rs 73389.53 lakh as compared to dry chillies decrease for Rs. 33214.92 lakhs.

Gherkin is grown in an area of 1074 hectares in Karnataka. The annual production of gherkin is 20846.34 lakhs tonnes. The average annual production in per hectare in the State is 1962 kg/hectare.

The gherkin production in Karnataka is mainly irrigation. Hence, the yield per hectare is higher. The crop can be grown during all the seasons of the year sowing for spring kharif, summer crop may be made early in January to March or
for rainy season from late June to July depending on the local conditions and practice irrigated also used in Karnataka. However, it is grown mainly during the Kharif season. Haveri, Davangere, Tumkur, Kagalkot, Kolar, Belgaum, Gulbuga, Koppal and Bangalore(Rural) are the important gherkin growing district in the States.

Dry chillies are grown in an area 144707 hectares in Karnataka. The annual production of dry chilli is 230430 lakh tonnes. The average annual production per hectare in the State is 171 kg.

The dry chilli production in Karnataka is mainly rain-fed. Hence, the yield per hectare is low as compared to gherkin. The crop can be grown during all the seasons of the year, rainfall as well as irrigation seasons. However, it is grown mainly during the Kharif season, Dharwad, Haveri, Gadag, Ballary, Belgaum, Tumkur, Chitradurga, Gulburga, Raichur, Mandya, and Kolar are the important dry chillies growing district in the State.

The average annual area under cultivation of gherkin in Karnataka is 801.57 hectares as compared to dry chilli is increased in 155077.86 hectares. Average annual production of gherkin in Karnataka is 15203.43 tonnes as compared to dry chilli is decreased in 275048.57 tonnes.

The average annual yield per hectare of gherkin in Karnataka is 1962 kg/hectare as compared to dry chilli is decreased in 171 kg/hectares.

In Karnataka, Haveri district is the leading producer of gherkin followed by Tumkur and Davangere. In respect of area under gherkin, Haveri district occupies first position in Karnataka. As compared to dry chillies is more cultivating in Haveri district is the leading production of dry chilli followed by Dharwad and Chitradurga. In respect of area under dry chilli, Dharwad district occupies first and second position in Haveri district in Karnataka. Gherkin and dry chillies is one of the extensively cultivated cash crops in Haveri district during Kharif season. In Haveri district, Savanur taluka has the largest area under dry chillies more than gherkin followed by Ranebennur has the largest area under gherkin was
more than dry chilli of the total area under gherkin and dry chillies in Haveri
district, Ranebennur and Savanur talukas alone accounts for about 27.73 percent
in gherkin as compared to 8.14 percent in dry chilli and 16.5 percent in gherkin as
compared to dry chillies was more in 30.08 percent in Ranebennur and Savanur
talukas respectively.

In view of the importance of gherkin and dry chillies cultivation in Haveri
district, it complexity and problems faced in the cultivation and marketing by the
growers, the present study was under taken. A macro level study was made by
selecting ten villages, namely Medleri, Kudrihal, Chavadonapur, Belur and
Heeladnalli in Ranebennur taluka and Neeralgi, Karadgi, Chikkamugadur,
Hiremugalur and Kalakoti in Savanur taluka.

In the present study had the following objective which are taken care of
following the objective in the study.

i) To study the economics of cultivation and production of gherkin and dry
chilli in the study area, ii) To estimate the input-output ratio in production
of gherkin and compared with dry chilli, iii) To analyse the pattern of
growth in productivity and production of gherkin and dry chilli iv) To
identify the marketing channels for gherkin and dry chilli, v) To analyse
the problems involved in cultivation and marketing of gherkin and dry
chilli, vi) To suggest remedial measures for the improvement of production
and marketing of both gherkin and dry chilli in the country.

To evaluate the objectives of the study, a multi-stage random sampling
design was adopted. In the first stage two talukas were selected, in the second
stage ten villages were selected in the third stage, the farmers growing gherkin and
dry chillies were choosen. Haveri district contributes (share) about 45.20 percent
in gherkin as compared to less than dry chillies was 28.19 percent to total
production of gherkin and dry chilli in Karnataka. Gherkin and dry chillies in both
crops has acquired commercial importance in the district because of suitable
climate and soil conditions. These reasons have lead to the choice of Haveri
district as the area of study. The large scale cultivation of dry chillies as compared
to gherkin in small scale is mainly concentrated in Ranebennur taluka. Occupying an area of 89 hectares, as compared to dry chillies was more cultivation in area about 3071 hectares and Savanur Taluka occupying an area of 53 hectares as compare to more land used of dry chillies about 14196 hectares, farming about 27.73 percent and 7.12 percent in gherkin and dry chillies in Ranebennur Taluk, and in Savanur taluka about 16.51 percent and 32.70 percent in gherkin and dry chillies of total area under gherkin and dry chillies in the district. Therefore, Ranebennur and Savanur taluka was specifically chosen for the study. In Ranebennur and savanur talukas, information from Village Accountants was gathered about the villages growing gherkin and dry chillies. On the basis of this information ten villages- Medleri, Kudrilal, Chavadanapur, Belur, Hedadhalli in Ranebennur taluka and Neeralgi, Karadgi, Chikkamugadur, Hiremugalur and Kalakoti in Savanur taluka were selected randomly. The farmers of these ten sample villages were divided into three size groups based on their holdings, namely, small (upto 5 acres), medium (above 5 and upto 10 acres) and large (above 10 acres), 184 small farmers, 120 medium farmers and 96 large farmers, from both the crops together in ten village were selected at random. Thus, in all, 400 sample farmers were chosen for detailed investigation on cost of production, problems faced in the cultivation and marketing of gherkin and dry chillies etc. To evaluate the first objective of the study was taken to select only such farmers who did grow gherkin and dry chilli crops on their farm. All the four hundred sample farmers selected were growing both (gherkin and dry chillies) the crops during the agricultural season 2005-06.

The primary data where obtained from the selected farmers through personal interview method with the help of pre-tested and structured schedule. The data so collected pertained to the agricultural year 2005-06. The necessary secondary data were also collected from the District Statistical Office, Haveri, different gherkin seed company and some of the Journals and reports. The data so collected were analysed. Tabular analysis of data was followed to identify and compared to the costs, returns and profits of different size-group of farmers for
gherkin and dry chillies simple analytical tools like averaging and percentage were also used.

7.2 MAJOR FINDINGS:

Following are the major findings of the present study:

i) SOCIO-ECONOMIC CHARACTERISTICS:

- **Age-group**: The mean age of the respondents did not differ very much between small and medium farmers. There was little variation in the average family size in both crops, which was mainly due to more individual family system in small farmers than in medium farmers.

- **Education Level**: Medium farmers were relatively more education in case of gherkin as compare to dry chilli. Small farmers are more educated and they actively participated in the rural institution, but some of the farmers were not able to educate their children as well as participate in local institutions due to their economic and social backwardness.

- **Size of holding**: There was wide variation in the average size of holding between small and large farmers. Further, it was noticed that small farmers were interested in gherkin cultivation, as compared to dry chillies more land cultivation in small, medium and large farmers.

- **Use of mechanical devices**: Majority of gherkin growers used bullock carts as compared to dry chilli and traditional method of cultivation, because lack of finance and other devices were not popular also.

- **Credit**: Although the gherkin growers and marketing functionaries get the loans from private money leaders, and gherkin seed companies. They are faced by the problem of high interest lack of co-operation from the banks and other similar financial institutions in case of dry chilli growers are not getting any specific crop loans for dry chilli cultivation.
ii) COST AND RETURN ANALYSIS:

The per acre cost of production of gherkin increase with increase in the size of small land holdings of the farmers. It was Rs. 15,160.20 in case farmers, Rs. 15,674.30 in case of medium farmers and Rs. 16,114.5 in case of large farmers. The reason for this was that the medium and large farmers spent more on materials like seeds, fertilizers and pesticides. Per acre material cost in case of small farmers was Rs. 9,550, in case of medium farmers was Rs. 9,884 and Rs. 10,124 in case of large farmers. Of the total per acre cost of production of Rs. 15,649.67 at the overall level, material cost accounted for 62.96 percent following by labour cost accounting for 32.24 percent, marketing cost 1.41 percent, overhead cost 3.39 percent and storage cost was Nil. In the total cost of production, cost on seed alone accounted for 15.97 percent at the overall level. The expenditure made by large farmers on fertilizers was relatively more as compared to that of medium and small farmers.

The per acre cost of production of gherkin was more than double cost of production of dry chilli. Gherkin needed more amount of money to be invested for its cultivation. The per acre cost of cultivation of dry chilli was Rs. 14,416.99 at the overall level of the total cost of production of dry chillies material cost accounted for Rs. 7636.4 (52.97 percent), labour cost Rs. 4391.66 (30.46 percent), marketing cost Rs. 1261.76 (8.75 percent), storage cost Rs. 363.84 (2.52 percent) and overhead cost was Rs. 763.33 (5.30 percent).

The yield per acre of gherkin increased with increase in size of holding. It was 50.00 quintals in case of small farmers, 53.00 quintals in case of medium and 56.00 quintals in case of large farmers, similarly, returns per acre gerkinalso increased with incears in size of holding. the oerall yeild for acre was 53 quintals and returns was Rs.56066.67. The net profit per are of gherkin was Rs.37839.8 in case of small farmers, Rs.39925.7 in case of medium and Rs.43485.50 in case of large farmers.

The per acre yield of dry chillies of small, medium and large farmers was more or less the same of small farmers. The yield per acre was 4.85 quintals, of
medium farmers 6.15 quintals and large farmers it was 6.60 quintals and its was 5.87 quintals at the overall level. The net profit per acre of dry chillies at the overall level was Rs.16729.68 as compared to Rs.40417.00 of gherkin. The per acre output-input ratio of gherkin was 3.58 as compared to 2.16 of dry chilli: Thus, gherkin cultivation is found to be more profitable in the study area and the hypothesis set is acceptable.

iii) THE PROBLEMS FACED BY THE FARMERS IN THE CULTIVATION OF GHERKIN AND DRY CHILLI WERE:

1. UNREASONABLE PRICE OF SEEDS: On the production front, farmers have complained the non-availability of quality seeds at reasonable price. All the cent percent farmers opined that the cost of seeds was too high and compared to dry chillies farmers’ opinion the non-availability of an quality seeds in study area.

2. ATTACK OF PESTS AND DISEASES TO GHERKIN AND DRY CHILLI CROPS: Crops suffered from pests and diseases at foliation and tuber development stages and at the time of harvesting. All farmers reported this problem, which affected the yield of gherkin and dry chilli severely.

3. UNREASONABLE PRICE OF PESTICIDES AND FERTILIZERS: Almost all farmers reported of higher prices of pesticides and fertilizers.

4. NON-AVAILABILITY OF STICKS AND WIRES: Almost all farmers who gherkin grower faced by the non-availability of sticks and wires at the times of sowing and harvesting time as compared to dry chilli there is no problems faced in dry chilli farmers because no use of stick and wires in cultivation of cry chillies.

5. SCARCITY OF LABOUR: Scarcity of human and bullock labour was also reported by the sample farmers to carry out various farm operations in gherkin. Nearly 70 percent of the farmers are faced by this problem. As compared to dry chillies was more it about 83 percent of farmers faced this problem every year.
6. INADEQUATE CREDIT BY THE INSTITUTIONAL AGENCIES: Only 12 percent of the gherkin as compared to dry chilli is less than 10.5 percent farmers availed credit by the KVG Bank. And most of the farmers who availed credit facility by this banks were large farmers. The reason for this was inadequate credit sanctioning and delay in getting the same from the banks. 88 percent was gherkin farmers and as compared to dry chilli was slight increase about 89.5 percent of farmers made their own arrangement mainly due to above reasons.

7. HIGHER COST OF PRODUCTION OF GHERKIN: Cent percent farmers reported that the cost of production of gherkin was higher as compared to the cost of production of dry chillies mainly due to heavy requirements of inputs and their high prices.

iv) THE PROBLEMS FACED BY THE FARMERS IN GHERKIN AND DRY CHILLI MARKING WERE:

1. TRANSPORT: Transport facility was not easily available to nearly 42 percent of dry chillies farmers. Most of farmers used tractor trolleys to carry dry chillies to market for sale. But compared to gherkin farmers depended on gherkin seeds company vehicles according to the agreement between gherkin seed company and the farmers concerning the marketing of gherkin. The (MNC Company) purchase of whole produce by sending its vehicle only.

2. STORAGE: Farmers did not store gherkin in the study area, they daily transported the produce to the gherkin company, as it would lose its quality if stored. As compared to dry chillies farmers stored their dry chilli in temporary storages constructed on the forms, which involved certain expenditure to be incurred. This storage facility was not affordable for nearly 11 percent of farmers. And farmers who stored dry chillies in such storages incurred a loss of about 5 to 10 percent due to shrinkage and rottage.

3. PRICE INFORMATION: A majority of sample farmers did not collect any information about the price of gherkin. They sold their produce at the
prevailing price in the gherkin companies and 62.5 percent of the farmers
directly visited of gherkin seeds companies in Ranebennur, Davanagere, Haveri
and Savanur. As compared to dry chilli nearly 71.5 percent of the farmers did
not collect any information about the price of dry chillies. There was sold
their produce at the prevailing price in the market. 28.5 percent of the farmers
collected information through radios and newspapers, direct visit to APMC
market for Byadgi and Haveri and other market center.

4. TRANSPORT CHARGES: As for as the transportation charges were
concerned a maximum of 81 percent and 35.5 percent of gherkin and dry
chillies farmers were satisfied and agreed that the gherkin companies charged a
reasonable rate while only 19 percent and more in about 64.5 percent in
gherkin and dry chillies respectively of them were not satisfied and felt that the
companies and outside market charged higher rate.

5. THE REJECTING OF PRODUCTION OF GHERKIN: Almost all the
farmers faced and rejection of their produce mainly on the basis of the shape of
nut i.e., if when the gherkin were curved in shape and also they were large in
size while very few farmers produce was rejected on the basis of fungi on
uncleaness or very small or tender gherkin. As compared to dry chillies very
few farmers chillies produce was rejected in national or international market,
the basis of other reasons like fungi attacked chillies nut at time of harvesting.

v) MAJOR OBSERVATIONS FOR DRY CHILLIES

The following observations emerge from the above analysis.

1) Producers sell their dry chillies at the regulated markets. Some farmers sell their
produce at the village itself to village money lenders and agents due to prior
borrowings from them.

2) Private agencies involved in marketing of the dry chillies fix the prices. There is
no role for APMC. Co-operative societies or Government is fixing the price of
the produce.

3) All the marketing intermediaries are involved in price fixing process of the dry
chillies in all the markets covered under the study.
4) Price of dry chillies is determined by cost plus pricing policies, competition, market conditions and stocks position of dry chillies. All those factors are prevalent in varying degrees in all the markets covered by the study while determining the price of dry chillies.

5) The average irrigated land holdings of chillies growing farmers varied from 1-2 acres in Ranebennur taluka to 2 – 7 acres in Savanur taluka.

6) The average non-irrigated land holding of chillies growers. Some part of Savanur Taluka.

7) The average acrea under cultivation of dry chillies varied from 553 acres to 589 acres between the 2 years covered by the study area.

8) The average area under cultivation of gherkin varied from 270 acres to 300 acres between the 2 years covered by the study area.

9) Irrigation facilities for cultivation of dry chillies and gherkin were available in Ranebennur and some part of Savanur taluka.

   Irrigation facilities for cultivation of dry chillies were not available in Savanur taluka.

10) River and borewell were the sources of water for irrigation in the talukas mentioned above.

11) Lack of initiative on the part of the government inadequate ground water and good rainfall in the area was the main reason for non-availability of irrigation facilities in the concerned area.

12) Majority of dry chillies growing farmers in the area covered by the study was forced to sell their produce to particular traders due to financial commitments.

13) The dry chilli growing farmers are forced to sell their produce to those money lenders and commission agents alone from whom they have borrowed money.

14) Higher rate of commission of the middlemen was the reason for avoiding the middlemen according to the growing farmers.
15) Majority of respondent dry chilli growers owned their own vehicles for transporting their produce. Roads for transporting of their produce are considered to be in good conditions according to majority of the respondents.

16) Grading of dry chillies is done by all the respondent farmers, size, colour and length of dry chillies are considered for grading by the farmers growing dry chillies.

17) APMC regulations influence the price fixing of dry chillies and market competition wholesalers also is equally important in price fixing.

18) The final price of chillies is considered low by respondents in some market area.

19) All the respondents affirmed that they obtain market information through newspapers, radio, commission agents and APMC lists.

20) Change in demand and supply condition influence the fluctuations in price of dry chillies according to respondents.

21) Majority of respondents do not sell their chillies when price is low in the market.

22) Borrowed funds are the main source of funds for growing dry chillies.

23) Banks, money lenders and commission agents are the main sources for borrowing funds by the chilly growers.

24) Post harvesting operation by the dry chilly growers include picking, drying, cleaning and sorting. A good deal of expenditure is involved in these operations.

vi) BENEFITS FOR GHERKIN FARMERS:

The following are the benefits derived by gherkin in Karnataka.

1) It provides employment opportunities to the family members of both land holders and landless labourers in rural areas.

2) Gherkin can be cultivated in the temperate climatic conditions prevalent in the districts of Haveri, Tumkur, Bellary, Hassan, Davanagere, Chitradurga, Kolar, etc.,

3) Pre-fixed price for the crop largely eliminate risks from the gherkin growing community.

4) Companies provide all inputs like seeds, fertilizers, pesticides and a package of practices (except staking materials (sticks), jute thread and plastic thread) to gherkin farmers (contract system).
5) The income generated from this crop could be used to repay loans borrowed from different sources.

6) Gherkin consumers less water for irrigation i.e., one and a half inch size pumped water is sufficient to irrigate area acre.

7) Commission agents and/or middlemen are excluded as companies themselves act as facilitators for transport and marketing of the produce.

8) There is a transparent and fool proof weighing and accounting system. Buyers weigh gherkins infront of the farmers according to grade/s and enter the quantity into the passbook maintained by the gherkin farmers.

9) Farmers get timely technical guidance from the company’s field officer/s to prevent the spread of diseases/pests from crops grown in plots adjoining the area where gherkin is grown.

10) This being a short duration crop (three months) harvesting begins after 28 to 30 days and closes between 70 and 80 days, depending on the standard of crop husbandary.

11) Gherkin is eminently suitable for small and medium holdings because such households generally have members who can help in daily farm activities. Smaller holdings with assured irrigation seems to be ideal for growing therkin.

12) Gherkin cultivation can be taken up with low investment per acre Rs.12,000 to Rs.15,000. This is so because companies provide all necessary inputs except staking. Labour costs are also minimized by pooling in family labourers and avoiding paid out costs (for hired labourers).

13) In conventional farming farmers get returns under gherkin cultivation, farms (gherkin farmers) get regular income fortnightly, which helps them meet recurring expenditure for other crops as also to meet domestic expenditure.

14) It is a profitable crop and also economically viable. Compared with dry chillies commercial crops, Gherkin generates more income and employment within a short gestation period. Returns to investment in percentage terms are higher than any other comparable crop.
7.3 SUGGESTIONS

(a) For farmers growing gherkin farmers:

1) Companies should extend credit facilities also to gherkin farmers.

2) Minimum Support Price (MSP) should be fixed for various grades of gherkins, through legislation by government.

3) Companies can introduce other crops like chillies, tomatoes under the contract farming system, if found feasible.

4) Provisions should be made purchase to produce all grades of gherkin other than those specifically notified in the contract agreement.

5) Uniformity needs to be maintained in extending facilities / inputs like medicine kit (to preserve pesticides), GI wire, jute thread, plastic thread, sprayer and spraying dress (to prevent health hazards).

6) Stipulate uniformity in grades of gherkins to be grown, in order to help farmers to gather expertise in their given segments.

7) As per the contract agreement, the disbursement of money was fortnightly, at times, it was found to exceed that duration (field evidences show that one of the firms did not make a single payment despite the crop harvest having been over the reason being that the company was a constructing new building).

8) In case of any lapses from the companies, the government should intervene and come to the rescue of farmers.

9) Promotion of domestic consumption of gherkins will definitely come to the rescue of farmers in the event of a fall in price or demand in the international market.

10) NABARD should evolve a collateral security system between the corporate bodies involved in contract farming and farmers.

11) Fertilisers subsidies should be extended to corporate bodies in order to help the gherkin farmers to avail fertilizer at affordable prices.

12) Motivating private insurance companies to participate in the gherkin farming sector may be considered to act as a liaison authority between corporate bodies
and gherkin farmers in the farm of a crop insurance scheme, both as a facilitator and guarantor in the event of crop failures. This would also address the problem of natural calamities like droughts or floods that wipe out gherkin crops.

13) The introduction of the Drip Irrigation Programme among gherkin farmers with suitable subsidies.

14) Agents other than established corporate bodies involved in contract farming need to be discouraged. Such agents often cheat farmers by not making payment and also by not lifting the whole produce.

15) Price fixed under a contract needs upward revision corresponding with grades of the produce.

16) Government should, on a trial basis enter into gherkin farmers particularly in crops / areas where distress sale of agricultural produce in often reported.

17) In the initial stages of the crop, visits by field staff found to be regular ; as the crop advances in the frequency of visits comes down. It was also observed that the field staff rarely or in some cases river, visit fields of experienced farmers. Assured timely visits by the field staff would strengthen the expertise of farmers both experienced and fresher and thereby ensure uniform high levels of gherkin fields.

(b) SUGGESWTIONS FOR CHILLY GROWERS :

1) Financial institutions should step into extend credit / loan facilities to dry chillies should be fixed price for the various grades of dry chillies through legislation by the Government.

2) Existing drop irrigation facilities may be extended with suitable subsidies to the loan amount through the Horticulture Department.

3) Private insurance companies should insure the crop in the event of crop failure or natural calamities.

4) Marketing charges increase with the increase in the number of intermediaries in the process of distribution. Attempt should be made to reduce the number of market intermediaries by encouraging involvement of co-operative societies in the process of distribution.
5) Packing loss may be reduced through the use of standard size bamboo baskets. Marketing departments or other agencies should provide compressed packing materials in important dry chilli growing places. Research should be undertaken to work out appropriate and viable packing system for dry chillies.

6) Freight rates of private lorries must be rationalized to avoid arbitrary and excessive charges levied on farmers. Credit facilities should be provided to buy tractors or trucks.

7) Marketing department and public communication system must convey meaningful, useful and up to date price information to farmers.

8) Grading should be entrusted to market officials in order to ensure unbiased grading, experienced farmers should also be involved in grading of dry chillies in the markets (APMC).

9) Marketing committees should take measures like sending marketing information through post cards to the villagers, publishing bulletins, arranging film shows, opening enquiry counters, etc., in the market office.

10) Supply of quality dry chilli seeds to the farmers, declaring support prices for dry chillies, encouraging chillies processing industry etc., should be undertaken by the Government and Regulated Markets.

11) Improved quality and productivity of Indian chillies will enable us to increase exports of chillies and chilli products from India effectively meeting the competition from other producing and exporting countries. The potential for increasing exports of dry chillies, dry chilli powder and crushed dry chillies in consumer packs is very high provided. We meet the strengthen quality requirements of importing countries. An integrated approach with the collective efforts of farmers, processors and traders would go a long way in achieving the objective of higher export earnings.

12) Sun drying of chillies is the common practice in India. But since the produce is exposed to the sun for 12 – 20 day spreading on the open yard is not only subjected to contamination with dust and foreign matter but the development of colour also is not up to the mark due to the bleaching effect of sunrays. Hence, mechanical drying of dry chillies is found to be superior to sun drying. Research
work at Agricultural Research station Lam (AP) on mechanical drying has shown that the produce can be dried within a period of 18 hours with the aid of air blown drier keeping the temperature at 44 – 46 C. This method saves time and watch and imports deep and red colour and glossar texture to the fruits. Such dry chillies are liked in foreign countries. The cost of mechanical drying is worked out at 25 paise per Kg of dry fruits.

13) Forced selling of dry chillies to commission agents and money lenders is affirmed by the dry chilli growing farmers. The incidence of forced selling and selling chillies when there is a decline in prices could be overcome through liberal credit facilities by commercial banks and Grameen banks.

14) Majority of farmers growing dry chillies do not insure their stock due to high cost of insurance premiu. There is need for rationalizing premium rates to suit the farmers and keep down the cost of insurance. Government and insurance companies should intervene to help dry chilli growers in this matter.

15) Farmers growing dry chillies area not aware of some storage precautions well dried pods after removing plants parts and foreign matter should be packed in clean, dry gunny bags and stored ensuring protection from dampness. Dunnage as to be provided to stock the packed bags to prevent moisture ingress from the floor. Care should be taken to shack the bags 50 to 60 cms away from the wall. Insects, rodents and other animals should be effectively prevented from getting access to the premises where material is stored. Stored material should preferably be exposed to the sun periodically.

16) Adequate and scientific processing and storing facilities should be provided to the producers so as to spread the sale throughout the year with minimum losses and thereby avoiding slump in prices during post harvest period.

17) Co-operatives need to be encouraged to play a larger role in the marketing of dry chillies especially for the small farmers who have a poor retention capacity and should provide adequate funds to create storage facilities.

18) Dry Chilli producers should be encouraged to sell their produce in the market directly. They should be provided efficient and adequate marketing facilities. It will enhance the producers share in consumers’ price by reducing the number of intermediaries.
19) Standard weights and measures should compulsorily be in practice for disposal of the produce.

20) Unnecessary deduction of charges from the producers share should be curbed and with the help of State/Central Government (through regulation Act). The marketing cost should be reduced and efficiency increased.

21) Improved productivity and quality will enhance the farmers income, with necessary care taken during all stages of cultivation, harvesting, post-harvest handling, processing, packing, storage and transportation by following good practices and sound methods it is possible to effectively prevent contamination and arrest deterioration of quality in chillies or any form produce and ensure market efficiency and consumer satisfaction.

22) Uncertainty, seasonality and violent fluctuations in market arrivals and prices should be controlled. Market arrivals should be evenly spread throughout the year for which the staying capacity of the small, medium and large farmers must be strengthened. This could be achieved by expanding the storage and warehousing facilities at the village level and at the market level. Maximum loans and other package services should be granted to the growers in advance and specially during the rainy season or the main agricultural season. By consolidating the position of small, medium and large farmers, forced village sales and sale immediately after harvest could be reduced. This controls inflats during peak months and produces wholesome effects on prices. Comparatively stability, at a higher level could be created in prices of dry-chillies.

23) Since wide fluctuation of prices is detrimental to the interest of producers, support prices may be announced by the government before the sowing season to assure the farmers of minimum prices. There is a need for monitoring of prices of dry chillies. This encourages co-operatives and other organizations like NAFED to enter the market more actively to safeguard the interest of producers. Support prices come as insurance cover for co-operatives and this will boost their participation in purchase and sale.

24) Grading at the producers level should be made compulsory and regulatory measures in this regard should be enforced strictly through APMC's. Bringing of chillies in semi-dried conditions should be forbidden, within the market yard.
Further, farmers must be educated in this art. For this grading facilities existing at APMC level should be re-oriented and modernized with adequate trained personnel. Mobile grading units may be started and they must visit the villages within their purview regularly during the harvesting and during of chillies and educate the farmers in this.

25) Domination and monopolistic tendencies of the traders commission agents / exporters must be broken by improving the competitive ability of co-operative sale society in Byadgi and Haveri. Co-operative marketing channel should be strengthened to make it more popular. For this co-operatives must directly enter the field of purchase and sale and should not be confined to commission agency. To pose in effective competition to other middlemen, co-operative sale society must create following facilities.

(a) Area of its operation should be widened to become a viable unit.

(b) Co-operatives should develop sufficient storage facilities in the yard and in the villages.

(c) Adequate representation to small and medium farmers in their organizational set up should be given.

(d) Should develop their own transportation facilities to bring the produce of the members to the market yard and mandis.

(e) The co-operative staff should be well-trained and acquire business experience to suit the chilli business.

(f) Should diversify their activities providing farmers a complete package services.

In the pursuit of above facilities, co-operatives at all other levels, State and Central government should support the co-operative society at Byadgi and Haveri. This will reduce not only the marketing cost but also allow remunerative prices.

26) The functioning of APMC chilli markets (Byadgi & Haveri) should become more effective and efficient. A review of their working and grant of additional powers would improve the situation and lead to greater harmony and co-ordination between the activities of various functionaries in the chillies of Byadgi and Haveri.
market. In short, safeguarding the interest of producers and consumers shall be
the main aim of the regulatory measures and APMC chillies markets (Byadgi and
Haveri) should live up to this expectation.

27) Electronic weighing machines may be introduced for weighment replacing the old
sales. Eight to ten such machines may be installed at strategic points in chillies of
Byadgi and Haveri market yard. This will ensure correct and quick weighment
and avoids weighement. For instance such a system is practiced with success in
Totgar's sales society, Sirsi (U.K.) in the weighment of arecanuts.

Licensed weighment should be made to wear a distinctive dress and badges during
weighment. This helps the staff and farmers to watch their more in particular and
avoid illweighment.

7.4 CONCLUSION:

In view of the findings of the study, the following conclusions are drawn for
the development of gherkin and dry chillies cultivation.

1) SUPPLY OF QUALITY SEEDS:

Seed is one of the major cost components in the cost of production of gherkin and
dry chillies. The yield depends upon the quality of the seeds being used by the farmers.
Most of the farmers complain of the lack of availability of the quality seeds at the time of
sowing. Farmers are made to pay higher price to get quality seeds from the few available
local market and seed company sources. Therefore, government should take adequate
measure to make the availability of the quality seeds through its agencies like seed
companies and gherkin seeds companies at reasonable price.

It has been lately proved in dry chillies cultivation that the botanical seeds namely,
Byadgi Kaddi seeds are found to give greater yield than the ordinary Sankeshwari Seeds
generally used by farmers. The use of Sadashiv peta Local byadgi Kaddi and byadgi
Dabbi has emerged as low cost supplemental technology in modern agriculture.
Therefore, it is advisable to make available such Byadgi HYV seed like Kaddi and
sadasivpeta seeds in areas where the availability is quality seed HYV seeds of chillies is
difficult.
2) SUPPLY OF FERTILIZERS AND PESTICIDES:

As in the case of the supply of gherkin seeds, fertilizers and pesticides may also be made available adequately, timely and at reasonable rates to farmers by the respective companies or any other agencies also local market. As compared to dry chilli farmers it was more in its percent of farmers reported that there is inadequate supply of fertilizers and pesticides in times of harvesting.

3) EXTENSION OF ACTIVITIES:

Supply of quality seeds, fertilizers, pesticides., etc., by itself will not raise the yield of gherkin and dry chillies. The farmers should be properly educated about the cultivation of gherkin and dry chillies according to modern agricultural methods and also applying the right fertilizers and pesticides in the required optimum quantity to make gherkin and dry chillies cultivation really profitable for them. Though gherkin and dry chilli is a horticultural crop, sufficient interest is not evinced in the production of gherkin and dry chillies by the Horticulture Department. Therefore, departments connected with agriculture. Agricultural University and Agricultural Research Centres may be advised to involve themselves in encouraging the farmers in large scale dry chillies production by adopting modern agricultural techniques. This can be done by arranging seminars, discussions, demonstrations, exhibitions., etc., by them at the village level with much more zest and zeal.

4) CREDIT:

Gherkin cultivation needs more cash investment as compared to dry chillies to be made by the farmers and most of the small and medium landlords do not have the necessary where a with all and money especially at the sowing time. They have to depend upon the credit facilities either from bank, seed company or borrow from elsewhere at exhorbitant interest rates Grameen banks functioning in the villages are not preferred by most fo the small and medium farmers on account of the long delayed procedure in sanctioning the loans. Besides, the amount sanctioned by such banks is insufficient to meet the agricultural demands of the gherkin and dry chillies growers. Requisite credit must be made available to the dry chilly and gherkin growers through the banks at reasonable interest rates without causing inordinate delay. The nationalized commercial banks and other agricultural bank like NABARD, Co-operative Banks,
gherkin seeds companies, etc., must be persuaded by the State / Central government to do the needful in granting credits to gherkin and dry chillies growers.

5) STORAGE:

The government should take initiative in providing cold storage in case of gherkin and warm storage in case of dry chilli facilities to the farmers at the village level levying reasonable charges for the use of the same. This will to a great extent them the loss due to shrinkage and rottage at gherkin at the opportinate time at the expected next days and warm storage will help the farmers to sell the dry chillies at the opportunity time at the expected price and thereby increase their income. The gherkin seeds companies should take initiative improviding could storage facilities to the farmers at the village level.

6) TRANSPORT:

It is advisable that adequate transport facilities should be created for the smooth movement of gherkin and dry chillies from the places of production to the various market centers. Since all the gherkin growers have to transport their production to the gherkin seeds companies (Green Agro pack Company and Sterling Agro Products Processing Pvt. Ltd., Davanagere, Ranebennur and Haveri) processing plant. The gherkin seeds company should undertake the transport and assemble of raw gherkin for processing so as to benefit the gherkin growers.

7) DRY CHILLIES GROWER CO-OPERATIVE SOCIETY:

The government should lend support and patronage organization like dry chillies Growers Co-operative Society which helps in procuring, quality seeds, fertilizers, pesticides, etc., and in solving the various problems of the farmers.

8) FIXING UP OF MINIMUM PRICE:

Most of the small and medium dry chillies grower are forced to sell their produce immediately after the harvest at the ridiculously low prices offered by the buyers in order to meet their urgent financial requirements. In this way, they are exploited to help the farmers from such exploitations. The government should fix a minimum support price for this commodity as otherwise, dry chillies production will be adversely affected throughout the country.
9) GHERKIN PROCESSING UNITS:

Gherkin is mainly used as a vegetable item in India and therefore its consumption relatively very low compared to North America, Europe, Australia and USA, Turkey and Mexico, etc. People should be made aware of the other food item gherkin is used in pickled in brings a favourite lunch substitute in the West and gherkin fruit is being used to treat the wounds in livestock and medical purposes, palmitic acid, steoric acid and linolemic acid. Also isolated from gherkin has also nutritional value so gherkin processing units may be set up at gherkin growing areas and market its pickle by attracting the consumers whose needs to go a long way in encouraging the farmers to grow gherkin. Improved productivity and quality will enhance the farmers income with necessary care taken during all stages of cultivation, harvesting, storage and transportation by following good practices and sound methods. It is possible to effectively prevent contamination and arrest deterioration of quality in chillies or any farm produce and ensure market efficiency and consumer satisfaction.