Economics Of Production And Marketing Of Some Important Vegetables In Nanded District

BY

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DEDICATED

To

MY BELOVED GRANDMOTHER

Late Smt. Parvatibai

Masajee Sonkamble

CANDIDATE'S DECLARATION

I hereby declare that the dissertation

or part thereof has not been

previously submitted by

me for a degree of

any University

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Shri Mudkhedkar Rajendrakumar Narayanrao has satisfactory prosecuted his course of research for a period of not less than four semesters and that the dissertation entitled " ECONOMICS OF PRODUCTION AND MARKETING OF SOME IMPORTANT VEGETABLES IN NANDED DISTRICT " submitted by him is the result of original research work and is of sufficiently high standard to warrant its presentation in the examination.

I also certify that the dissertation or part thereof has not been previously submitted by him for a degree of any University.

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CERTIFICATE - II

This is to certify that the dissertation entitled " ECONOMICS OF PRODUCTION AND MARKETING OF SOME IMPORTANT VEGETABLES IN NANDED DISTRICT " submitted by Shri Rajendrakumar Narayanrao Mudkhedkar to the Marathwada Agricultural University, in partial fulfilment of the requirement for the degree of MASTER OF SCIENCE in the subject of AGRICULTURAL ECONOMICS has been approved by the student's advisory committee after oral examination in collaboration with the external examiner.

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INTRODUCTION

CHAPTER - I

INTRODUCTION

1.1 General :

Most of the vegetables, if properly grown can give a yield which is five to ten times greater than any cereal crop (Choudhary, 1974). Cultivation of vegetables in limited area where other facilities are readily available gives maximum out of the soil in the minimum of time. Moreover, vegetables provide proteins, carbohydrates, mineral salts, vitamins in bulk which along with some cereals and other foods constitute the essentials of a balanced diet. European and other countries have solved their food problem by partly tide over the present crises by immediately putting more area under vegetable cultivation.

During last few years, in order to keep pace with the increasing damands for food resulting from rapid growth of population in India, manifold efforts being made to increase the production of food grains and the supplementary foods like fruits and vegetables. On account of greater appreciation of the value of vegetables in human diet and higher production per unit area as compared to that of the cereals and pulses interest in vegetable production and marketing has increased. New techniques of cultivation have inhanced this interest which is reflected in continuing

expansion of area and production of vegetables. Use of right varieties, recommended doses of fertilizers coupled with proper irrigation and plant protection measures have ensured high returns to the growers. Thus the vegetable crops now are gaining more importance in lessening the tension both on the economy of the growers and on the food front of the nation. Indias total vegetable production is about 12 million tonnes as against that of 100 million tonnes of food grains, whereas our requirement of foodgrains and vegetables are about 125 million tonnes and 25 million tonnes respectively (Chaudhary, 1974).

The vegetable requirement for a family is about 350 grams vegetable per adult per day (200 grams green and 150 grams root) (Chaudhari, 1974).

The Government of India has also launched vegetable production scheme in the IV and V five year plan to provide improved seed, technical advice and other facilities to the growers.

The marketing aspect of the agricultural commoddities in general and of the perishable vegetables in particular is eqully important. It is estimated that nearly 15 to 25 per cent of the total annual production of 12 million tonnes of vegetable is lost during the various stages of marketing.

Thus, contineous efforts on the part of researchers and policy makers are required to boost the production of vegetables, to reduce the losses and marketing costs and to detect anti-grower elements in the whole process of marketing with a view to ensure reasonable returns to the growers of vegetables.

1.2 Scope and importance of vegetable cultivation :

The value of vegetables as an important article of daily human diet has come to be recognised all over the world in recent years. They provide many specific chemical substances needed by our body for growth, reproduction and for maintenance of health. In India where vegetarianism has been a way of life since of the early days of recorded history, vegetables are very important in our daily diet. They add to taste and adorn dishes.

The use of vegetables as food has received remarkably large adoption during the past few decades. They not only taste good and supply basic necessary nutrients but also quite a few of them give very high quantity of food per unit area and grow quickly.

Vegetable cultivation is an intensive business. It needs mannual labours for various operations, thus it

provides year round employment also with the evaluation of high yielding varieties and hybrides many farmers are attracted towards vegetable cultivation. Vegetables also fetch good prices and income in big cities.

Vegetables facilitate adoption of proper rotations which are essential for maintaining the fertility of the soil. They also respond well to added fertilizers.

Vegetable crops, thus, play an important role in the prosperity of the nation contributing significantly to the health and happiness of the human being and also to the economy of the growers.

1.3 Nutritive value of vegetables :

The green vegetables are good sources of the important elements like calcium, phosphorus, iron, etc. which are needed for proper growth and development of body. Greenish yellow vegetables supply vitamin A. Vegetables also supply smaller quantities of proteins, fats and carbohydrates. They also supply very valuable micro-substances like ascorbic acid, niacin, riboflavin and thiamin.

High food values of selected vegetables in respect of calories, minerals and vitamins are presented in Table 1.1.

Table 1.1 :

(per 100 gm of edible portion)

Item	Okra	Brihjal	Fenugreek	Cauliflower
Moisture	89.6 gm	92.7 gm	86.1 gm	90.8 gm
Protein	1.9 gm	1.4 gm	4.4 gm	2.6 gm
Fat	0.2 gm	0.3 gm	0.9 gm	0.4 gm
Minerals	0.7 gm	0.3 gm	1.5 gm	1.9 gm
Fibre	1.2 gm	1.3 gm	1.1 gm	1.2 gm
Carbohydrates	6.4 gm	4.0 gm	6.0 gm	4.0 gm
Calories	35.0 gm	24 .0 gm	49.0 gm	30.0 gm
Calcium	66.0 mg	18.0 mg	360.0 mg	33.0 mg
Magnesium	43.0 mg	16.0 mg	67.0 mg	20.0 mg
Oxalic acid	8.0 mg	18.0 mg	13.0 mg	19.0 mg
Phosphorus	56.0 mg	47.0 mg	51.0 mg	57.0 mg
Iron	1.5 mg	0.9 mg	17.2 mg	1.5 mg
Sodium	6.9 mg	3.0 mg	76.1 mg	53.0 mg
Potassium	103.0 mg	2.0 mg	51.0 mg	113.0 mg
Copper	0.19mg	0.17mg	0.26mg	0.05mg
Sulphur	30.0 mg	44.0 mg	167.0 mg	-
Vitamin A	88.0 IU	124.0 IU	6450.0 IU	51.0 IU
Thiamine	0.07 mg	0.04mg	0.05mg	0.04mg
Riboflavin	0.1 mg	0.11mg	-	0.10mg
Nicotinic acid	0.6 mg	0.09mg	0.7 mg	1.0 mg
Vitamin C	13.0 mg	12.0 mg	54.0 mg	6.0 mg
Chlorine	-	52.0 mg	165.0 mg	-

(Chaudhary, 1974)

1.4 Economic importance of vegetables :

Vegetables play an important role in reducing the pressure over cereals and pulses production. In our country, where there are varying agroclimatic conditions, growing of various types of vegetables suited to the different seasons have been possible with high returns and hence they are attracting the attention of farmers.

The economic importance of vegetable crops may be measured in different ways. The principle measure are the area under vegetable crops, quantum of physical production and monetary value of vegetable products. However, since the productivity of land as well as variety of vegetables varies, the measures of area and the production would not be very sound. Naturally, the monetary value , though having some limitations, would be an important measure of economic evaluation of vegetables. But in a country like India where there is no well developed and organised marketing system for vegetable crops, no authentic records are available for ascertaining the production and money value of vegetables. In absence of such information, the area under vegetable crops is regarded as a fair criterion for measuring the economic importance of vegetable crops.

1.5 Economic superiority of new high yielding varieties :

Many high yielding varieties of vegetables have been adopted by the vegetable growers of Nanded district. For example, Pusa Sawani and Parbhani Kranti varieties of Okra, Manjriogota variety of brinjal, snowball-16 variety of cauliflower have become very popular among the growers. Due to suitability of the region for growing vegetables and specially with the introduction of these new high yielding varieties, the vegetable cultivation is contributing significantly to the farm income of the growers. Cultivation of these varieties involve lot of farm technology and high costs of cultivation. Similarly, it involves lot of skill in decision making with regard to market adjustments.

1.6 Area and production :

According to rough estimates reported by various authors, vegetable crops occupy only about 1.2 per cent of the total cultivated area of the country with the total production of about 16 million tonnes per year (Nath, 1976).

According to the crop division of the Ministry of Agriculture, Government of India the area under vegetables was around 0.8 million hectares which occupied an area of

about 0.5 million hectares (Chaudhari, 1974).

In Maharashtra State gross irrigated area is 2431500 hectares, which comes to 12 per cent of gross cropped area.

The total area of Nanded district is 10,492 sq. km. Nanded is one of the fast developing cities in Marathwada with the development of major irrigatikn projects like Vishnupuri Project, Lendi Project and Minor Irrigation Projects like Kundrala Project, Dongargaon Project. The area brought under irrigation is 19,188 ha. (Nikalje, 1982).

However, no study has been carried out in Nanded district regarding economics of production and marketing of vegetables, hence it was thought necessary to undertake study on economics of production and marketing of selected vegetables like Okra, Brinjal, Fenugreek and Cauliflower in Nanded district. The present study was therefore, undertaken with the following specific objectives :

1. To study the cost of production of selected vegetables.

2. To study the comparative economics of production and marketing of selected vegetables.

3. To study the marketing cost of selected vegetables.

1.7 Scope and utility of the study :

It is hoped that the study would be useful to the cultivators in many ways as indicated below :

i) In deciding his cropping plan so as to adjust the area under vegetable crops in suitable proportions.

ii) In adjusting sowing programme of vegetable crops in such a way that supply is not concentrated in a short span of time.

iii) In adopting modern techniques of marketing viz. grading, standardization, better packing and handling, cold storage of products, etc. for realising better prices.

In the study of marketing problems, ascertaining of marketing costs incurred on different stages in the marketing process is extremely important. Such studies indicate whether the charges made for certain services are reasonable.

The study will also reveal roles and utility of intermediaries in marketing of vegetables. It will also throw some light as to how one can avoid the present widely believed unfair, illegitimate, uneconomic and exploitative elements in vegetable marketing if they are found to exist.

Analysis of marketing structure may also show some ways and means of improving marketing efficiency both technical and economic for the benifits of all concerned in marketing.

CHAPTER - 2

REVIEW OF LITERATURE

CHAPTER - II

REVIEW OF LITERATURE

It is always worthwhile to study the work done on the various aspects related to the research problem by different research workers. Review of literature on relevant aspects under study forms an integral part of any systematic research work. To encompass the past research work it becomes indispensible to take the review of literature that will build a sound footing to the problem. It also help to have a clear idea in respect of the concepts used, methods employed, analysis done and interpretation of the data collected. The review of literature is useful in approaching the problem in a right way and in analysing and interpreting the data in a systematic manner. The work done on vegetable crops by different research workers is presented below :

2.1 Cost of production of vegetable crops :

Singh and Thakur (1964) estimated the production and cost of cultivation of different vegetables in Kulu valley. The average cost of production of one kg seed of tomato, brinjal, capsicum, french bean and okra come to Rs. 11.33, Rs. 5.44, Rs. 3.54, Rs. 2.19 and Rs. 15.00 respectively and the cost of cultivation was sorked out

to Rs. 625.25, Rs. 520.30, Rs. 420.00, Rs. 378.10 and Rs. 340.18 per acre respectively.

Raghubanshi (1969) studied economics of vegetable cultivation in saproonvalley (Himachal Pradesh) and concluded that on an average, input costs in cauliflower and tomato were worked out to Rs. 13842.35 and Rs. 11618.39 per hectare respectively and corresponding output was Rs. 55229.85 and Rs. 35442.03 leaving a marginal profit of Rs. 41386.85 and Rs. 28823.64 respectively. The net profit obtained from tomato and cauliflower grown for seed was high.

Kokate (1970) studied cost and returns from selected vegetable crops in Dindori taluka of Nasik district. It was revealed that, the per acre gross income from cabbage-cauliflower was the highest (Rs. 1894.00). It was followed by tomato (Rs. 1851.00) and green chillies (Rs. 1650.00). The gross income was lowest (Rs. 1420.00) in brinjal. Per acre total cost of cultivation of cabbage-cauliflower and tomato were approximately the same, while incase of brinjal and green chillies, it was Rs. 918.00. Cabbage-cauliflower gave the highest profit of Rs. 1064.33, tomato was the next vegetable crop giving relatively more net profit (Rs.999.56). Green chillies and brinjal have profit of Rs. 731.31 and Rs. 301.64 per acre respectively.

Patil (1972) studied cost and returns of vegetable crops in the vicinity of Parbhani city. His study revealed that on an average per hectare total cost of tomato, chilli, methi and brinjal were worked out to Rs. 2453.88, Rs. 2431.81, Rs. 386.90 and Rs. 2510.26 as against the gross returns of Rs. 2903.77, Rs. 3494.50, Rs. 3196.44 and Rs. 3213.73 respectively.

Pawar (1972a) studied economics of production and marketing of selected vegetables grown in Haveli tahsil of Pune district. His findings indicated that pea was at the top in respect of net return. Per hectare net returns were worked out to be Rs. 8630.60 and Rs. 8329.38 at cost A and C respectively. The net returns from the beans were at the lowest i.e. Rs. 1509.42 and Rs. 1184.31 at cost A and cost C respectively. The other vegetables viz., tomato, brinjal and cabbage, cauliflower gave per hectare net returns of Rs. 5571.14, Rs. 5373.20 and Rs. 3564.95 at cost C respectively.

Hedgire (1974) found out that average cost required to produce one quintal of potato tubers is Rs. 51.50, Rs. 55.27 and Rs. 55.70 at cost A, B and C respectively. Average value of produce per quintal is Rs. 62.49, giving net income per quintal of Rs. 10.99, Rs. 7.22 and Rs. 6.79 at cost A, B and C respectively.

In size group IV the highest input-output ratio was obtained as comparable cost A and C followed by group size III, II and I. Input-output ratio for group size I, II, III and IV at cost A is Rs. 1.03, Rs. 1.24, Rs. 1.27 and Rs. 1.29 respectively and at cost C it was Rs. 0.93, Rs. 1.16, Rs. 1.17 and Rs. 1.20 respectively.

Sikka and Swarup (1977) found in their study of relative economics of different vegetables that returns over variable cost was more in case of tomato during the kharif season and in case of cauliflower during the rabi season.

Madalia and Kukadia (1978-79) studied cost and returns in vegetable cultivation in Surat district. The average per hectare cost of production of porwar (pointed gourd) worked out to Rs. 5947.96, which was the highest while that of bhindi worked out to Rs. 3230.50, it was the lowest among all the four vegetables under study (i.e. Porwar, Bhindi, Gilodi and Chillies). In the cultivation of various vegetables, the variable cost accounts for 96 per cent and fixed cost account for only 4 per cent of the total cost. On an average chillies cultivation gave the highest net return of Rs. 5843.42 per hectare. Porwar followed closely to it. The per hectare net return from

bhindi was Rs. 4188.90, which was lowest among all the vegetables under study.

Subrahamanyan and Mruthyunjaya (1979) revealed that the cost of cultivation of tomato has nearly 35 per cent of the was towards the marketing and is almost equal to actual cultivation cost the study of the reciing price the cost of production and the informal contract price offered by the government processing agency revealed that the farmers profit expectation is nearly 40 per cent and as such a price which is nearly 40 per cent above cost of production seems to be a fair price to induce cultivator for supply of the produce. Most of the cultivators felt the need for transport arrangement to be made by the purchasing agency for picking up the produce at the field per village level. This will enable the cultivators to save the commission and octroi charges with the transport charges account for the major marketing cost.

Raut, Pawar and Mazire (1984) revealed that the per hectare cost of production and gross returns were the highest at Rs. 10384 and Rs. 17556.60 respectively in the case of tomato and the lowest at Rs. 1996.50 and Rs.2864.19 respectively in the case of coriander, the per hectare net return regard between Rs. 241.17 and Rs. 7172.60 the lowest

and highest being in carrot and tomato respectively. The major components of the marketing cost of vegetable were commission, transport losses in handling and packing which together accounted for 92.75 to 94 per cent of the total cost of marketing. The study, therefore, recommends that adequate facilities for quick and cheap transport, cold storage and preservation should be developed where ever possible a large number of intermediaries should be eliminated by organizing producer's co-operatives.

Aundhekar (1989) studied economics of vegetable cultivation in Parbhani district and concluded that on an average, input costs in Bhindi, Brinjal and tomato were worked out to Rs. 14866.21, Rs. 20437.16 and Rs. 17063.27 per hectare respectively and corresponding output was Rs. 18687.40, Rs. 30981.24 and Rs. 25555.52 leaving a marginal profit of Rs. 3821.19, Rs. 10544.08 and Rs. 8492.25 respectively.

2.2 Resource use efficiency :

Naik (1965) studied sample of farms in Ankodia village in Baroda district using cobb-douglas function. He concluded that water charges paid had the highest elasticity and wages, paid to labourers were below marginal productivity.

Jha (1967) analysed the data collected in Ahmednagar and Nasik districts with variables as output in rupees, cropped land in acres, human labour in man days, bullock labour in days and value of working capital in rupees. He observed that the elasticities in respect of human labour and working capital were the highest in bigger sized farms than those in smaller sized farms.

Shingare and Waghmare (1968) estimated recource productivity due to T.N. 1 paddy in Kolaba district by using cobb-Douglas function with variables such as output in kilograms, land in gunthas, human labour in man days, bullock labour in days and working capital in rupees. They observed that individual inputs showed deminishing returns whereas sum of elasticities indicated increasing returns which however was not tested. Marginal returns to land and bullock labour were found more than marginal cost.

Sankhayan and Sirohi (1971) estimated resource productivities and allocation efficiency on 30 seed potato and maize farms selected for three villages of Theog tahsil of Mahasa district in Himachal Pradesh. It was observed ffom the cobb-Douglas type of productian function analysis that the sum of elasticities of various inputs used as

0.908002, not significantly different from unity which indicated constant returns to scale in case of seed potato. In case of maize there was diminishing returns to scale as the sum of elasticities was 0.74471. The seed potato study suggested that there was no possibility of increasing the farm returns through reallocation of the limited available capital among the various input uses as the resources were optimally allocated. They further noted that profitability can be increased by diverting funds from human labour to manures and fertilizers in case of maize farms.

2.3 Comparative economic of production of vegetables :

Korde (1963) studied economics of vegetables growing in neighbourhood of Nagpur, and concluded that among all vegetable crops 'Aruni' gave highest net income of Rs. 488.51 per acre. The second in order was the cauliflower which gave a net income of Rs. 407.62. The rest of the vegetable crops i.e. Pumpkin, onion, chillies, tomato and brinjal resulted into the net income of Rs. 278.93, Rs. 217.23, Rs. 201.68, Rs. 195.93 and Rs. 188.06 per acre respectively.

Tayade (1972) has compared the costs and returns of vegetables and fig in Pune district. His study revealed that on small sized farms per hectare, total cost of vegetables worked out to Rs. 1894.41 which was approximately half of gross income from them, resulting into a net profit of Rs. 979.30 per hectare. On medium and big sized farms total cost of vegetables were about the same viz., Rs. 1079.06 and Rs. 1135.32. Similarly, in gross incomes of the two groups, there was a difference of about Rs. 200.00 only. Net profits of these two groups were Rs. 1168.70 and Rs. 1351.50 per hectare respectively. He concluded that the productivity of vegetables as quite encouraging in all the size groups but it could not compete with that of fig crop.

Singh and Singh (1973) observed in their study that, net return per hectare per year was maximum in case of rotation having five crops, followed by fourcrops, three crops and two crops, the difference in case of rotation with five and four crops per year was of the order of more than one thousand rupees per hectare; in case of rotation with four and three crops, it was Rs. 280.94 only. This clearly indicated that it was not the number of crops which contribute towards net returns but the nature of crops and their market value were also important.

Garg and Prasad (1974) studied that the vegetable farming yields higher returns per hectare in comparison to food grain crop. The highest returns per hectare was obtained from tomato being Rs. 3948.28 followed by cauliflower Rs. 3640.26, onion Rs. 2653.04 and brinjal Rs. 2394.46, lady's finger palak and tomato gave net income of Rs. 1799.48, Rs. 1070.42 and Rs. 1469.69 per hectare respectively.

When the economics of the highest paying vegetable crop i.e. tomato was compared with that of high yielding variety of wheat in the same locality the per hectare investment was found to be higher by 3.64 per cent on wheat over tomato. But the net income was higher on tomato which was greater by 1½ times than wheat. The returns per rupee investment was Rs. 39.48 against Rs .22.80 in wheat. Further, the employment of labour days was higher in tomato than in wheat, which came to 144 days and 113 days respectively.

Vegetable farming is subjected to problems like non-availability of storage facilities processing and preservation units and wide price flunctuations leading to less than expected yields. It is an enterprise of higher returns and can be undertaken on small piece of land with lesser investment.

Gangwar and Chikkara (1974) observed that, the cost of cultivation of cauliflower, onion, longmelon, tomato and lady's finger were Rs. 2763.92, Rs. 2317.08, Rs. 2123.28, Rs. 3009.25 and Rs. 2824.84 respectively and the cost of production per quintal of cauliflower, onion, longmelon, tomato and lady's finger were observed to be Rs. 35.77, Rs. 20.59, Rs. 34.10, Rs. 28.03 and Rs. 38.87 respectively. The net returns per hectare were Rs.1925.18, Rs. 1642.18, Rs. 1212.38, Rs. 2519.10 and Rs. 1742.29 from cauliflower, onion, longmelon, tomato and lady's finger respectively. Among all vegetables, tomato was most profitable followed bycauliflower. The input-putput ratio suggests that the farmers with capital, serve as most restrainsts should go for tomato cultivation followed by onion and cauliflower rather than other vegetables. Further study also indicate that small farmers were economically more efficient as compared to others. Thus there is a greater scope for expansion of the vegetable cultivation of the farms.

Surendrapal Singh (1974) observed that, the input-output ratio of vegetable crops is potato 1:1.43, cauliflower 1:2.21, cabbage 1:2.18 and Bhindi 1:1.09. In this study the higher input-output ratio is received from cauliflower and cauliflower and cabbage compared to potato and bhindi drops.

Tewari, Dhall, Sharma (1974) observed that vegetable growing farmers were cultivating their land more intensively than the cereal growing farmers. The area under vegetable was 59.10 per cent of the total cropped area in case of vegetable growing farms, whereas the figure for the cereal group was only 3.5 per cent. The gross income of cereal growing farms was less than half of the vegetable growing farms. Agriculture contributed more than 83 per cent of the gross income on the cereal farms. Whereas on vegetable growing farms, its contribution was 80.91 per cent crops contributed 66.41 per cent of the gross income on cereql farms. While their contribution towards gross income was more than 75 per cent in the case of vegetable farms. Vegetable cultivators on an average invested more than four times on fertilizer and manures than the cereals growing farmers.

Pritana (1975) studied cropping system including vegetables in Chiang Mai Valley (Thailand). He observed that vegetable crops provided higher net return than any field crop, given the same area of cultivationwithin a cropping system. Howeger, vegetable production involves more risk than field crops.

Sahoo and Patro (1975) tested four cropping sequences at the model Agronomic centre, Bhubaneshwar and found that Rice-cauliflower-Maize sequence recorded maximum net profit. It was followed by jute-maize-cowpea-perennial fodder.

2.4 Marketing of vegetables :

Balsubramanian (1960) showed that during the process of distribution over 20 per cent of fruit and vegetable production was wasted. He also concluded that less than 1.00 per cent of fresh fruits and vegetables production was wasted. He also concluded that less than 1.00 per cent fresh fruits and vegetables grown in India were converted into different processed products.

Kahlon and Randhwa (1964) studied the marketing of Horticultural products. They found that the seasonal fluctuations in the prices of fruits and vegetables were not due to over production but more due to bad distribution. They suggested that introduction of early and late varieties in cultivation, processing of products, development of cold storage and freezing industry could play a significant role in orderly marketing and better distribution. They also suggested that too many intermediaries and retailers in marketing should be eliminated by forming the growers' co-operatives.

Mirchandani and Hiranandani (1965) in their paper on 'Regulated markets - their review and their impact on market structure and efficiency ' - concluded that on the whole the regulated markets have exercised a very wholesome influence on the marketing structure and have generally raised the marketing efficiency. They have resulted in the reduction of marketing charges to the extent of 48.00 per cent.

Siddappa (1967) in his study reported that out of 16 million tonnes of fresh fruits and vegetables grown in India, nearly 25 per cent is wasted in various ways and it is due to lack of adequate facilities for transport, storage and preservation, Attention to this problem is therefore an urgent necessity in the country and it is desirable to conserve them by traditional as well as modern method of storage, transport and distribution and preservation.

Singh and George (1968) undertook a project on marketing of vegetablew in Punjab. The following are the important findings of the project.

1. The producer's share was the highest when produce was sold to terminal market and the lowest when it was sold to pre-harvest contractors.

2. Various types of packing materials were in use. Per quintal cost of packing worked out to Rs. 0.42 for tomatoes, Rs. 0.27 for brinjals, Rs. 0.30 for cauliflower and Rs. 0.17 for peas.

3. Horse driven carts, bullock carts, and the trucks, were the means of transportation. Trucks were found to be most economical but at the same time the most uncertain also.

4. The retailers were most disorganised and had very low capital investment ranging from Rs. 75.00 to Rs. 77.00. The commission agents were found charging commission both from growers and retailers.

Pawar (1972 b) while studying economics of production and marketing of selected vegetables found that, producer's share in consumer's rupee was not more than 58.76 per cent in case of all the six vegetables studied by him. It was also as 36.69 per cent in tomatoes. The margins of the commission agents and the retailers were ranging from 4.38 per cent to 7.38 per cent and 24.10 per cent to 48.67 per cent respectively. This shows that major portion of consumer's rupees went into the pocket of retailers rather than producers. Transport and commission charges were major items of marketing cost. Percentage of commission charges to the value of produce come to 12.5 per cent.

Bhalerao, Venkateswarlu and Ansari (1979) studied price spread in vegetables. Their study revealed that the producer's share in the consumer's rupee in the case of majority of vegetables is very low. The wholesalers and the retailer's in the market mechanism are grabbing sizable portion and thereby multiplying the marketing costs. Co-operativisation and regulation of marketing activities are suggested to be the effective measures to set right the situation.

Gupta and Ram (1979) had made enquiry into behaviour of market margins and cost ofvegetables in Delhi with a view to estimate price spread and role of location on the retailers margin and to measure theeffect of variation in consumers price. The analysis revealed that the producer received a very low (38 per cent) share in the consumer's price, whereas the retailers margin and marketing cost were quite substantial, each appropriating one fourth of the consumer's price. Location played an important role in influencing retailer's margin. Transport packing and labour expenses were the major components of marketing cost. According to them co-operative endeavour and processing would probably go a long way in improving marketing performance.

Prasad (1979) undertook a study on price spread for selected vegetables in Banglore city. He concluded that the price spread between the retail price and net price received by the producers at farm level was Rs. 0.55, Rs. 0.51 and Rs. 0.41 for every kg of beans, cabbage and brinjal respectively. The producers net share in the consumers urupee was as low as 58.90 per cent for beans, 55.20 per cent for cabbage and 58.47 per cent for brinjal.

Hugar (1981) studied economic analysis of marketing of vegetables in Banglore city. Study was restricted to only three major vegetables of the area viz., cabbage, brinjal and tomato. The price spread was relatively higher for sales through commission agents as compared to co-operatige society. Retailers share was the significant constituent of the total marketing margin. The share of producers - sellers in consumerw rupee was higher when sold through co-operative society as compared to that of commission agents. The marketing cost per quintal incurred by the producer-seller was highest in the case of tomato followed by brinjal. However, it was lower when sold through the co-operative society, than the commission agents. The wholesale price of these vegetables were significantly, influenced by arrivals, number of bidders and marketing agency.

Mazire (1983) studied resource use, costs and returns market margins and resource productivities of selected vegetable production sequences in Pune district. The data for the year 1981-82 from 20 cultivators from five villages were collected. The vegetable crops in various sequences required a contineous use of labour. Per hectare total costs of cultivation were worked out to Rs. 24759.65, Rs. 28560.81, Rs. 20129.14, Rs. 19120.50 and Rs. 17309.17 while the gross returns were Rs. 37498.95, Rs. 40388.70, Rs. 30604.80, Rs. 29063.05 and Rs. 25792.50 for sequences I, II, III, IV and V respectively. The per quintal cost of marketing for the vegetables in the sequences ranged between Rs. 17.35 to 32.67. The price spread indicated that the producers share in consumers prices were ranging between 43 to 59 per cent while the maximum share of it was swallowed by the retailers. Considering the costs of marketing, the sequence (cabbage-methi + Coriander, guar) gave the highest profit. The production function analysis indicated over utilization of manures andfertilizers while the MVPs of human labour days indicated some scope for increasing the output. The study recommends that cultivators should consider the nature of vegetable crops, resource use structure, market prices and net returns of the individual crops while selecting a particular sequence.

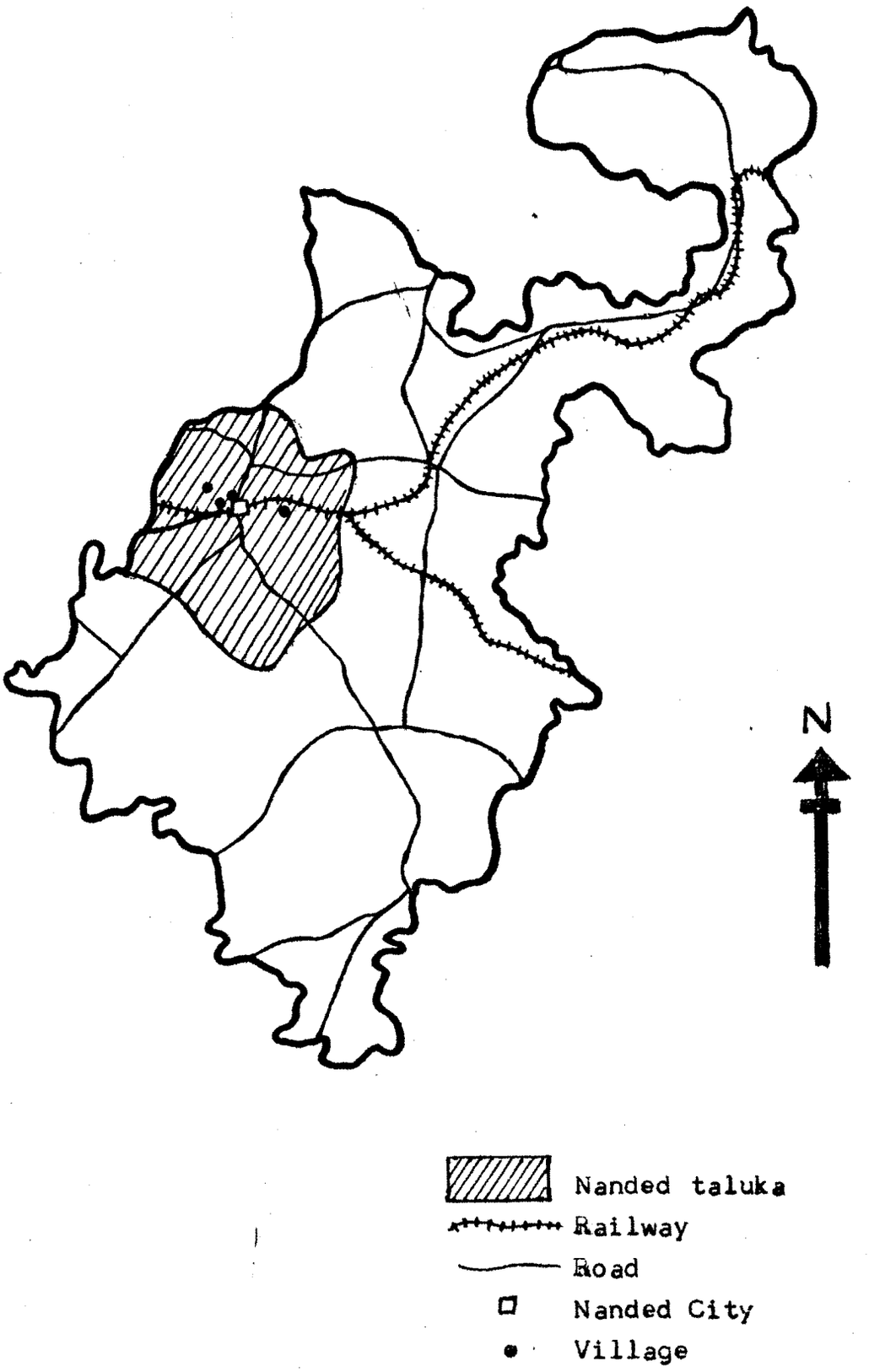
Shrivastava (1984) reported that shares of the producers and the retailers were directly affected by the consumers price. In such a dynamic set-up of vegetable marketing the producers share was inversly related to consumers price. The benifit derived from an increase in the consumers price did not go to the producer instead, it has absorbed by the retailors. This trend would be great disincentive to the small and marginal growers.

Aundhekar (1989 b) worked out the per quintal marketing cost of okra, Brinjal and Tomato was Rs. 41.40, Rs. 30.32 and Rs. 34.02 respectively. Near about 50 per cent expenditure was incurred on commission for all the three crops.

CHAPTER - 3

MATERIALS AND METHODS

Fig. 1 : Map of Nanded district showing the selected villages



CHAPTER - III

MATERIALS AND METHOD

3.1 General :

The study of economics of production and marketing of selected vegetables in Nanded district is carried out. Increase in irrigation facilities due to Vishnupuri project and other minor irrigation projects and vegetables are well responsive for irrigation, Nanded district is purposively selected for study purpose.

Any type of investigation to be conducted for specific objectives inveriably requires adeption of scientific methods and procedures for conduct of investigation analysis and drawing useful conclusions.

3.2 Selection of area :

Nanded district is one of the major districts growing vegetables. Nanded taluka of Nanded district was selected for the present investigation, on the basis of availability of good transport and marketing facilities.

3.3 Selection of villages :

Pawdewadi, Mugat, Taroda and Maralak villages were selected for study purpose because all these villages are 10 to 12 kms from Nanded city i.e. they are in the vicinity

of Nanded city and having good marketing facilities for vegetables.

3.4 Selection of cultivators :

The list of vegetable growers was prepared from the selected villages on the basis of net cultivated area of the holding. A random sample of 250 cultivators was selected. They were grouped into three categories such as small (size group I), medium (size group II) and large (size group III) on the basis of the criteria of the Government of Maharashtra. The size groups are as below :

i)	Size group I	Upto 2.00 hectares
ii)	Size group II	2.01 to 5.00 hectares
iii)	Size group III	above 5.00 hectares.

3.5 Preparation of schedule :

An appropriate questionnaire was prepared according to the objectives.

3.6 Collection of data :

The required data was collected by personal interview method by paying personal visit with the help of specially prepared questionnaire.

3.7 Analysis of data :

For the purpose of analysis sample cultivators were grouped in to three groups as size group I, II and III. These groups consisting 56, 74 and 120 cultivators respectively.

Distribution of sample holding in different size groups and number of holding taking different selected vegetables in each group is given in Table 3.1.

Table 3.1 : Distribution of sample holding in different sizes :

Size group	Net area operated in ha	No. of holdings	No. of holdings growing			
			Okra	Brinjal	Fenu-greek	Cauli-flower
I	Upto 2.00	56	14	13	14	15
II	2.01 to 5.00	74	20	16	17	21
III	above 5.00	120	28	33	31	28
Total :		250	62	62	62	64

3.8 Cost concepts used in economics of production of vegetable crops :

An attempt has been made in this study to work out the cost of cultivation, the cost of production and the unit cost of production of the selected vegetables.

3.8.1 Cost of cultivation of vegetable crops :

The variable costs and the fixed costs required for cultivation have been grouped under three catagories using cost concepts A, B and C.

Cost A :

Under this cost all cash and kind costs incurred by cultivators have been accounted.

i) Hired human labour
ii) Owned and hired bullock labour
iii) Manures
iv) Seeds
v) Fertilizers
vi) Irrigation charges
vii) Plant protection charges
viii) Depreciation of implements
ix) Land revenue
x) Interest on working capital.

Cost B :

i) Cost A
ii) Rental value of owned land
iii) Interest on fixed capital.

Cost C :

i) Cost B

ii) Family labour.

The elements of costs that entered into total cost i.e. 'Cost C' have been computed as below :

i) Human labour :

Hired human labour cost was computed on the basis of wages actually paid to the casual labour. The wages of the family labour was considered as the prevailing wage rate for maleaand female labour in the village. This was observed to be Rs. 20.00 per day for male and Rs. 10.00 per day in case of female labour.

ii) Bullock labour :

The bullock labour cost in the present study has been worked out at prevailing rates for hired bullocks for different farm operations in the locality. This was observed to be Rs. 40.00 per day for hire of a bullock pair.

iii) Manure :

Farm-yard manure and compost produced on the farm and purchased from outside have been considered at prevailing selling prices. This was observed to be Rs. 30.00 per cart load.

iv) Seed :

The actual expenses incurred for purchase of seeds have been taken into account. The cost of seed was estimated at the prevailing market rates.

v) Fertilizers :

The actual expenses incurred on fertilizers have been taken into account.

vi) Irrigation :

In case of irrigation by well and oil engine or electric motor amounts of depreciation on the value of well, oil engine, electric motor and the engine shade were computed at appropriate rates and taken as overhead charges. In addition to this, the cost of repairs, fuel, lubrication, energy charges of electricity were considered as direct or variable costs.

vii) Plant protection :

The actual hire charges of plant protection appliances taken from outside and actual cost of insecticides, pesticides were considered.

viii) Implement :

The depreciation of all iron and wooden implements were computed on the basis of original purchase price and the estimated useful life of implement. The total amount of depreciation was apportioned on the basis of total cropped area.

ix) Land revenue :

The land revenue was worked out for the area of vegetables and other cases and taxes paid by the farmers were considered.

x) Interest on working capital :

The overhead cost i.e. interest on working capital was calculated at 13 per cent per year. The period of vegetables was considered as 6 months.

xi) Rental value of land :

Rental value of land was calculated as 1/6th of total income-land revenue.

xii) Interest on fixed capital :

Interest on fixed capital was calculated at the rate of 10 per cent per year.

xiii) Gross efficiency standard :

Gross farm income included the value of all crop products, produced. It is the function of yield and prices received by the farmers.

xiv) Cost per hectare :

It was calculated by dividing total cost by the area under particular vegetable crop.

3.8.2 Marketing aspects :

i) Transportation :

Vegetables are generally brought in the market by cultivators in their bullock carts. Some cultivators use the mode of transportation of Auto-rikshaw, cycle-rikshaw or Tempo's or bring their vegetables on Bicycles.

ii) Methods of marketing :

The prices of vegetables are set by the commission agents on behalf of the seller with the buyer by open auction of vegetable lots.

iii) Marketing costs :

It includes transport, octroi, hamali, commission of the agent, incidental charges and losses occured during marketing.

PACKAGE OF PRACTICES FOR OKRA

Botanical name	:	*Abelmoschus esculantus*.
Family	:	Malvaceae.
Local name	:	Bhendi.
Origin	:	Afri ca.
Climate	:	Warm.
Soil	:	Loose friable and well manured loam soil.
Sowing time	:	June and January.
Seed rate	:	10 to 15 kg per hectare.
Spacing	:	45 x 30 cm
Manuring	:	50 cart loads of farm yard manure per hectare.
Fertilizers	:	40 kg N_2 and 40 kg P_2O_5 per hectare
Varieties	:	Pusa sawni, Pusa makhmali, Parbhani Kranti.
Irrigation	:	In summer - 4 to 5 days interval In winter - 10 to 12 days interval
Intercuèture operation	:	2 to 3 hoeings and weedings.

Insect pest and diseases and their control measures :

i) Jassid - 0.1% B.H.C. or D.D.T. or 0.02% Endrine or 0.02% Parathion or Malathion.

ii) Bhindi leaf weevil - 0.1% B.H.C. or D.D.T. or 0.02% Endrine or 0.02% Parathion or Malathion.

iii) Bhindi leaf borer - 0.03% Endrine.

iv) Yelow vein mosaic (caused by Hibiscus virus 1 smith which is spread by insect vectors Bemisia tabaci.)

- 0.16% D.D.T., 5% B.H.C., Growing mosaic tolerant varieties like Pusa sawni.

v) Powdery mildew (caused by Erysiphe cichoracearum.)

- Dusting of sulpher.

Yield : 50 quintals per hectare.

PACKAGE OF PRACTICES FOR BRINJAL

Botanical name	:	Solanum melongena.	
Family	:	Solanaceae.	
Local name	:	Vange	
Origin	:	India	
Climate	:	Warm	
Soil	:	Deep, well drained, fine and rich loam.	
Sowing time	:	Manjrigota, Pusa purple round	- May, June.
		Pusa purple cluster	- August, September.
		Pusa purple long, Parbhani Kranti	- December, January.
Seed rate	:	700 to 1000 grams. (per hectare)	

Spacing : Manjrigota, Pusa purple round - 75x60 cms.

Pusa purple cluster, Pusa purple long, Parbhani kranti - 75x75 cms.

Manuring : 40 to 50 cart loads of farm yard manure per hectare.

Fertilizers : 60 kg N_2 and 50 kg P_2O_5 per hectare.

Varieties : Arun, Manjrigota, Pusa purple round, Pusa purple cluster, Pragati, Pusa purple long, Parbhani kranti.

Irrigation : In summer - 3 to 4 days interval

In winter - 12 to 15 days interval.

Interculture operation : 3 to 4 hoeings and weedings.

Insect pest and diseases :

i) Brinjal fruit and shoot borer - 0.2% Endrine, 0.1% D.D.T.

ii) Brinjal stem borer - 0.04% Parathion.

iii) Jassids - 0.1% D.D.T. or B.H.C. or 0.02% Endrine.

iv) Damping off (caused by Phythium sp. and Phytophora sp.) - Hot water treatment of seeds for 30 minutes at 52°C, rotation, seed treatment with cerasan.

v) Little leaf - Parathion.

Yield : 250 to 300 quintals per hectare.

PACKAGE OF PRACTICES FOR FENUGREEK

Botanical name	:	Trigonella foenum-graecum.
Local name	:	Methi
Climate	:	Cold
Soil	:	Loamy, alluvial and heavy clay.
Sowing time	:	September, January.
Seed rate	:	25 to 30 kgs per hectare.
Spacing	:	20 cm in line. (or broadcasting)
Manuring	:	25 cart loads of farm yard manure per hectare.
Fertilizers	:	50 kg N_2 per hectare.
Varieties	:	Kasuri, Pusa early bunching.
Irrigation	:	7 to 10 days interval.
Yield	:	50 to 80 quintals per hectare.

PACKAGE OF PRACTICES FOR CAULIFLOWER

Botanical name	:	Brassica oleracea var. botrytis.
Family	:	Cruciferae.
Local name	:	Phul kobi.
Origin	:	Greece.
Climate	:	Cool and moist.
Soil	:	Sandy loam and clay loan having pH 6.0 to 7.0
Sowing time	:	May, June.
Seed rate	:	600 to 750 grams per hectare.
Spacing	:	60x60 cms.

Manuring	:	30 to 40 cart loads of farm yard manure per hectare.
Fertilizers	:	100 kg N_2 and 50 kg P_2O_5 per hectare.
Varieties	:	Early varieties - Pusa katki, Pusa deepali, improved japanees. Late varieties - Snowball-16, E.C. - 12013.
Irrigation	:	For early planting - 5 to 6 days interval For late planting - 10 to 15 days interval
Interculture operation	:	3 to 4 weedings, blanching.
Yield	:	200 to 250 quintals per hectare.

CHAPTER - 4

RESULTS AND DISCUSSION

CHAPTER - IV

RESULTS

Data on cost of production of okra, brinjal, fenugreek and cauliflower vegetables were analysed in order to achieve the objects of the study. The results are presented in this chapter cropwise.

Table 1 : Cropwise classification of vegetable growers

Group	No. of sample	% Total No. of holding	Total area (ha)	% to total area	Average area per holding(ha)
Upto 2.00 hectare	56	22.4	140.0	13.61	2.5
2.01 to 5.00 hectare	74	29.6	269.2	26.18	3.63
Above 5.00 hectare	120	48.0	618.8	60.19	5.15
Total	250	100.0	1028	100.00	4.11

Table 1 indicates that the overall agerage holding was 4.11 hectares. The average holding of size groups I, II and III were 2.50, 3.63 and 5.15 hectares respectively. The IIIrd size group covered 60.19 per cent of total hectareçe of the selected vegetable growing cultivators.

Table 2 : Land utilization of selected vegetable growers

(Area in hectares)

Particulars	Size group				Average
	I	II	III	Total	
Total holding	140.00 (100.00)	269.20 (100.00)	618.80 (100.00)	1028.00	4.11 (100.00)
Permanent fallow	13.40 (9.57)	27.20 (10.10)	89.80 (14.51)	130.40	0.52 (12.65)
Irrigated area	84.90 (60.64)	174.70 (64.89)	315.00 (50.90)	574.60	2.29 (55.71)
Dryland area	41.70 (29.78)	67.30 (25.00)	213 80 (34.55)	322.80	1.29 (31.38)
Total area under crop	99.70 (71.21)	133.20 (49.47)	431.50 (69.73)	664.40	2.65 (64.47)

(Figures in the bracket indicates the percentages)

It is revealed from Table 2 that the increasing trend was seen for area under irrigation.

Table 3 : Cropping pattern of selected cultivators

(area in hectares)

Crops	Size group			Overall
	I	II	III	
Mung	6.15 (3.55)	9.22 (3.07)	24.78 (3.85)	13.38 (3.59)
K-jowar	17.93 (10.37)	21.66 (7.23)	28.82 (4.48)	22.80 (6.13)
Udid	3.13 (1.81)	5.87 (1.95)	10.35 (1.61)	6.45 (1.73)
Cotton	23.97 (13.86)	35.78 (11.94)	68.00 (10.57)	42.58 (11.45)
Tur	7.31 (4.22)	14.99 (5.00)	42.42 (6.59)	21.57 (5.80)
Safflower	1.96 (1.13)	4.13 (1.37)	25.91 (4.03)	10.66 (2.86)
Gram	3.11 (1.79)	7.00 (2.33)	32.19 (5.00)	14.10 (3.79)
Sugarcane	25.66 (14.84)	67.81 (22.64)	113.67 (17.68)	69.04 (18.57)
Vegetables	16.80 (9.72)	28.60 (9.54)	43.05 (6.69)	29.48 (7.93)
Paddy	15.58 (9.01)	21.20 (7.07)	39.17 (6.09)	25.31 (6.80)
Wheat	6.43 (3.72)	12.73 (4.25)	45.67 (7.10)	21.61 (5.81)
Banana	26.79 (15.50)	41.13 (13.73)	107.45 (16.71)	58.45 (15.72)
Others	18.00 (10.41)	29.37 (9.80)	61.36 (9.54)	36.24 (9.74)
Total	172.78 (100.00)	299.49 (100.00)	642.84 (100.00)	371.71 (100.00)

(Figures in the bracket indicated the percentage)

Table 3 indicate that on an average 18.74, 14.91 and 2.86 per cent area was covered by different cereals, pulses and safflower (oil seed) respectively. Paddy and Tur covered major area in cereals and pulse crops respectively.

Cash crop like cotton, sugarcane and banana covered greater hectarage. About 7.93 per cent area was occupied by various vegetable crops. The same trend was observed in all the size groups under study.

Table 4 : Area under vegetable crops

(area in hectares)

Crops	Size group			Overall
	I	II	III	
Okra	3.10 (18.45)	5.90 (20.62)	7.40 (17.18)	5.46 (18.52)
Brinjal	3.30 (19.64)	4.70 (16.43)	10.15 (23.57)	6.05 (20.52)
Fenugreek	4.40 (26.19)	6.95 (24.30)	11.10 (25.78)	7.48 (25.37)
Cauliflower	6.00 (35.71)	11.05 (38.63)	14.40 (33.44)	10.48 (35.54)
Total	16.80 (100.00)	28.60 (100.00)	43.05 (100.00)	29.48 (100.00)

(Figurew in the bracket indicates the percentage)

From Table 4 it is seen that overall average area of 29.48 hectares was under different vegetable crops. The vegetable crops okra, brinjal, fenugreek and cauliflower covered 18.52, 20.52, 25.37 and 35.54 per cent area respectively. Increasing trend was observed for cauliflower cultivation within the three size groups and it covered major area in all the size groups followed by fenugreek, brinjal and okra.

Table 5 : Per hectare labour utilization of Okra.

Operations	size group I				II				III				Overall			
	M	F	T	BP	M	F	T	BP	M	F	T	BP	M	F	T	BP
Preparatary tillage	9.67 25.86		9.67 03.26	9.67 51.73	7.45 20.56		7.45 03.13	7.45 51.80	8.78 21.38		8.78 03.13	8.78 52.01	8.63 22.59		8.63 03.15	8.63 51.86
Cleaning		17.09 06.60	17.09 05.77			14.23 06.80	14.23 05.99			15.81 06.61	15.81 05.64			15.71 06.66	15.71 05.73	
Manuring	4.51 12.06		4.51 01.52	4.51 24.13	3.55 09.79		3.55 01.49	3.55 24.68	4.32 10.52		4.32 01.54	4.32 25.59	4.12 10.78		4.12 01.50	4.12 24.75
Seed sowing		35.48 13.71	35.48 11.58			28.64 13.69	28.64 12.06			33.51 14.01	33.51 11.95			32.54 13.80	32.54 11.88	
Fertilizers :		35.48 13.71	35.48 11.68			28.13 13.45	28.13 11.85			32.43 13.55	32.43 11.57			32.01 13.58	32.01 11.68	
Thinning/gap filling	2.25 06.01	6.77 02.61	9.02 03.04		1.69 04.66	5.59 02.67	7.28 03.06		2.70 06.57	5.81 02.42	8.51 03.03		2.21 06.86	6.05 02.56	8.27 03.01	
Weeding		70.00 27.60	70.00 23.64			55.93 26.74	55.93 23.56			58.24 24.35	58.24 20.78			61.39 26.05	61.39 22.41	
Hoeing	4.51 12.06		4.51 01.52	4.51 24.13	3.38 09.32		3.38 01.42	3.38 23.50	3.78 09.20		3.78 01.34	3.78 22.39	3.89 10.18		3.89 01.42	3.89 23.37
Plant protection	5.48 14.66	5.48 02.11	10.96 03.70		11.52 31.79	11.52 05.50	23.04 09.70		12.83 31.25	12.83 05.36	25.66 09.15		9.94 26.02	9.94 04.21	19.88 07.25	
Irrigation	10.96 29.32		10.96 03.70		8.64 23.84		8.64 03.64		8.64 21.04		8.64 03.08		9.41 24.63		9.41 03.43	
Harvesting		88.38 34.16	88.38 29.85			65.08 31.12	65.08 27.41			80.54 33.67	80.54 28.74			78.00 33.10	78.00 28.48	
Total	37.38 100.00	258.68 100.00	296.06 100.00	18.69 100.00	36.23 100.00	209.12 100.00	237.35 100.00	14.38 100.00	41.05 100.00	239.17 100.00	280.22 100.00	16.88 100.00	38.20 100.00	235.64 100.00	273.85 100.00	16.64 100.00
Owned labour	24.58 65.75	132.08 51.05	156.66 52.91		24.93 68.81	20.71 09.90	45.64 19.22		21.25 51.76	60.92 24.47	82.17 29.32		23.58 61.72	71.23 30.22	94.82 34.62	
Hired labour	12.80 34.24	126.60 48.94	139.40 47.08		11.30 31.18	188.41 90.09	199.71 84.14		19.80 48.23	178.25 74.52	198.05 70.67		14.63 46.15	164.42 69.77	179.05 65.38	

(Underline figures indicates percentage to total)

Table 5 revealed that the per hectare 273.85 human days were utilized. Family labour and hired labour contributed 34.62 and 65.38 per cent labour days respectively. Plant protection requires maximum male labour i.e. 26.02 per cent followed by irrigation and preparary tillage. About 33.10 and 26.05 per cent average female labour days were utilized for harvesting and weeding operation respectively.

All operations utilized 296.06, 237.35 and 280.22 human labour days in size groups I, II and III respectively. Maximum family labour were used in I size group.

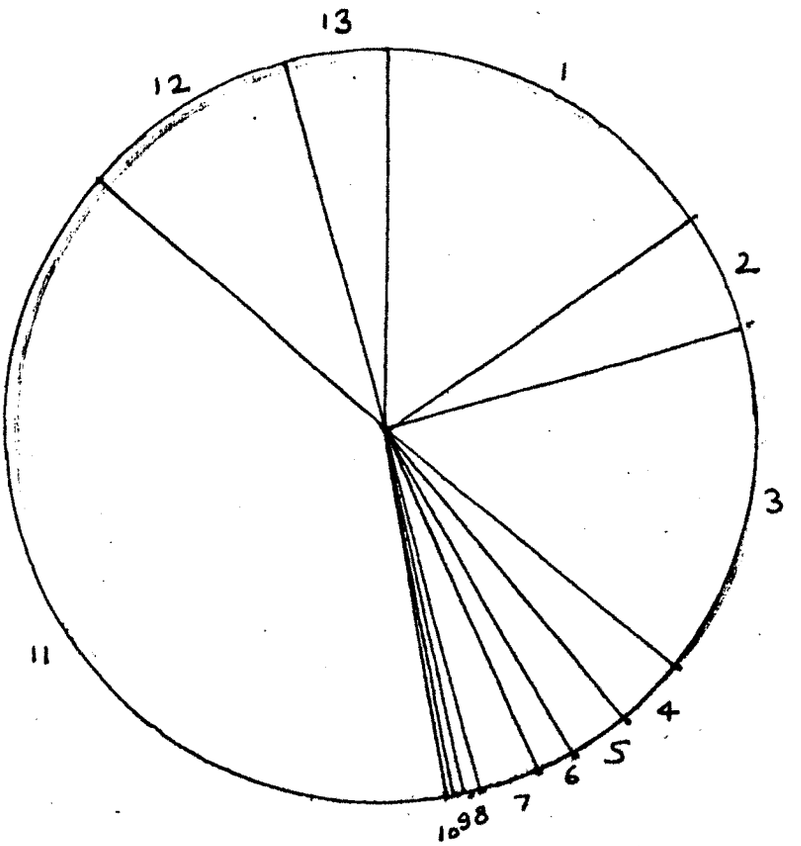
Overall bullock labour utilization was found to the tune of 16.64 labour days. Preparatory tillage and manuring covered the major proportion of bullock labour.

Table 6 : Per hectare input utilization of okra

Input	Size group			Overall
	I	II	III	
Seeds in kg	10.32	8.47	10.54	9.77
F.Y.M. (C.L.)	27.74	22.88	26.48	25.70
Fertilizers in kg:				
a) Nitrogen (N_2)	51.61	42.37	49.32	47.76
b) Phosphorus (P_2O_5)	51.61	42.37	49.32	47.76
Plant protection measures in kg	2.41	3.00	2.43	2.61
Irrigation (in numbers)	10.96	8.64	8.64	9.41

Table 6 revealed that overall per hectare use of seed, N and P were 9.77, 47.76 and 47.76 kgs respectively. Overall per hectare 9.41 irrigation numbers were given to the okra crop. Use of seed was some what greater in IIIrd size group, while the use of FYM was greater in Ist size group. Use of N and P was more in Ist gsize group as compared with IInd and IIIrd size groups. Increasing trend was seen for the plant protection measures.

Fig. 2 : Overall distribution of cost elements of Okra



1. Hired human labour - 15.17%
2. Bullock labour - 5.21%
3. Manures and fertilizers - 15.29%
4. Seed - 3.06%
5. Irrigation - 2.67%
6. Insecticide - 1.63%
7. Interest on working capital - 2.67%
8. Depreciation - 0.55%
9. Land revenue - 0.46%
10. Interest on fixed capital - 0.18%
11. Rental value of land - 39.34%
12. Family labour - 9.27%
13. Supervision charges - 4.30%

Table 7 : Per hectare cost of cultivation of okra

(Fig. in Rs.)

Item	Size group			Overall
	I	II	III	
Area	3.1	5.9	7.4	
1.	2.	3.	4.	5.
Hired human labour - Male	256.00 (1.92)	226.00 (1.95)	396.00 (2.95)	207.33 (1.62)
Female	1266.00 (9.51)	1884.10 (16.32)	1782.50 (13.25)	1644.20 (12.87)
Total	1522.00 (11.43)	2110.10 (18.27)	2178.50 (16.20)	1936.86 (15.17)
Bullock labour	747.60 (5.61)	575.20 (4.98)	675.20 (3.53)	666.00 (5.21)
Manures	1387.00 (10.41)	1144.00 (9.91)	1324.00 (9.84)	1285.00 (10.06)
Seed	412.80 (3.10)	338.80 (2.93)	421.60 (3.13)	391.06 (03.06)
Fertilizers :				
N_2	361.27 (2.71)	296.59 (2.56)	345.24 (2.56)	334.36 (2.61)
P_2O_5	361.27 (2.71)	296.59 (2.56)	345.24 (2.56)	334.36 (2.61)
Total	722.54 (5.42)	593.18 (5.13)	690.48 (5.13)	668.78 (5.23)
Irrigation	320.00 (2.40)	345.00 (2.98)	359.00 (2.68)	341.33 (2.67)
Insecticide	192.80 (1.44)	240.00 (2.07)	194.40 (1.44)	209.06 (1.63)
Working capital	5303.94 (39.84)	5346.28 (46.31)	5842.10 (43.45)	5497.44 (43.06)

(continued)

(Table 7 continued)

1.	2.	3.	4.	5.
Interest on working capital	344.75 (02.58)	347.50 (03.01)	379.73 (02.82)	357.32 (02.67)
Depreciation	77.61 (00.58)	70.19 (00.60)	64.62 (00.48)	70.80 (00.50)
Land revenue	60.00 (00.45)	60.00 (00.51)	60.00 (00.44)	60.00 (00.46)
COST 'A'	5786.30 (43.46)	5823.97 (50.44)	6346.45 (47.20)	5985.00 (46.87)
Interest on fixed capital	23.00 (00.17)	23.96 (00.20)	24.75 (00.18)	23.90 (00.18)
Rental value of land	5190.00 (38.98)	4440.00 (38.46)	5440.00 (40.45)	5023.33 (39.34)
COST 'B'	10999.30 (82.62)	10287.93 (89.12)	11811.20 (87.84)	11032.81 (86.41)
Family labour :				
Male	491.60 (03.69)	498.60 (04.31)	425.00 (03.16)	471.73 (03.69)
Female	1320.80 (09.92)	207.10 (01.79)	609.20 (04.50)	712.36 (05.57)
Total	1812.40 (13.61)	705.70 (06.11)	1034.20 (07.69)	1184.10 (09.27)
Supervision charges	500.00 (03.75)	550.00 (04.76)	600.00 (04.46)	550.00 (04.30)
COST 'C'	13311.70 (100.00)	11543.63 (100.00)	13445.40 (100.00)	12766.91 (100.00)
Yield in qtl.	64.00	60.00	70.00	64.66
Value of produce	21000.00	18000.00	22000.00	20833.33
Per quintal cost	207.99 (01.56)	192.39 (01.66)	192.07 (01.42)	197.48 (01.54)

(Figures in the brackets indicate the percentage to total cost i.e. Cost 'C').

Table 7 indicates that the overall per hectare cost of cultivation Rs. 12,766.91 was worked out for okra. Paid out cost was contributed 43.06 per cent while the imputed cost such as rental value of land, interest on working capital and interest on fixed capital shared 45.75 per cent. Human labour contributed 24.44 per cent of cost 'C'. The family human labour share worked out to 9.27 per cent. The expenditure on manures and fertilizers was 15.29 per cent. Plant protection contributed 1.63 per cent. Irrigation required 2.67 per cent expenditure.

The per hectare cost of cultivation (cost 'C') were Rs. 13,311.70, Rs. 11,543.63 and Rs. 13,445.40 for Ist, IInd and IIIrd size groups respectively. Human labour contributed 25.04, 24.38 and 23.89 per cent in cost 'C' for size groups Ist, IInd and IIIrd respectively.

An overall yield of 64.66 quintals was obtained. The highest average per hectare yields of 70 quintals was achieved in IIIrd size group.

Table 8 : Per quintal marketing cost of okra

(Amount in Rs.)

Item	Size group			Overall
	I	II	III	
Transport	5.00 (10.52)	5.00 (10.75)	5.00 (10.10)	5.00 (10.45)
Octroi	1.50 (03.15)	1.50 (03.22)	1.50 (03.03)	1.50 (03.13)
Hamali	1.00 (02.10)	1.00 (02.10)	1.00 (02.02)	1.00 (02.09)
Commission	26.00 (54.73)	25.00 (53.76)	27.00 (54.54)	26.00 (54.35)
Losses	6.00 (12.63)	6.00 (12.90)	6.00 (12.12)	6.00 (12.54)
Others	8.80 (18.52)	8.00 (17.20)	9.00 (18.18)	8.60 (17.98)
Total	47.50 (100.00)	46.50 (100.00)	49.50 (100.00)	47.83 (100.00)

(Figures in the bracket indicates the percentage)

Table 8 indicates that, about 54.35 per cent amount of total marketing costs goes towards the commission agents as their commission. The per quintal cost of transport, octroi, hamali are identical for all the size groups. Since these charges are fixed and are levied on the basis of per quintal of produce. The overall losses in marketing process were of 12.54 per cent. Other incidental expenses were Rs. 8.60 (17.98 per cent) per quintal as overall average.

Table 9 : Per hectare cost of production of okra

(Amount in ৳.)

Item	Size group			Overall
	I	II	III	
Cost 'A'	5786.30	5823.97	6346.45	5985.57
Cost 'B'	10999.30	10287.93	11811.20	11032.81
Cost 'C'	13311.70	11543.63	13445.40	12766.91
Marketing cost	3040.00	2790.00	3465.00	3098.33
Cost of production	16351.70	14333.63	16910.40	15865.24
Gross income	21000.00	18000.00	22000.00	20333.33
Net income	4648.30	3666.37	5089.60	4468.09
Input-output ratio :				
On Cost 'A'	1:3.62	1:3.09	1:3.46	1:.3.39
On Cost 'B'	1:1.90	1:1.74	1:1.86	1:1.84
On Cost 'C'	1:1.57	1:1.55	1:1.63	1:1.59

Table 9 indicates that the overall per hectare cost 'A', cost 'B' and cost 'C' were ৳. 5985.57, ৳. 11,032.81 and ৳. 12,766.91 respectively. Per hectare net income was more in size group III i.e. ৳. 5,089.60. The overall input-output ratio was found to be 1:3.39, 1:1.84 and 1:1.59 considering cost 'A', cost 'B' and cost 'C' respectively.

Considering cost 'A' and cost 'B' higher input-output ratio was obtained in size group I. At cost 'C' higher input-output ratio is obtaining in size group III.

Table 10 : Per quintal cost of production of okra

(Figures in Rs.)

Item	Group size			Overall
	I	II	III	
Cost 'A'	90.41	97.06	90.65	92.70
Cost 'B'	171.86	171.45	168.73	170.68
Cost 'C'	207.99	192.39	192.07	197.48
Marketing cost	47.50	46.50	49.50	47.83
Production cost	255.00	238.89	241.57	245.15
Gross income	328.12	300.00	314.28	314.13
Net income	73.12	61.11	73.28	69.17

Table 10 shows that the per quintal overall average cost of cultivation i.e. cost 'C' was Rs. 197.48. The contribution of cost 'A' and cost 'B' were 46.87 and 86.41 per cent respectively. Overall per quintal cost of production was Rs. 245.15. Net income of Rs. 69.17 was achieved.

Table 11 : Per hectare labour utilization of Brinjal

Operations	size group I				II				III				Overall			
	M	F	I	BP	M	F	I	BP	M	F	I	BP	M	F	I	BP
Preparatary tillage	7.87 18.31		7.87 02.85	7.87 50.03	7.23 17.90		7.23 02.68	7.23 50.77	7.38 18.93		7.38 02.83	7.38 51.35	7.49 16.72		7.49 02.77	7.49 50.71
Cleaning		8.18 03.44	8.18 02.96			8.29 03.62	8.29 03.07			10.83 04.88	10.83 04.15			9.10 03.90	9.10 03.36	
Manuring	3.93 09.14		3.93 01.42	3.93 24.98	3.61 08.93		3.61 01.34	3.61 25.35	3.74 09.59		3.74 01.43	3.74 26.02	3.76 08.39		3.76 01.39	3.76 25.45
Seed sowing	4.54 10.56	30.30 12.75	34.84 12.64		6.59 16.31	25.95 11.33	32.54 12.08		6.00 15.39	29.16 13.16	35.16 13.49		5.71 12.75	28.47 12.22	34.18 12.65	
Fertilizers		35.45 14.92	35.45 12.86			32.55 14.22	32.55 12.08			28.96 13.07	28.96 11.11			32.32 13.87	32.32 11.96	
Thinning/gap filling		1.81 00.76	1.81 01.02			2.34 01.02	2.34 00.86			6.60 02.97	6.60 02.53			3.58 01.53	3.58 01.32	
Weeding		45.45 19.13	45.45 16.49			45.10 19.70	45.10 16.74			46.20 20.85	46.20 17.73			45.58 19.57	45.58 16.87	
Hoeing	3.93 09.14		3.93 01.42	3.93 24.98	3.40 08.41		3.40 01.26	3.40 23.87	3.25 08.33		3.25 01.24	3.25 22.61	3.52 07.86		3.52 01.30	3.52 23.83
Plant protection	13.93 32.41	13.93 05.86	27.86 10.11		11.91 29.48	11.91 05.20	23.82 08.84		10.83 27.78	10.83 04.88	21.67 08.31		12.22 27.29	12.22 05.24	24.45 09.05	
Irrigation	8.78 20.42		8.78 03.18		7.65 18.94		7.65 02.84		7.78 19.95		7.78 02.98		8.07 18.02		8.07 02.98	
Harvesting		102.42 43.11	102.42 37.17			102.76 44.89	102.76 38.15			88.96 40.15	88.96 34.14			98.04 42.09	98.04 36.29	
Total	42.98 100.00	237.54 100.00	275.52 100.00	15.73 100.00	40.39 100.00	228.90 100.00	269.30 100.00	14.24 100.00	38.98 100.00	221.54 100.00	260.53 100.00	14.37 100.00	44.77 100.00	232.89 100.00	270.09 100.00	14.77 100.00
Owned labour	28.98 67.42	101.20 42.60	130.18 47.24		27.41 67.86	48.00 20.96	75.41 28.00		23.22 59.56	50.30 22.70	73.52 28.21		26.53 59.25	66.50 28.55	93.03 34.44	
Hired labour	14.00 32.57	136.34 57.39	150.34 54.56		12.98 32.13	180.90 79.03	193.88 71.99		15.76 40.43	171.24 77.29	187.00 71.77		14.24 31.80	162.82 69.91	177.07 65.55	

(Figures with underline indicates percentage to toal)

Table 11 revealed that the per hectare average human labour utilization was 270.09 labour days family labour and hired labour contributed 28.55 and 69.91 per cent respectively. Near about 86.22 per cent share was of female labour. Plant production required 27.29 per cent male human labour followed by irrigation and prepary tillage i.e. 18.02 and 16.72 respectively. Plucking required maximum female labour of 42.09 per cent followed by weeding i.e. 19.57.

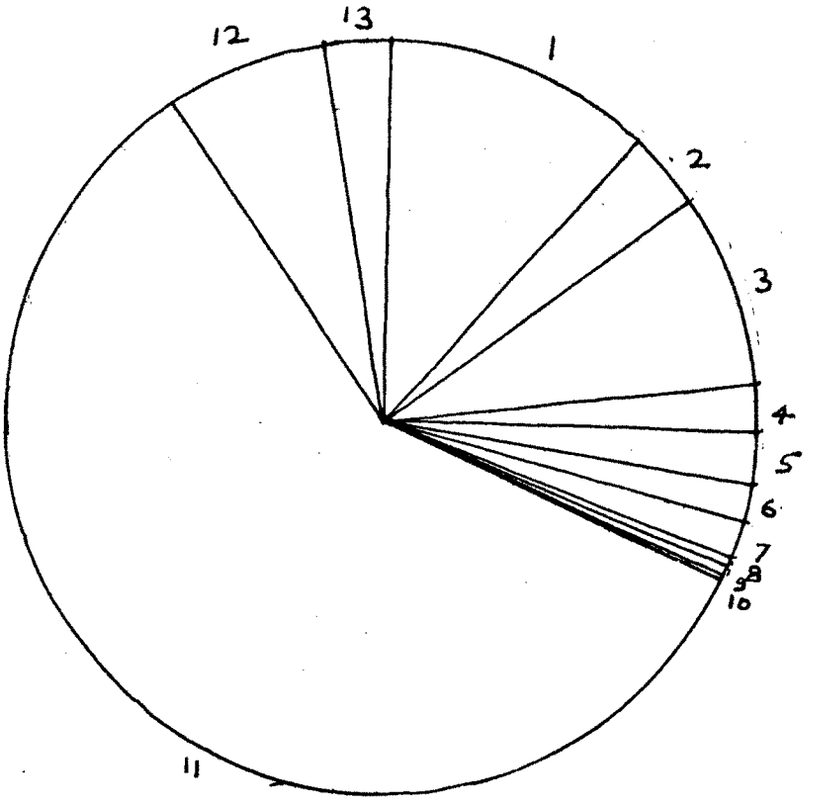
Overall per hectare use of bullock labour days were 14.77. About 50.71 per cent bullock labour days were used for prepratory tillage followed by manuring and hoeing operation i.e. 25.45 and 23.83 respectively.

Table 12 : Per hectare input utilization of brinjal

Input	size group			Overall
	I	II	III	
Seed in kg	00.89	00.97	00.76	00.87
F.Y.M. (CL)	23.63	25.95	23.94	24.50
Fertilizer :(kg)				
a) Nitrogen (N_2)	69.39	59.14	54.97	61.16
b) Phosphorus (P_2O_5)	57.27	50.42	47.09	51.59
Plant protection in kg	2.95	2.28	2.29	2.50
Irrigation in numbers	8.78	7.65	7.78	8.07

Table 12 shows that the overall per hectare use of seeds was 0.87 kgs. About 24.50 cartloads of F.Y.M. was used per hectare averagely. In case of chemical fertilizer the use of nitrogen was dominating over phosphorus. Plant protection measures were amounting to the extent of Rs. 87.73. Decreasing trend was observed for the use of N_2 and P_2O_5.

Fig. 3 : Overall distribution of cost elements of Brinjal



1. Hired human labour - 11.42%
2. Bullock labour - 3.53%
3. Manures and fertilizers - 12.08%
4. Seed - 2.08%
5. Irrigation - 2.35%
6. Insecticides - 1.57%
7. Interest on working capital - 1.85%
8. Depreciation - 0.34%
9. Land revenue - 0.35%
10. Interest on fixed capital - 0.15%
11. Rental value of land - 58.37%
12. Family labour - 7.14%
13. Supervision charges - 3.28%

Table 13 : Per hectare cost of cultivation of brinjal

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Area	3.3	4.7	10.15	
1.	2.	3.	4.	5.
Hired human labour - Male	280.00 (01.86)	259.60 (01.50)	315.20 (01.75)	288.26 (01.72)
Female	1363.40 (09.07)	1809.00 (10.49)	1712.40 (09.52)	1628.26 (09.72)
Total	1643.40 (10.93)	2068.60 (12.00)	2027.60 (11.28)	1913.20 (11.42)
Bullock labour	629.20 (04.18)	569.60 (03.30)	574.80 (03.19)	591.20 (03.53)
Manures	1181.50 (07.86)	1297.50 (07.52)	1225.00 (06.81)	1234.66 (07.37)
Seed	356.00 (02.36)	388.00 (02.25)	304.00 (01.69)	349.33 (02.08)
Fertilizers :				
N_2	485.73 (03.23)	413.98 (02.25)	384.79 (02.14)	428.16 (02.55)
P_2O_5	400.89 (02.66)	352.94 (02.04)	329.63 (01.83)	361.15 (02.15)
Total	886.62 (05.90)	766.92 (04.45)	714.42 (03.97)	789.32 (04.71)
Irrigation	380.00 (02.52)	395.00 (02.29)	410.15 (02.28)	395.05 (02.35)
Insecticide	103.25 (00.68)	79.80 (00.46)	80.15 (00.44)	263.20 (01.57)
Working capital	4550.77 (30.28)	4995.02 (28.98)	4760.72 (26.49)	4768.83 (28.48)

(continued)

(Table 13 continued)

1.	2.	3.	4.	5.
Interest on working capital	295.75 (01.96)	324.67 (01.88)	309.44 (01.72)	309.95 (01.85)
Depreciation	65.42 (00.43)	57.68 (00.33)	52.49 (00.29)	58.53 (00.34)
Land revenue	60.00 (00.39)	60.00 (00.34)	60.00 (00.33)	60.00 (00.35)
Cost 'A'	4971.94 (33.09)	5437.37 (31.55)	5182.65 (28.84)	5197.32 (31.04)
Interest on fixed capital	20.96 (00.13)	27.86 (00.16)	28.98 (00.16)	25.93 (00.15)
Rental value of land	7940.00 (52.84)	10190.00 (59.12)	11190.00 (62.27)	9773.33 (58.37)
Cost 'B'	12932.90 (86.07)	15655.23 (90.84)	16401.63 (91.27)	14996.58 (89.57)
Family labour :				
Male	579.60 (03.85)	548.20 (03.18)	464.40 (02.58)	530.73 (03.17)
Female	1012.00 (06.73)	480.00 (02.78)	503.00 (02.79)	665.00 (03.97)
Total	1591.60 (10.59)	1028.20 (05.96)	967.40 (05.38)	1195.73 (07.14)
Supervision charges	500.00 (03.32)	550.00 (03.19)	600.00 (03.33)	550.00 (03.28)
Cost 'C'	15024.50 (100.00)	17233.43 (100.00)	17969.03 (100.00)	16742.32 (100.00)
Yield in qtl.	160.00	205.00	225.00	196.66
Value of production	32000.00	41000.00	45000.00	39333.33
Per quintal cost	93.90 (00.62)	84.06 (00.48)	79.86 (00.44)	85.92 (00.51)

(Figures in the brackets indicate the percentage to total cost)

Table 13 revealed that overall per hectare cost of cultivation Rs. 16742.32 was worked out for brinjal crop. Actual paid out cost was contributed 28.48 per cent while the imputed cost i.e. rental value of land, interest on fixed capital, interest on working capital contributed 60.37 per cent. More amount was incrdased as human labour. About 12.08 per cent was increased on inputs like manures and fertilizers. Very less amount was required for plant protection measures i.e. 1.57 per cent.

Bullock power and irrigation requirement were 3.53 and 2.35 per cent respectively.

Decreasing trends were observed among the size groups for bullock power, manures and fertilizers, respectively.

Overall per hectare yield of 196.66 quintals was obtained. The highest per hectare yield of 225.00 quintals was observed in IIIrd size group followed by size group IInd and Ist respectively.

Table 14 : Per quintal marketing cost of brinjal

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Transport	5.00 (10.16)	5.00 (10.30)	5.00 (9.54)	5.00 (09.99)
Octroi	1.50 (03.04)	1.50 (03.09)	1.50 (02.86)	1.50 (02.99)
Hamali	1.00 (02.03)	1.00 (02.06)	1.00 (01.90)	1.00 (01.99)
Commission	27.00 (54.87)	26.00 (53.60)	28.00 (53.43)	27.00 (53.96)
Losses	6.00 (12.19)	6.00 (12.37)	7.00 (13.35)	6.33 (12.65)
Others	8.70 (17.68)	9.00 (18.55)	9.90 (18.89)	9.20 (18.38)
Total	49.20 (100.00)	48.50 (100.00)	52.40 (100.00)	50.03 (100.00)

(Figures in the bracket indicates the percentage)

It is seen from the Table 14 that the expenditure towards commission was about 53.96 per cent. It was comparatively more in size group III. The overall marketing costs were Rs. 50.03 per quintal. The marketing costs were low in size group II. Other incidental expenses were about 18.38 per cent. The costs incurred for transport, octroi and hamali were same for all the groups. The losses in marketing process were about Rs. 6.33 (12.65 per cent).

Table 15 : Per hectare cost of production of brinjal

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	4971.94	5437.37	5182.65	5197.32
Cost 'B'	12932.90	15655.23	16401.63	14996.58
Cost 'C'	15024.50	17233.43	17969.03	16742.32
Marketing cost	7872.00	9942.50	11790.00	9868.16
Cost of production	22896.50	27175.93	29759.03	26610.48
Gross income	32000.00	41000.00	45000.00	39333.33
Net income	9103.50	13824.07	15240.97	12722.84
Input-output ratio :				
On Cost 'A'	1:6.43	1:7.54	1:8.68	1:7.56
On Cost 'B'	1:2.47	1:2.61	1:2.74	1:2.62
On Cost 'C'	1:2.12	1:2.37	1:2.50	1:2.34

Table 15 indicates that overall per hectare cost 'A', cost 'B' and cost 'C' were Rs. 5197.32, Rs. 14996.58 and Rs. 16742.32 respectively. Overall per hectare marketing cost was Rs. 9868.16. The overall per hectare net income from brinjal crop was Rs. 12722.00. The input-output ratio was 1:7.56, 1:2.62 and 1:2.34 for cost A, B and C respectively. In size group III, the net income was comparatively

more. Increasing trends were observed for input-output ratios for cost A, B and C within the size groups.

Table 16 : Per quintal cost of production of brinjal

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	31.07	26.52	23.03	26.87
Cost 'B'	80.83	76.36	72.89	76.69
Cost 'C'	93.90	84.06	79.86	85.94
Marketing cost	49.20	48.50	52.40	50.03
Production cost	143.10	132.56	132.20	135.95
Gross income	200.00	200.00	200.00	200.00
Net income	57.90	67.44	67.80	64.38

Table 16 revealed that overall per quintal cost of cultivation i.e. cost 'C' was Rs. 85.94 and cost of production was Rs. 135.95. The net income of Rs. 64.38 per quintal was observed as the overall averages decreasing trends were observed.

Table 17 : Per hectare labour utilization of Fenugreek

erations	size group												Overall			
	I				II				III							
	M	F	T	BP	M	F	T	BP	M	F	T	BP	M	F	T	BP
reparatory illage	7.04 19.36		7.04 06.78	7.04 64.58	6.47 23.31		6.47 08.20	6.47 68.17	7.20 22.78		7.20 07.61	7.20 63.49	6.90 21.64		6.90 07.46	6.90 65.27
leaning		16.59 24.58	16.59 15.97			12.23 23.94	12.23 15.51			14.86 23.60	14.86 15.71			14.56 24.07	14.56 15.76	
anures	3.86 10.61		3.86 03.71	3.86 35.41	3.02 10.88		3.02 03.83	3.02 31.82	4.14 13.10		4.14 04.37	4.14 36.50	3.67 11.51		3.67 03.97	3.67 34.72
eed sowing	5.00 13.75	16.13 23.90	2.13 20.35		4.46 16.07	13.09 25.63	17.55 22.26		4.50 14.24	15.13 24.03	19.63 20.76		4.65 14.58	14.78 24.43	19.43 21.03	
ertilizer	6.59 18.12	4.54 06.72	11.13 10.71		3.59 12.93	3.45 06.75	7.04 08.93		4.77 15.09	5.22 08.29	9.99 10.56		4.98 15.62	4.40 07.27	9.38 10.15	
Irrigation	13.86 38.12		13.86 13.34		10.21 36.79		10.21 12.95		10.99 34.77		10.99 11.62		11.68 36.63		11.68 12.64	
Harvesting		30.22 44.78	30.22 29.10			22.30 43.66	22.30 28.29			27.74 44.06	27.74 29.33			26.75 44.22	26.75 28.95	
Total	36.35 100.00	67.48 100.00	103.83 100.00	10.90 100.00	27.75 100.00	51.07 100.00	78.82 100.00	9.49 100.00	31.60 100.00	62.95 100.00	94.55 100.00	11.34 100.00	31.88 100.00	60.49 100.00	92.37 100.00	10.57 100.00
Owned labour	23.75 65.33	27.98 41.46	51.73 49.82		14.07 50.70	21.37 41.84	35.44 44.96		20.49 64.84	13.49 21.42	33.98 35.93		19.43 60.94	20.97 34.66	40.38 43.71	
Hired labour	12.60 34.66	39.50 58.53	52.10 50.17		13.68 49.29	29.70 58.15	43.38 55.03		11.11 35.15	49.46 78.57	60.57 64.06		12.46 39.08	39.55 65.38	52.01 56.30	

(Underline figures indicates percentage to total)

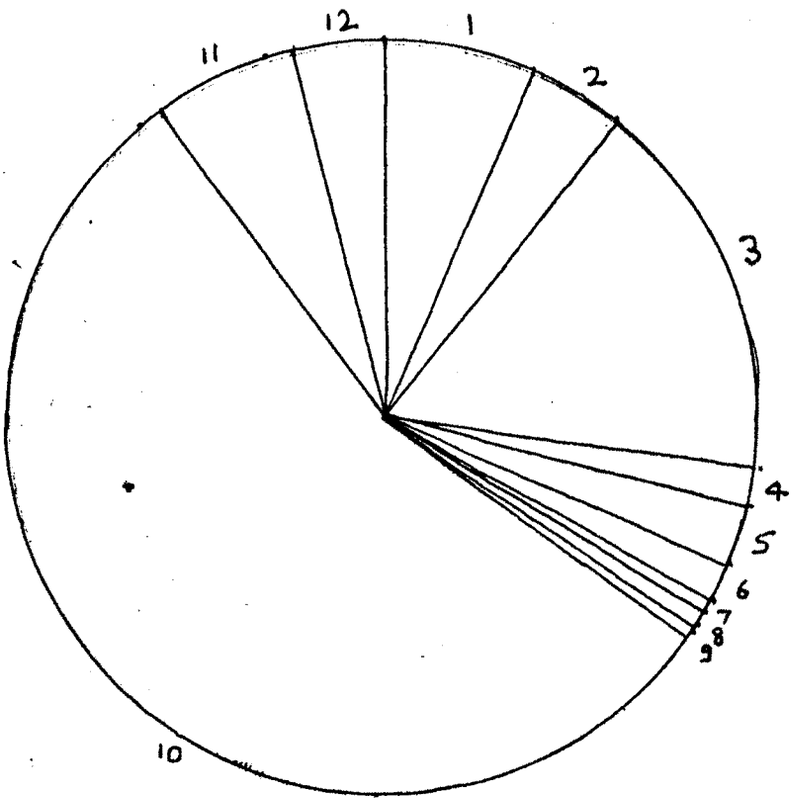
It can be seen from the Table 17 that the per hectare overall human labour utilization for cultivation of fenugreek was 92.37 labour days. Female and male labour utilized in cultivation of fenugreek were observed to 60.49 and 31.88 labour days. Irrigation required maximum male labour of 36.63 per cent followed by preparatory tillage i.e. 21.64 per cent. Harvesting required maximum female labour of 44.22 per cent followed by seed sowing (broadcasting) and cleaning. A decreasing trend was observed for family labour use.

Table 18 : Per hectare input utilization of Fenugreek

Input	size group			Overall
	I	II	III	
Seed in kg	23.86	19.42	27.65	23.64
F.Y.M. (CL)	25.68	21.43	16.39	21.16
Fertilizer (kg):				
a) Nitrogen (N_2)	51.13	42.15	47.38	46.88
Irrigation (No.)	13.86	10.21	10.99	11.68

Table 18 shows that the overall per hectare utilization of seed and N_2 was 23.64 and 46.88 kgs respectively. 21.16 cartloads of F.Y.M. was used averagely per hectare. In size group II the seed material used for raising the crop was less as compared with the overall per hectare use. Declining trend was seen in case of use of farm yard manure. Number of irrigations given was maximum in size group I.

Fig. 4 : Overall distribution of cost elements of Fenugreek



1. Hired human labour - 6.58%
2. Bullock labour - 4.21%
3. Manures and fertilizers - 14.14%
4. Seed - 1.93%
5. Irrigation - 2.55%
6. Interest on working capital - 1.91%
7. Depreciation - 0.59%
8. Land revenue - 0.61%
9. Interest on fixed capital - 0.26%
10. Rental value of land - 57.68%
11. Family labour - 6.10%
12. Supervision charges - 3.91%

Table 19 : Per hectare cost of cultivation of Fenugreek

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Area in ha	4.40	6.95	11.10	
1.	2.	3.	4.	5.
Hired human labour - Male	252.00 (02.36)	273.60 (03.08)	222.20 (02.25)	249.26 (02.54)
Female	395.00 (03.70)	297.00 (03.34)	494.60 (05.01)	395.53 (04.03)
Total	647.00 (06.06)	570.60 (06.43)	716.80 (07.27)	644.80 (06.58)
Bullock labour	436.00 (04.08)	379.60 (04.27)	453.60 (04.60)	413.06 (04.21)
Manures	1284.00 (12.02)	1071.50 (12.08)	819.50 (08.31)	1058.33 (10.80)
Seed	190.88 (01.78)	155.36 (01.75)	221.20 (02.24)	189.14 (01.93)
Fertilizers :				
N_2	357.91 (03.35)	295.05 (03-32)	331.66 (03.36)	328.20 (03.34)
Irrigation	225.00 (02.10)	250.00 (02.81)	275.00 (02.79)	250.00 (02.55)
Working capital	3140.79 (29.42)	2722.11 (30.69)	2817.76 (28.59)	2893.55 (29.52)
Interewt on working capital	204.15 (01.91)	176.93 (01.99)	183.15 (01.85)	188.07 (01.91)
Depreciation	65.42 (00.61)	57.68 (00.65)	52.49 (00.53)	58.53 (00.59)
Land revenue	60.00 (00.56)	60.00 (00.67)	60.00 (00.60)	60.00 (00.61)
COST 'A'	3470.36 (32.51)	3016.72 (34.01)	2930.25 (29.73)	3139.11 (32.03)

(Table 19 continued)

1.	2.	3.	4.	5.
Interest on fixed capital	20.96 (00.19)	27.86 (00.31)	28.98 (00.29)	25.93 (00.26)
Rental value of land	6077.50 (56.93)	4940.00 (55.69)	59 40.00 (60.28)	5652.50 (57.68)
Cost 'B'	9568.82 (89.64)	7984.58 (90.02)	8899.23 (90.31)	8817.54 (89.98)
Family labour:				
Male	475.00 (04.45)	281.40 (03.17)	409.80 (04.15)	388.73 (03.96)
Female	279.80 (02.62)	213.70 (02.40)	134.90 (01.36)	209.46 (02.13)
Total	754.80 (07.07)	495.10 (05.58)	544.70 (05.52)	598.20 (06.10)
Supervision charges	350.00 (04.27)	390.00 (04.39)	410.00 (04.16)	383.33 (03.91)
Cost 'C'	10673.62 (100.00)	8869.68 (100.00)	9853.93 (100.00)	9799.07 (100.00)
Yield in qtl.	81.00	66.00	79.00	75.33
Value of produce	24550.00	20000.00	24000.00	22850.00
Per quintal cost	131.77 (01.23)	134.38 (01.51)	124.73 (01.26)	130.29 (01.32)

(Figures in the brackets indicate the percentage to total cost)

Table 19 shows that overall per hectare cost A, B and C were Rs. 3139.11, Rs. 8817.54 and Rs. 9799.07 respectively. The share of cost A and cost B was 32.03 and 89.98 per cent respectively. The human labour contributed 12.10 per cent in overall per hectare cost 'C'. The paidout cost was 29.52 per cent whereas the imputed

cost was 59.85 per cent. Manures and fertilizer utilization was q14.14 per cent. Decreasing trend wamong the size group was observed for manure.

The highest per hectare yield of 81.00 quintals was obtained in Ist size group.

Table 20 : Per quintal marketing cost of Fenugreek

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Transport	4.50 (08.82)	4.50 (08.67)	4.50 (08.78)	4.50 (08.75)
Octroie	1.50 (02.94)	1.50 (02.89)	1.50 (02.92)	1.50 (02.91)
Hamali	1.00 (01.96)	1.00 (01.92)	1.00 (01.95)	1.00 (01.94)
Commission	27.00 (52.94)	26.00 (50.09)	26.00 (50.73)	26.33 (51.24)
Losses	7.00 (13.72)	8.50 (16.37)	8.00 (15.60)	8.00 (15.57)
Others	10.20 (20.00)	10.40 (20.03)	10.25 (20.00)	10.28 (20.00)
Total	51.00 (100.00)	51.90 (100.00)	51.25 (100.00)	51.38 (100.00)

The Table 20 shows that about 51.00 per cent expenditure was incurred on commission.

The expenditure incurred on commission was greater in size group I and the expenditure incurred on transport was same in all the size groups.

Table 21 : Per hectare cost of production of Fenugreek

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	3470.36	3016.72	2930.25	3139.11
Cost 'B'	9568.82	7984.58	8899.23	8817.54
Cost 'C'	10673.62	8869.68	9853.93	9799.07
Marketing cost	4131.00	3425.40	4048.75	3868.38
Cost of production	14804.62	12295.08	13902.68	13667.46
Gross income	24550.00	20000.00	24000.00	22850.00
Net income	9745.38	7704.92	10097.32	9182.54
Input-output ratio :				
On Cost 'A'	1:7.07	1:6.62	1:8.19	1:7.27
On Cost 'B'	1:2.56	1:2.50	1:2.69	1:2.59
On Cost 'C'	1:2.30	1:2.25	1:2.43	1:2.33

Table 21 revealed that overall per hectare cost A, B and C were Rs. 3139.11, Rs. 8817.54 and Rs. 9799.07 respectively. Overall marketing cost were Rs. 3868.38 and the overall per hectare net returns were to the extent of Rs. 9182.54. Per hectare net return of Rs. 10097.32 were found to be the highest in size group III. The overall input-output ratio on cost A, B and C was 1:7.27, 1:2.59, 1:2.33 respectively.

Table 22 : Per quintal cost of production of Fenugreek

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	42.84	45.70	37.09	41.87
Cost 'B'	118.13	120.97	112.64	117.24
Cost 'C'	131.77	134.38	124,73	130.29
Marketing cost	51.00	51.90	51.25	51.38
Production cost	182.77	186.28	175.98	181.67
Gross income	303.08	303.03	303.79	303.30
Net income	120.31	116.75	127.81	121.62

Table 22 shows that overall per quintal costs of cultivation and costs of production were Rs. 130.29 and Rs. 181.67 respectively. The net income per quintal was found to be Rs. 121.62. Marketing cost was higher in IInd size group. Net return per quintal of Rs. 127.81 was found to be higher in size group III.

Table 23 : Per hectare labour utilization of Cauliflower

Operations	size group I				size group II				size group III				Overall			
	M	F	T	BP	M	F	T	BP	M	F	T	BP	M	F	T	BP
Preparatary tillage	7.16 08.61		7.16 03.74	7.16 70.47	5.70 08.15		5.70 03.47	5.70 65.66	6.25 08.45		6.25 03.63	6.25 60.44	6.37 08.42		6.37 03.63	6.37 65.53
Cleaning		8.00 07.40	8.00 04.18			7.23 07.66	7.23 04.40			11.94 12.28	11.94 06.97			9.05 09.06	9.05 05.15	
Manuring	3.00 03.60		3.00 01.56	3.00 29.52	2.98 04.26		2.98 01.81	2.98 34.33	4.09 05.53		4.09 02.38	4.09 39.55	3.35 04.43		3.35 01.90	3.35 34.46
Seed sowing	3.33 04.00	26.33 24.38	29.66 15.52		2.71 03.87	21.80 23.10	24.51 14.92		8.68 11.73	16.31 16.78	24.99 14.60		4.90 06.48	21.48 21.52	26.38 15.03	
Fertilizers	2.83 03.40	21.50	24.33 12.73		1.47 02.10	17.37 18.41	18.84 11.47		1.11 01.50	19.44 20.00	20.55 12.00		1.80 02.38	19.43 19.46	21.24 12.10	
Thining/gap filling		7.33 19.91	7.33 03.83			5.24 05.55	5.24 03.19			5.27 05.42	5.27 03.07			5.94 05.95	5.94 03.38	
Weeding		35.16 32.56	35.16 18.39			34.66 36.73	34.66 21.10			36.25 37.29	36.25 21.18			35.35 35.41	35.35 20.14	
Plant protection	9.66 11.62	9.66 08.94	19.33 10.11		8.05 11.52	8.05 08.53	16.10 09.80		7.98 10.79	7.98 08.21	15.97 09.33		8.56 11.32	8.56 08.57	17.13 09.76	
Irrigation	28.80 03.46		28.80 15.07		23.98 34.32		23.98 14.60		24.72 33.43		24.72 14.44		25.83 34.16		25.83 14.72	
Harvesting	28.33 34.08		28.33 14.82		24.97 35.74		24.97 15.20		21.11 28.55		21.11 12.33		24.80 32.79		24.80 14.13	
Total	83.11 100.00	107.98 100.00	191.10 100.00	10.16 100.00	69.86 100.00	94.35 100.00	164.21 100.00	8.68 100.00	73.94 100.00	97.19 100.00	171.14 100.00	10.34 100.00	75.61 100.00	99.81 100.00	175.44 100.00	9.72 100.00
Owned labour	60.00 72.19	27.98 25.91	87.98 46.03		40.00 57.25	24.35 25.80	64.35 39.18		23.94 32.37	27.19 27.97	51.13 29.87		41.31 54.63	79.52 79.67	67.82 38.65	
Hired labour	23.11 27.80	80.00 74.08	103.11 53.95		29.86 42.74	70.00 74.19	109.86 66.90		50.00 67.62	70.00 72.02	120.00 70.11		34.32 45.39	73.33 73.46	110.99 63.26	

(Figures with underline indicates percentage to total)

Table 23 revealed that the per hectare overall human labour utilization was 175.44 labour days. Family labour contributed 22.03 per cent labour days. Irrigation required maximum male labour i.e. 34.16 per cent followed by harvesting and plant protection i.e. 32.79 and 11.32 per cent respectively. About 35.41 and 21.52 per cent overall female labour days were utilized for weeding and seed sowing operation.

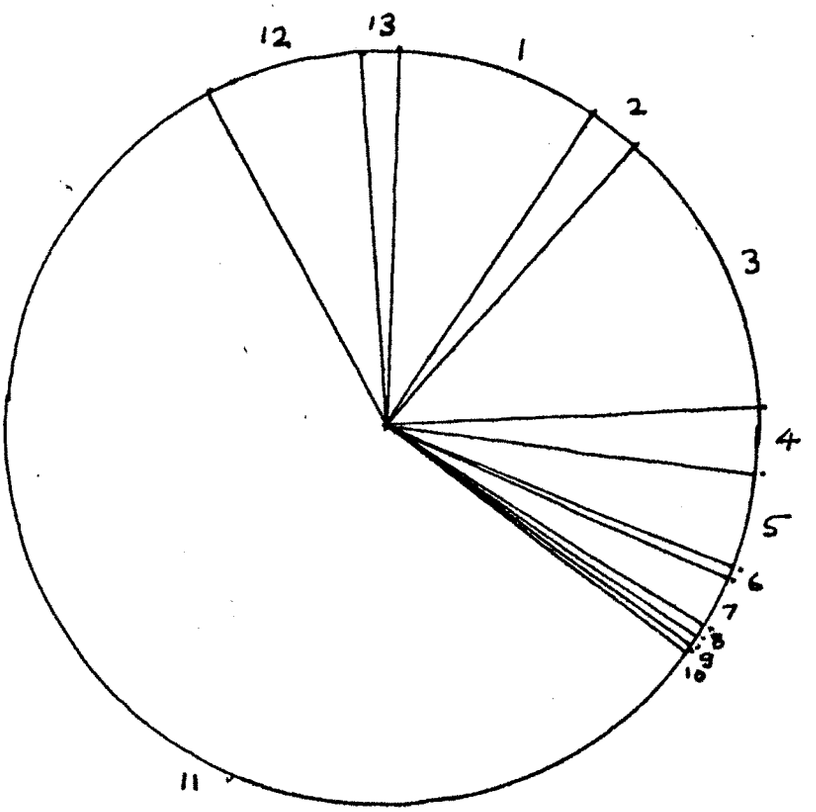
Bullock labour utilization was found to the tune of 9.72 labour labour days. Nearly preparatory tillage and manuring covered all the propertion of bullock labour.

Table 24 : Per hectare input utilization of cauliflower

Input	size group			Overall
	I	II	III	
Seed (kg)	0.52	0.50	0.50	0.50
F.Y.M. (CL)	20.66	21.71	19.16	20.51
Fertilizers (kg) :				
a) Nitrogen (N_2)	100.00	93.21	99.30	97.50
b) Phospherus (P_2O_5)	48.33	46.60	59.37	51.43
Plant protedtion (kg) measure	2.41	2.44	2.46	2.43
Irrigation (No.)	28.83	23.98	24.72	25.84

Table 24 revealed that overall per hectare use of seed, Nitrogen and Phosphorus were 0.50, 97.50 and 51.43 kgs respectively. The use of F.Y.M. was greater in size group II. Overall per hectare 25.84 irrigation number were given to the cauliflower crop. The increasing trend was observed among the size groups for plant protection measures. And decreasing trend was observed on seeds. Use of seed, fertilizer and irrigation numbers is greater in size group I, i.e. 0.52 kg , 100 kg nitrogen , 48.33 kg phosphorus and 28.83 numbers irrigations.

Fig. 5 : Overall distribution of cost elements of Cauliflower



1. Hired human labour - 8.76%
2. Bullock labour - 2.40%
3. Manures and fertilizers - 12.75%
4. Seed - 2.50%
5. Irrigation - 3.90%
6. Insecticide - 0.52%
7. Interest on working capital - 2.00%
8. Depreciation - 0.60%
9. Land revenue - 0.37%
10. Interest on fixed capital - 0.20%
11. Rental value of land - 57.21%
12. Family labour - 6.73%
13. Supervision charges - 2.00%

Table 25 : Per hectare cost of cultivation of Cauliflower

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Area in ha.	6.00	11.05	14.40	
1.	2.	3.	4.	5.
Hired human labour - Male	462.20 (02.94)	597.20 (03.75)	1000.00 (05.87)	686.46 (04.23)
Female	800.00 (05.09)	700.00 (04.39)	700.00 (04.11)	733.33 (04.52)
Total	1262.20 (08.04)	1297.20 (08.14)	1700.00 (09.99)	1419.80 (08.76)
Bullock labour	406.40 (02.59)	347.20 (02.18)	413.60 (02.43)	389.06 (02.40)
Manures	1033.00 (06.58)	1085.50 (06.81)	958.00 (05.63)	1025.50 (06.32)
Seed	416.00 (02.65)	400.00 (02.51)	400.00 (02.35)	405.33 (02.50)
Fertilizers :				
N_2	700.00 (04.46)	652.47 (04.09)	695.10 (04.08)	682.52 (04.21)
P_2O_5	338.31 (02.15)	326.20 (02.04)	415.59 (02.44)	360.03 (02.22)
Total	1038.31 (06.61)	978.67 (06.14)	1110.67 (06.52)	1042.55 (06.43)
Irrigation	500.00 (03.18)	650.00 (04.08)	750.00 (04.40)	633.33 (03.90)
Insecticide	84.35 (00.53)	85.45 (00.53)	86.10 (00.50)	85.28 (00.52)
Working capital	4740.26 (30.21)	4843.97 (30.43)	5418.39 (31.84)	5000.87 (30.85)

(continued)

(Table 25 continued)

1.	2.	3.	4.	5.
Interest on working capital	308.11 (01.96)	314.85 (01.97)	352.19 (02.07)	325.05 (02.00)
Depreciation	89.92 (00.57)	108.32 (00.68)	96.77 (00.56)	98.33 (00.60)
Land revenue	60.00 (00.38)	60.00 (00.37)	60.00 (00.35)	60.00 (00.37)
COST 'A'	5198.29 (33.12)	5327.14 (33.46)	5927.35 (34.83)	5484.26 (33.83)
Interest on fixed capital	22.85 (00.14)	31.52 (00.19)	45.79 (00.26)	33.38 (00.20)
Rental value of land	8690.00 (55.38)	9190.00 (57.73)	9940.00 (58.42)	9273.33 (57.21)
COST 'B'	13911.14 (88.65)	14548.66 (91.40)	15913.14 (93.53)	14790.98 (91.26)
Family labour :				
Male	1200.00 (07.64)	800.00 (05.02)	478.80 (02.81)	826.60 (05.09)
Female	279.80 (01.78)	243.50 (01.52)	271.90 (01.59)	265.06 (01.63)
Total	1479.80 (09.43)	1043.50 (06.55)	750.70 (04.41)	1091.33 (06.73)
Supervision charges	300.00 (01.91)	325.00 (02.04)	350.00 (02.05)	325.00 (02.00)
COST 'C'	15690.94 (100.00	15917.16 (100.00)	17013.14 (100.00)	16207.08 (100.00)
Yield in qtl.	116.66	123.33	133.33	124.44
Value of produce	35000.00	37000.00	40000.00	37333.33
Per quintal cost	134.15 (00.85)	129.06 (00.81)	127.60 (00.75)	130.27 (00.80)

Table 25 showed that the overall per hectare cost of cultivation i.e. cost 'C' worked out to Rs. 16207.08, Cost 'A' and 'B' contributed 33.83 and 91.26 per cent respectively. Overall paid out cost was Rs. 5000.87 (30.85 per cent), whereas imputed cost i.e. rental value of land, interest on working capital and interest on fixed capital contributed 59.41 per cent i.e. 57.21, 02.00, 00.20 per cent respectively. Manure, fertilizers and plant protection measures contributed 8.57 per cent i.e. 6.32, 6.43 and 0.52 per cent respectively. In cost 'C' 6.83 per cent expenditure was incurred on bullock labour and irrigation i,e. 2.40 and 6,32 respectively.

Increasing and decreasing trends were observed among the size groups for hired and family human labours.

Overall per hectare yield of 124.44 quintals was obtained.

Table 26 : Per quintal marketing cost of Cauliflower

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Transport	5.00 (09.17)	5.00 (08.95)	5.00 (08.97)	5.00 (09.41)
Octroi	1.50 (02.75)	1.50 (02.68)	1.50 (02.69)	1.50 (02.82)
Hamali	1.00 (01.83)	1.00 (01.79)	1.00 (01.79)	1.00 (01.88)
Commission	28.00 (51.37)	28.10 (50.31)	28.20 (50.62)	28.10 (52.91)
Losses	8.00 (14.67)	8.25 (14.77)	8.00 (14.36)	8.08 (14.59)
Others	11.00 (20.18)	12.00 (20.48)	12.00 (21.54)	11.66 (21.95)
Total	54.50 (100.00)	55.85 (100.00)	55.70 (100.00)	55.35 (100.00)

It was seen from the Table 26 that the overall expenditure towards commission was about 52.91 per cent. The overall marketing costs were Rs. 55.35 per quintal. Other incidental expenses were about 21.95 per cent. The cost incurred for transport, octroi and hamali were same for all the groups. The losses in marketing process were about Rs. 8.08.

Table 27 : Per hectare cost of production of Cauliflower

(Amount in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	5198.29	5327.14	5927.35	5484.26
Cost 'B'	13911.14	14548.66	15913.14	14790.98
Cost 'C'	15690.94	15917.16	17013.14	16207.08
Marketing cost	6357.97	6887.98	7426.48	6890.81
Cost of production	22048.91	22805.14	24439.62	23097.89
Gross income	35000.00	36000.00	40000.00	37333.33
Net income	12951.09	14194.86	15560.38	14235.44
Input-output ratio :				
On Cost 'A'	1:6.73	1:6.94	1:6.74	1:6.80
On Cost 'B'	1:2.51	1:2.54	1:2.51	1:2.52
On Cost 'C'	1:2.23	1:2.32	1:2.35	1:2.30

Table 27 indicated that overall per hectare cost A, B and C were Rs. 5484.26, Rs. 14790.98 and Rs. 16207.08 respectively. Overall per hectare marketing cost was Rs. 6890.81. The overall input-output ratio was 1:6.80, 1:2.52 and 1:2.30 at cost A, B and C respectively. The overall net income was worked out to be Rs. 14235.44 per hectare. In size group III, the net income was comparatively more. Input-output ratio was greater in size group II.

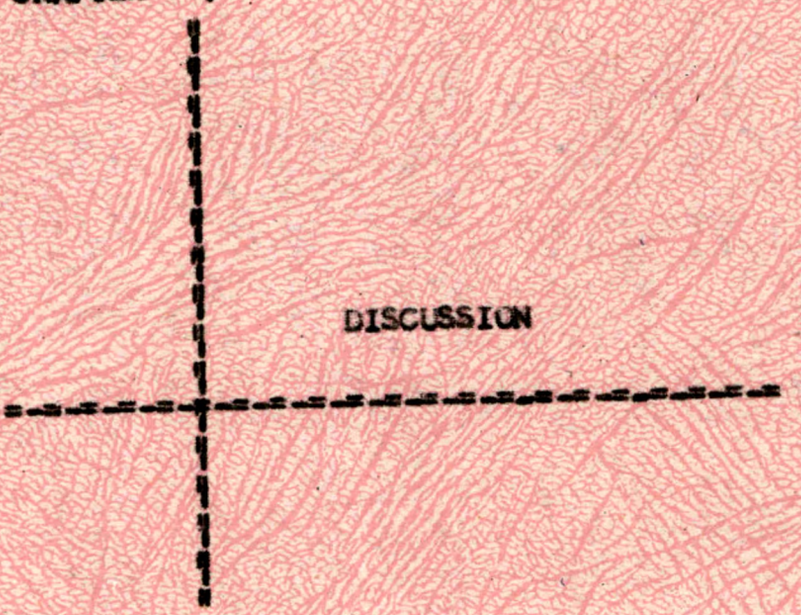
Table 28 : Per quintal cost of production of Cauliflower

(Figures in Rs.)

Item	size group			Overall
	I	II	III	
Cost 'A'	44.55	43.19	44.45	44.06
Cost 'B'	119.24	117.96	119.35	118.85
Cost 'C'	134.50	129.06	127.60	130.38
Marketing cost	54.50	55.85	55.70	55.35
Production cost	189.00	184.91	183.30	185.73
Gross income	300.00	300.00	300.00	300.00
Net income	111.00	115.09	116.70	114.26

Table 28 revealed that the overall per quintal cost of cultivation i.e. cost 'C' was Rs. 130.38 and cost of production was Rs. 185.73. The net income of Rs. 114.26 per quintal was observed. Increasing trend was observed among the sizegroups for net income.

CHAPTER - V



CHAPTER - V

DISCUSSION

The results in respect of the study of economics of production and marketing of some important vegetables have been presented in the last chapter. In this chapter an attempt has been made to discuss the results obtained in the light of the results of studies carried out by other researchers' where ever possible. The crop wise discussion of results obtained through analysis is presented as below :

Okra :

Okra contributed 18.52 per cent area from total vegetables. Okra required 273.85 human labour days for its cultivation. The share of female labour was comparatively more as they required for weeding and harvesting operations. The bullock power required was 16.64 labour days. The manure utilization was found to be less than the recommended level. Per hectare overall average cost A and cost B contributed 46.87 and 86.41 per cent respectively. Per hectare cost of production was found to be Rs. 15865.24 and the gross return was worked out to Rs. 20333.33 with a net return of Rs. 4468.09 . Per quintal cost of production of okra was Rs. 245.15 and per quintal marketing cost of okra

was Rs. 47.83. Per hectare yield was worked to be 64.66 quintals. The overall input-output ratio was 1:1.59. Similar results were observed by Madalia and Kukadia (1978-79), Aundhekar (1989), Surendragopal Singh (1974).

Brinjal :

Brinjal contributed 20.52 per cent area of the total vegetables. This crop required 270.09 human labour days for its cultivation. Brinjal crop is somewhat sturdy crop as compared to the other three vegetable crops. The utilization of manures was comparatively less than that of the recommended level. Cost A and cost B contributed 31.04 and 89.57 per cent of total cost. Per hectare cost of production was Rs. 26610.48 and gross return was Rs. 39333.33 with a net return of Rs. 12722.84. Per quintal cost of production of brinjal was Rs. 135.95 and the per quintal marketing cost was found to be Rs. 50.03. Per hectare yield of brinjal was Rs. 196.66 quintals. Input-output ratio was 1:2.34. Similar results were observee by Aundhekar (1989).

Fenugreek :

Out of total area under vegetable, fenugreek contributed 25.37 per dent area. Fenugreek required 92.37 human labour days which were comparatively less than other three crops. The utilization of manure was comparatively less than the recommended level. The overall per hectare cost of production was Rs. 13667.46 with a net return of Rs. 9182.54. Per quintal cost of production of fenugreek was worked out to be Rs. 181.67 and per quintal marketing cost was found to be Rs. 51.38. Per hectare yield of fenugreek was 75.33 quintals. Input-output ratio was 1:2.33. Similar results were obtained by Patil (1972).

Cauliflower :

Cauliflower crop contributed 35.54 per cent area under vegetable crops. Per hectare human labour utilization was to the tune of 175.44 labour days. Female labour utilization was greater than the male labour. Overall per hectare cost of production was Rs. 23097.89 with a net return of Rs. 14235.44. The highest yield of 133.33 quintals per hectare was obtained in IIIrd group. The overall per quintal

marketing cost was found to be Rs. 55.35. Per quintal cost of production of cauliflower was 185.73 rupees. The input-output ratio obtained was 1:2.30. Similar results were observed by Surendragopal Singh (1974).

Cauliflower contributed maximum area i.e. 35.54 per cent, followed by Fenugreek, Brinjal and Okra i.e. 25.37, 20.52 and 18.52 per cent respectively. Okra required more human labour days i.e. 273.85 than the other three crops in study i.e. Brinjal, Cauliflower and Fenugreek with 270.09, 175.44 and 92.37 human labour days respectively. The bullock power required was more in okra i.e. 16.64 bullock labour days followed by brinjal, fenugreek and cauliflower i.e. 14.77, 10.57 and 9.72 bullock labour days respectively. The input utilization of cauliflower crop was found to be maximum as compared to other three crops in study. For okra crop cost A and cost B worked out to be Rs. 5985.00 and Rs. 11032.81 respectively. For brinjal crop cost A and cost B worked out to be Rs. 5197.32 and Rs. 14996.58 respectively. For fenugreek it was Rs. 3139.11 and Rs. 8817.54 respectively. And for cauliflower it was Rs. 5484.26 and Rs. 14790.98 respectively. Cost of cautivation was found to be higher for brinjal crop i.e. Rs. 16742.32 followed by cauliflower, okra and fenugreek

i.e. Rs. 16207, Rs. 12766.91 and Rs. 9799.07 respectively. The per hectare cost of production was found to be greater for brinjal crop i.e. Rs. 26610 followed by cauliflower, okra and fenugreek i.e. Rs. 23097.89, Rs. 15865.24 and Rs. 13667.46 respectively. Per hectare yield was observed to be more in case of brinjal i.e. 196.66 quintals followed by cauliflower, fenugreek and okra i.e. 124.44, 75.33 and 64.66 quintals respectively. Per hectare net returns obtained were more for cauliflower i.e. Rs. 14235.44 followed by brinjal, fenugreek and okra i.e. Rs. 12722.84, Rs. 9182.54 and Rs. 4468.09 respectively. The overall per quintal marketing cost was found to be higher for cauliflower i.e. Rs. 55.35 followed by Fenugreek, Brinjal and Okra i.e. Rs. 51.38, Rs. 50.03 and Rs. 47.83 respectively. The input output ratio was found to be maximum for brinjal i.e. 1:2.34 followed by fenugreek, cauliflower and okra i.e. 1:2.33, 1:2.30 and 1:1.59 respectively.

CHAPTER - 5

SUMMARY AND CONCLUSION

CHAPTER - VI

SUMMARY AND CONCLUSIONS

Majority of Indian population take vegetarian diet. Most of the population is rural and mainly depend on agricultural occupation and it includes the land owner and the agricultural labours. The production of fruits, animal products and milk can not be increased in short duration for fulfilment of nutritional status of developing and under developed countries due to pressure of tremendous population growth. In this situation nutritional requirements and nourishment of peoples the only alternative left is to increase the production of vegetables as it can be achieved during a short span of period and improve the dietary standard of the people by providing proteins, carbohydrates, mineral salts, vitamins in bulk in the country.

Very few research studies have been undertaken about the economics of production and marketing of vegetables. Nanded district has got some pockets of vegetable cultivation, specially in Nanded taluka. This study has got its own importance and will be very useful for the cultivators. The study was undertaken with specific objectives as under.

1. To study the cost of production of selected vegetables.

2. To study the comparative economics of production and marketing of selected vegetables.

3. To study the marketing cost of selected vegetables.

Four villages located near Nanded were selected. Vegetable growers were selected randomly and classified into three groups on the basis of their land holding. The data were collected in specially designed schedules for the year 1990-91.

Cross sectional data of 250 cultivators from the four villages were collected and analysed for different aspects viz. labour and input utilization, cost of cultivation, marketing costs of selected vegetables in Nanded district. In this chapter the results obtained are summarised.

Vegetable crops occupied 7.93 per cent area. In case of okra human labour required was 273.85 labour days, out of which the share of family labour was found to be 34.62 per cent. In Ist size group the human labour utilization was greater. A yield of 64.66 quintals per hectare was achieved at overall level.

The yields were higher in IIIrd size group. The per quintal cost of cultivation was Rs. 197.48. On an average cost A and cost B contributed to the extent of 46.87 and 86.41 per cent respectively. Overall per aquintal marketing cost was found to be Rs. 47.83 in which the major share was of commission agent.

On an average brinjal crop occupied an area of 6.05 hectares. Brinjal crop required 270.09 human labour days and 14.77 bullock labour days. Family labour contributed 34.44 per cent, of the total labour required for its cultivation. Overall per hectare cost of production was worked out to be Rs. 26610 with a net return of Rs. 12722.84. The input-output ratio was 1:2.34 which was the highest in all the vegetables under study. The overall cost of marketing was Rs. 50.03 per quintal in which the share of commission agent was 53.96 per cent.

Fenugreek crop covered 25.37 per cent area. The human labour required was 92.37 labour days. The input utilization of fenugreek was comparatively less as compared to other vegetables under study. Cost A and cost B contributed 32.03 and 89.98 per cent respectively.

Average per quintal cost of prodution was Rs. 131.67 . Per hectare yield was 75.33 quintals. The per quintal cost of marketing was Rs. 51.38.

Cauliflower occupied 35.54 per cent area under vegetables. The human labour requitement was 175.44 labour days of which the share of family labour was 38.65 per cent. The per hectare cost of prodution was Rs. 23097.89 with net return of Rs. 14235.00 which was greater than that of other vegetables under study. The overall per quintal marketing cost was found to be Rs. 55.35 .

Input output ratio was found to be greater for brinjal crop i . e. 1:2.34 followed by fenugreek, cauliflower and okra i.e.1:2.33, 1:2.30and 1:1.59 respectively .

Conclusions :

Following some conclusion can be drawn from the study:

1. Per hectare cost of cultivation of okra , brinjal, fenugreek and cauliflower was Rs.12766.91 , Rs. 16742.32 , Rs. 9799.07 and Rs. 16207.08 respectively which showed high cost of cultivation in brinjal crop

compared to other crops .

2 . The per hectare high returns was observed in case of cauliflower compared to other crops .

3 . Per quintal marketing cost of okra , brinjal , fenugreek and cauliflower was Rs. 47.83 , Rs. 50.03, Rs. 51.38 and Rs. 55.35 respectively showing the lowest matketing cost in okra crop .

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