

An economic analysis of Horticulture cultivation and its viability in Karnataka

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Abstract:

India is an agrarian economy, as agriculture plays a vital role in the overall development of the country. It is regarded as the back bone of Indian Economy. Being the primary sector, it contributes 15% to GDP (during 2016-17) and engages 49% of the work force ((ICAI), 2016). Agriculture plays a great role in developing industries – which are termed as agro based industries, such as textiles, sugar, biscuits, tea, paper, tobacco etc. The prosperity of these agro based industries directly depends on the availability of inputs and prosperity of the agriculture sector. Apart from this, Agriculture sector contributes greater share to export trade. During 2015-16, agricultural exports constituted 10% of the national exports and India is known for its agricultural exports from time immemorial. Horticulture can be defined as science of growing and management of fruits, vegetables, spices, plantation crops, tubers, ornamental, medicinal & aromatic crops and floriculture that includes not only their production but also processing, value addition and their marketing. Horticultural crops have been referred to as “garden crops”. Horticulture covers all forms of garden management, in particular, it refers to the intensive commercial production of garden crops and falls between domestic gardening and field agriculture. Horticulture is an important branch of agriculture and deals with intensively growing produced plants for human food and non-food uses and for personal or social needs. It involves plant propagation and cultivation with the aim of improving plant growth, yields, quality, nutritional value and resistance to insects, diseases and environmental stresses. It also includes plant conservation, landscape restoration, soil management, landscape and garden design, construction, maintenance and arboriculture (the cultivation of trees and shrubs especially for ornamental purposes). The diverse agro-climatic condition in the country makes it possible to grow almost all varieties of fruits and vegetables. India produces nearly 11% of all the world’s vegetables and 15% of all fruits, yet its share in global exports of vegetables is only 1.7% and in fruits a meager 0.5%. In comparison to India, China is currently the world’s largest fruit and vegetable producer with a production share of 34%. The globalization and commercialization of agricultural trade have also enabled farmers to go for horticultural crops. The horticultural crops are more nutritive and rich in vitamins and minerals as compared to other food crops. This also indicates that there is a vast scope for internal consumption besides having market for these products. The achievement in the horticulture sector is laudable as the sector

now consists of more than 30.50 per cent of the GDP of the agriculture sector (India, 2013-14). This paper analyses the potentiality of horticulture in Karnataka and its influence on farmers lives.

Key words: Horticulture, Employability, Supplements, Farmer, Economical, Viability.

Introduction:

Rapidly growing demand for horticultural products especially burgeoning market for processed fruits and vegetables is an evidence of the phenomenon, which is mainly responsible for the accelerated horticultural growth in the country. Consequently, horticulture is set to assume a greater role and importance within the agriculture sector and eventually in the national economy. Growing demand for fruits and vegetables induced by rising incomes and changing consumption patterns coupled with declining farm incomes due to rising costs and stagnating food grain productivity has necessitated diversification towards high-value crops in recent times. Apart from income enhancement, these high-value crops have potential to generate additional employment opportunities in farming due to their labour-intensive character (Weinberger and Lumpkin, 2006). Increase in the area allocation under horticultural crops has often been suggested as a measure for agricultural diversification increased employment and income (Malik, 1998). Therefore, there is a great scope for the accelerating agricultural development through expansion of horticultural crops in the country. Horticulture can be promoted as a means of agro-diversification for Green Revolution-2 in the north eastern states of the country, providing the much needed impetus for the growth of agricultural sector, through increase in trade, income and employment opportunities (Mittal, 2006). Fruits and vegetables typically constitute essential parts of the daily diet in India and they are in great demand throughout the year, from the majority sections of the population. The commercial value of fruits and vegetables in terms of direct consumption, processing as well as trade has raised substantially in recent years.

National Horticultural Mission (NHM)

National Horticulture Mission is a Centrally Sponsored Scheme in which Government of India provides 100 percent assistance to the State Mission during 10th Five Year Plan. During 11th Plan, the assistance from Government of India will be 85 percent with 15 percent contribution by the State Government. The main objective of the Scheme is to develop horticulture to the maximum potential available in the states and to augment production of all horticultural products including fruits, vegetables, flowers, plantation crops, spices, medicinal and aromatic plants. The Scheme has been approved 'in principle' for implementation up to the end of 11th Five Year Plan. For implementation of the NHM programme in 18 States, an amount of Rs. 630 crore was provided during 2005-06, while the outlay for the scheme during 2008-09 was Rs. 1100 crore. Presently, the Scheme is being implemented in 18 States and 2 UTs covering 344 districts of the country for the development of potential crops. The pattern of assistance was 100 percent to the state governments during 10th Plan. With effect from the 11th Plan (2007-08), the state governments are contributing 15 percent of the share (Gupta S.N, 2011).

Karnataka has high potential for horticultural crops and the state ranks fourth in area under horticultural crops. Horticulture generates 40 percent of the total income of the state. Horticulture has taken a front line position in Karnataka agriculture and the sector is growing at a rapid pace. As a result, there is an increasing trend in the area under horticulture crops. During the year 2013-14 an area of 18.00 lakh hectares was covered by horticultural crops and production was 136.38 lakh tones. The state is preparing strategies to ensue more flexibility and advancement in cultivating various fruits, vegetables and other horticultural crops which is adding value to Karnataka's economy to a great extent.

Land utilization statistics of Karnataka state for the year 2015-16, reveals that out of total 190.5 lakh hectares geographical area of the state, total cropped area was 120.08 lakh hectares constituting 63.04 percent of the total geographical area. The net area sown during 2015-16 was 100.06 lakh hectares, out of this horticultural crops covered 20.36 lakh hectares (Kumar Kallega Harish, 2015).

Details of Karnataka State related to selected horticultural crops

Crops	Karnataka State		
	Area (Hectares)	Production (MT)	Value (in lakhs)
Banana	96,627	23,67,325	3,42,870
Pomegranate	27,232	3,19,338	1,48,905
Papaya	7,394	5,07,559	40,202
Mango	1,81,697	17,25,930	4,29,770

Source: Horticulture crops statistics of Karnataka State at a glance 2015-16, Department of Horticulture, Government of Karnataka.

Note: MT = Million Tonnes.

Need for the study:

Soil and climatic conditions are favourable for growing horticultural crops. Availability of dry land is favourable for the cultivation of fruits and vegetables. The climatic condition also has blessed the district. Food processing industries provides highest employment in the district. Majority of the farmers of this district have been traditionally growing major crops like Maize, paddy, Jowar, Sugarcane and Sunflower etc. The cost of production of these crops has substantially increased in the recent past due to rising prices of fertilizers, seeds, transport & communication cost and the existence of middlemen. All these factors have influenced the farmers to switch over to the horticulture crops. It is identified and observed that four crops namely Banana, Pomegranate, Papaya and Mango are gaining momentum in the last one and half decade. Therefore, this research has been undertaken to understand Karnataka's Potentiality in Horticultural crops.

Statement of the Problem

The horticultural sector in Karnataka has ample opportunities to improve the economy but it is experiencing a lot of challenges during both the pre-harvest and post-harvest periods which will have greater impact on producers, traders, market executives, policy makers and consumers. The production bottlenecks have been compounded by the still greater difficulties confronted in the marketing of agricultural commodities. The increase in production has led to a glut in the market arrivals and a substantial fall in the prices. Due to inability to store and financial pressures, small farmers are forced to sell their produce immediately after the harvest, generally at low prices. High cost of marketing, lack of adequate transportation and grading facilities, inadequate storage facilities at the farm level and poor dissemination of market information and intelligence topped the list of problems encountered by the cultivators and sellers. The consumption is spread throughout the year, not only in the entire state but also in the entire country and worldwide. This has given rise to a large number of intermediaries in the marketing channels and high transportation cost resulting in high marketing cost. So operational and pricing efficiencies in marketing are very important in ensuring favorable prices to the cultivators, which contributes in increasing the production. Hence, this research has been undertaken to identify those limitations and to come out with proper solutions to them.

Review of Literature:

1. Basavaraju. B (2003) studied “Economics of hybrid and local tomato varieties in Bengaluru rural district of Karnataka”. As per the research study, the total cost of cultivation per hectare of hybrid tomato was almost thrice that of a local tomato. Labour was the major problem and accounted for about 29 per cent and 37 per cent of the total cost respectively for hybrid and local tomato. The study reveals that the hybrid tomato gives better price than local tomato.
2. Desai (2004) studied the major components of Farming Systems including horticulture and plantation, livestock, fisheries and forestry production. In Indian agriculture, food grains production was found to be the most important. The author emphasized that other components need to be included and developed as an integrated part of the Farming System. Establishing a well structured farming system, plays a vital role in promising better yield to the peasants and this in turn contributes in uplifting their socio economic standards.
3. Lalitha and Sharadha (2008) studied the various socio economic factors, which reflect the living conditions of farm labourers. Thirty families were interviewed with an aim of obtaining the information on expenditure pattern, living condition, health and hygienic practices. It is suggested that those families not entirely depending on wages and cultivating horticultural crops have a higher standard of living. Further the research study highlights that, to increase the standard of living the horticulturists need to raise milch cows and buffaloes and to some extent having a poultry farm should be encouraged.

4. Ashok Dhillon and et al.(2013) in their study covering a period from 1991-1992 to 1999-2000 revealed that the trend line and compound growth rate of exports of floricultural products from India recorded significant increasing trend in exports. Trend line estimate and compound growth rate of floricultural products from Haryana indicated that the export performance of the horticultural products was very much significant in terms of earning the foreign exchange. The consumption of horticulture produces mainly depends upon the purchasing power of great majority of people which again depends upon their total annual income and the existing market infrastructure.

Research Gap:

Good productivity of crops, which must have resulted in good returns, has miserably failed to bring any positive change in the socio economic life of the growers. This necessitates to study the problem in-depth to formulate effective policy implications to address the existing limitations. Similarly they carried out the various marketing mechanism particularly marketing intermediaries, farm gate to ultimate consumers, price spread etc., though all these models have offered high intellectual insights into horticultural crops, but failed to concentrate on crops like Banana, Papaya, Pomegranate, Mango, which requires unique production and marketing structure to be developed. The existing challenges and problems are entirely unique and requires special attention.

Objectives of the study:

- 1) To review the status of production and marketing of Horticultural crops in Karnataka
- 2) To analyze the cost of cultivation of the horticultural crops wrt four crops.
- 3) To identify the drawbacks involved in the pre-harvesting and post-harvesting of the selected horticultural crops.
- 4) To suggest measures to enhance the horticultural potentiality of the state.

Research Method: Primary sources, Secondary sources.

Sampling Method and Sampling Size: Purposive sampling method is adopted in which units of the population were selected according to the relevance and the nature of the representativeness of sampled units. The total size of the sample is 300 farmers who are into horticultural cultivation.

Survey Instrument: For the purpose of collecting Primary data, a test questionnaire is developed. The sequence of some of the questions was changed as necessary. Concepts were discussed and debated with peers. Some questions were eliminated because they appeared redundant. Consequently some additional statements were added to enhance the clarity of information.

Data Collection:

The primary data was collected by administering two types of schedules. One was a checklist, which contains the details of the respective villages in the Davanagere taluka in Davanagere district in Karnataka state and another full-fledged schedule was used to collect the information from the households. The information collected from the respondents was basically related to demographic details, particulars relating to various assets (including the land), types of horticultural crops that they cultivate, cost involved in cultivation and returns from the crops, different agricultural and horticultural operations being carried out, nature of employment in horticultural cultivation, involvement of family members in the activity, household expenditure etc., following methods were adopted to collect the primary data.

Secondary data was collected from Agricultural Product Marketing Committee (APMC) . The data maintained by APMC, Department of Agriculture and Horticulture has been extensively used to substantiate the facts.

Data Analysis and Inferences:

Identifying the difficulties faced by the horticulture farmers was one of the objectives of research. Therefore, the respondents were asked to rank the various production related problems. Later these ranks were converted into scores by referring to Garretts Table given by Garrett and Woodworth in 1969. Then for each factor, the scores of individual respondents were summed up and divided by the total number of respondents for whom scores were gathered by using the below formula:

$$\text{Percent Position} = 100 (R_{ij} - 0.50)/N_j$$

In the above formula, R_{ij} : rank given for i^{th} item by j^{th} individual and N_j : Number of items ranked by j^{th} individual.

Suggestions:

- A frequent drought in the study area has affected the agricultural crops in general and the horticultural crops in particular. Therefore, in addition to the existing irrigation facilities the concerned authorities should implement the integrated watershed activities in the study area.
- The marginal and small farmers have not been cultivating the horticultural crops like, Papaya, Pomegranate. However, they are cultivating other horticultural crops in addition to the regular cereal crops. This is mainly because the cost of cultivation of banana, papaya, pomegranate and mango is very much high. Therefore, to gain the confidence of the marginal and small farmers the government needs to provide credit facilities to these categories of farmers.
- The study has brought out that there is an ample scope for increasing the farm income in all the identified farming system by adopting recommended activities such as other plantation and fruit crops with

Pomegranate, Papaya, Banana or mango. Therefore, more significance must be given to encourage horticultural farming activity in the state as well as in country.

- There is a need to educate the farmers about optimum utilization of the resources. Lack of technical guidance on package of practices was expressed by the farmers. Therefore, there is a need for strengthening extension activities by the subject matter specialists in the Department of Horticulture to develop and extend the standard recommendations and package of practices.
- Requirement of high initial investment has inhibited many farmers, marginal farmers in particular from taking up horticultural cultivation. Therefore, highly subsidized loan must be extended for farmers, which encourage them to take up more horticulture cultivation.
- Availability of labour for contemplating agricultural activity is becoming scarce. Therefore, developing affordable mechanization is the solution for this.

Conclusion:

Despite its contribution and role, the horticultural production and marketing suffers from plenty of defects as pointed out in the research study. Effective and proper measures to address these limitations, will play a vital role in strengthening the sector and also to improve the productivity. The cost benefit ratio is highest in case of horticultural crops compared to food crops. Certain horticultural crop like pomegranate, mango will have high initial cost but yield return for many years. Therefore, even though it is expensive initially, all categories of farmers irrespective of their land holdings are advised to take up the cultivation of horticultural crops with modern approaches provided adequate facilities and programmes from the concerned authorities.

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