LIVELIHOOD GENERATION THROUGH AGRICULTURE AMONG SELF HELP GROUPS: AN ECONOMIC ANALYSIS

By

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DECLARATION

I, hereby declare that this thesis entitled **"LIVELIHOOD GENERATION THROUGH AGRICULTURE AMONG SELF HELP GROUPS - AN ECONOMIC ANALYSIS"** is a bonafide record of research work done by me during the course of research and the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

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LIST OF ABBREVIATIONS

%	-per cent
/	-per
ADS	-Area Development Society
CDS	-Community Development Society
CNG	-Calicut- Nilambur- Gudalur
et al.	-Co workers/Co authors
Fig.	-Figure
FS	-Farmers share in consumer rupee
FYM	-Farm Yard Manure
ha	-Hectare
ha^{-1}	-per hectare
JLG	-Joint Liability Group
ie.	-That is
KAU	-Kerala Agricultural University
km.	-Kilometre
K. Mission	- Kudumbashree Mission
MC	-Marginal Cost
MFC	-Marginal Factor Cost
MP	-Marginal Product
MVP	-Marginal Value Product
NABARD	- National Bank for Agriculture and Rural Development
NHG	-Neighbourhood Group
No.	-Number
OLS	-Ordinary Least Square
PF	-Price received by the farmer
RP	-Retail price
Rs.	-Rupees
SHG	-Self Help Group
VFPCK	-Vegetable and Fruit Promotion Council of Kerala
$Year^{-1}$	-per year

CHAPTER I

INTRODUCTION

During the previous 15 years, India has had reasonably significant economic development. However, a thorough examination reveals that, not all sectors and portions of the economy are developing at the same rate. Inequality is growing, poverty is increasing, and the quality of natural resources is deteriorating are some of the most prevalent issues linked with India's rising trajectory. Agriculture, which is both economically and socially important, has contributed 23 per cent of Gross Domestic Product (GDP), fed a billion people, and employed 66 per cent of the workforce (Khanka, 2010). The agriculture sector's comparatively poor performance and growth rate is another cause for concern in a nation like India, where more than half of the population depends on it for a livelihood. We are living in an era where agriculture faces multiple problems like alienation from youth, increase in fallow lands, increasing stress to environment and being itself non-remunerative as an occupation.

Indian agriculture is currently confronted with a new and intriguing situation: feminization of agriculture. Men are increasingly transitioning from agriculture to non-farm labour. Agriculture employs 53 per cent of male employees and 75 per cent of female employees, with the majority farming less than one hectares of land (Agarwal 2009). Despite the fact that, the farmer's face is becoming more female, only a few women have direct access to the farmer's primary resource ie, land. This growing number of women engaged in agriculture must be supported by providing access to necessary resources and facilitating improved working conditions. If India wants to improve the performance of its agricultural sector, the only way out is to increase the production capacity of smallholders and women farmers. Several state governments have put in place a variety of programmes and strategies to achieve this goal. These include programmes like Kerala's Kudumbashree and Andhra Pradesh's Indira Kranti Patham (IKP), which are based on multi-tier collectives within the framework of Community Based Organisations (CBO) and have frequently been cited as frameworks

for achieving sustainable agriculture-based livelihoods for poor households. But the search is still on for the best strategy that can be implemented throughout the country. In spite of all these odds, Kudumbasree Mission is leading by example of a viable agricultural development model by harnessing the group efforts of rural poor of the state.

Self Help Groups (SHGs) are a registered or unregistered voluntary association of poor people of ten to twenty, from the same socio-economic background, involving primarily in saving and credit activities (Kumar and Kalva, 2014). These groups are linked to a financial or microfinance institution for sourcing of additional funds as well as depositing their savings.

Many SHGs, especially in India are under National Bank for Agriculture and Rural Development (NABARD's) SHG-Bank linkage programme. The SHG-Bank Linkage Programme has been transformed into the world's largest microfinance programme with over 10 million SHG's during 2018-19 and an outreach of over 100 million poor rural households during 2018-19. Over 29 lakh SHGs were credit-linked to banks during Fiscal Year (FY) 2018-19 taking the total number of credit linked SHG's to over 50.77 lakh (NABARD, 2019). Over 65 lakh SHGs under NRLM (National Rural Livelihood Mission) were credit linked to bank during the year 2020-21 (NABARD, 2021).

By linking SHGs with the banks, the loan amount availed by the groups is shared among the members for pursuing various income generating activities like group farming, vegetable cultivation, banana cultivation, tapioca cultivation, livestock rearing, etc. thus promoting sustainable livelihood opportunities for the rural communities.

"The NABARD launched a common responsibility (JLG) project in 2004-2005 as a pilot project in order to provide institutional loans to small and marginal farmers, tenant farmers and stock growers" (Rupnawar and Kharat, 2014) JLG's most important factor is social capital. Farmers' associations, Panchayatiraj institutions, farmers' clubs, Krishi Vikas Kendras, State agricultural universities, Business facilitators, NGOs, and other organisations commonly form Joint Liability Groups. According to JLG's concept, each member receives a separate personal loan from the bank. Each group member is jointly and severally liable for the loan repayment. If the group is being financed, the group may be eligible for a single loan, which may cover all of its members' credit needs.

There are 68,388 JLG groups in the Kudumbashree farm livelihood sector, with 3,38,202 women farmers cultivating around 50,000 ha. JLGs are panchayat-level groups of women farmers with four to twelve members from the same ward or adjacent wards. Because of 75-80 per cent of the total cultivated area is leased, the Kudumbashree farming model is known as Collective lease land farming. One of the main reasons for the profitability, success, and sustainability of the joint farming groups under Kudumbashree is that the labour force in these cultivated lands is the JLG members themselves (except for a very small fraction engaged for plantains). Despite the fact that the produce is mostly organic, though not certified as such, it is in high demand throughout the state and commands a premium price.

In the systems of subsistence agriculture, women have always been critical but mainly invisible as aids on the family farms, but their contribution as producers has now become more visible as members of collectives. They have the authority to decide what to sow, whether or not to take out a loan, how much to sell and keep for personal use, and other matters. It's crucial to look at farm income or returns in this perspective. This study investigates the economic gains of women's collective farming on lease lands in Kerala as part of the Kudumbashree programme, as well as the concerns and challenges they are facing.

OBJECTIVE OF THE STUDY

In order to achieve the general objectives, specific objectives have to be framed. The following specific objectives had been identified to achieve the general objectives.

1. Identification of livelihood generation activities through agriculture by Self Help Groups (SHGs)/Joint Liability Groups (JLGs)
2. Analysis of economic performance of SHGs/JLGs in terms of production and marketing of major crops cultivated and income generation by the members.
3. Identification of the constraints faced by members in production and marketing of the crops cultivated.

NATURE AND SCOPE OF THE STUDY

Kudumbashree is a neighborhood-based group network that works in association with self-governments for poverty destruction and women empowerment by encouraging women entrepreneurship. Kudumbashree means 'prosperity of the family' in Malayalam, the local language of the state. The goal of the mission is associated with a self-help group (SHG) model of empowerment of women to promote their broad range of entrepreneurial activities to make sure that the women should not be long-suffering beneficiaries of public help, but should be dynamic leaders in women- incorporated development strategies (Kumar and Jasheena, 2016).

Kudumbashree wanted to do a participatory need assessment, and came up with the idea of experience sharing of women farmers before a panel of experts and bankers, including the agricultural officers and panchayath heads. This will be an opportunity to get the new panchayaths to understand the local economic development and food security linkage that can be made through collective farming. The women would talk about their credit linkage strategies, their indigenous practices,their problems both with production as well as marketing, the innovations they have hit upon, as well as the social dimensions of their coming into farming. The discussions were to be crop specific -rice, banana, vegetables, tubers and others.

Since the livelihood of rural poor largely depends upon agriculture, income generation through farming activities such as cultivation of crops have a significant effect in ensuring food security to the society. Thus livelihood generation through agriculture is operationalized here as income generation through farming activities by SHG / JLGmembers.

So the present study will analyse the livelihood generation of SHGs/ JLGs through farming activities by the members so that, efficient policies can be formulated in order to provide sustainable living for rural communities.

LIMITATIONS OF THE STUDY

Being a post graduate research, the investigator has limitations of time, moneyand other resources and the area of investigation was restricted to two block panchayats; therefore, the implications of the study cannot be generalized for larger areas.

ORGANISATION OF THE THESIS

The thesis is organised in five chapters. The first chapter ‘introduction’ explains the importance of the topic, objectives, scope and limitation of the study. Thesecond chapter, ‘review of literature’ deals with findings of the related studies in line with the objectives of the study. Third chapter ‘materials and methods’ describe the area of study and methodology adopted for analysis. Fourth chapter ‘results and discussion’ discusses the results of the study to draw specific inferences and the final chapter ‘summary’ briefly summarizes the work done and salient findings, explains the implications based on the results of the study and also suggests future areas of research.

CHAPTER II
REVIEW OF LITERATURE

In order to endorse the many aspects of research, every scientific study needs an excellent literature review. This helps in recognizing the research gaps and recording issues related to different research dimensions. It also makes it easier to identify the information available on the strategic objectives of the intended study and provides a framework for the explanation of outcomes.

Revisions of past research have been gathered based on livelihood of SHGs through agriculture, production and marketing of crops cultivated, resource use efficiency in crop production, constraints in paddy production and are discussed in thebelow sections:

2.1. Studies on livelihood generation of SHGS/ JLGS through agriculture

2.2. Studies on income generation from production and marketing activities of SHGs/ JLGs

2.3. Studies on identification of marketing channels and processess

2.4. Studies on resource use efficiency in crop production

2.5. Studies on constraints faced by the SHGS/JLGS

2.1. STUDIES ON LIVELIHOOD GENERATION OF SHGs/ JLGs THROUGH AGRICULTURE

The study on perception of officials about SHGs involved in vegetable cultivation in Thiruvananthapuram district using ex-post facto research design showed that, majority of the officials had a strong positive feeling (91%) towards the concept of SHGs. (Sreedaya *et al*.,2001).

According to Anand (2002), the majority (83%) of the members of SHGs of Chungathara panchat of malappuram district were found to be agricultural labourers or self-employed individuals 17 per cent of the members had their

own small-scale units that were self-employed and engaged in non-agricultural activities.

Joy *et al*., (2008) conducted a study to identify the factors influencing the performance of women-led SHGs and their impact on group stability among SHGs engaged in agro-processing in Kerala, as part of the government's SGSY program. The primary source of income for the SGSY-SHGs was agro-processing. Mullassery (72.20%) had the highest percentage of agro-processing SHGs, followed by Thalikkulam (50%), Cherpu (42.80%), Chavakkad (32.60%), and Wadakkanchery (32.60%) . These SHGs' main activities included the processing of rice powder, copra, and fish, as well as the production of ready-to- eat items such as pappadam and curry powder.

According to Mary (2009), more than one-third (38.23%) of the SHG's women were wage earners, 31.37 per cent of them had agriculture as their primary occupation, more than one-tenth (13.73 %) of them were wage earners in addition to farming, and one-tenth (10.78%) of women were doing private work. Only 5.89 per cent of the women were found to be unemployed.

Ramakumar (2006) studied the role of women towards agriculture for the purpose of maximising household welfare and reducing food market dependence among small and marginalised household families. Many cultivate commercial plants, such as coconut and spices, on the basis of their own homes, and most maintain kitchen gardens to complement family needs for fruits and vegetables.

According to the study done by Meena (2010) on technology use pattern of group farmers, the majority of respondents (72.00 %) in sriganganagar district worked in agriculture, followed by those who worked in agriculture and other businesses (28.00 %).

According to Meenagour and Indira (2010), the majority (72.00 %) of women vegetable farmers had only agriculture as their occupation, while 16.50 percent had agriculture and labour occupations and 11.50 per cent had agriculture and business occupations.

According to Saha et al. (2010), the majority (30.00 %) of livestock farmers of ganderbal district of jammu and kashmir were involved in business, followed by those involved in cultivation (24.42 %), agricultural labour (20.83 %), service (17.92 %), and other independent professions (6.83 %).

The study done by Chithra (2011), in Kottayam district shows that more than one-third (36.80 %) of the beneficiaries worked in agriculture and allied activities, followed by self employment (33.33 %) and daily labour (26.57 %). Salaried students and the unemployed made up 3.3 per cent of the rest.

In the Tamilnadu district of Dharmapuri, Lakshmi and Vadivalagan (2011) evaluated women empowerment through self-help groups. According to the findings, the primary motivation for joining a SHG is not to obtain credit, but rather to participate in a process of empowerment. Women gain economic and social empowerment after joining a self-help group. This empowerment cannot be transformed or delivered; it must be self-generated in order for empowered people to take control of their lives. The study's findings revealed that SHGs have had a greater impact on the beneficiaries' economic and social well-being.

Meenakshi (2011) discovered that the majority of the SHGs (58.33 %) were wage earners. Less than one-fifth (16.67 %) of those polled were farmers or wage earners. Less than one-tenth (7.50 %) of the respondents were found to be solely engaged in farming. Furthermore, it was reported that 11.67 per cent of the respondents were unemployed. Only 5.83 per cent of those polled ran their own businesses.

In its evaluation study of Kudumbashree, the State Planning Board of Kerala (2012) found that 83 per cent and 17 per cent of the population were self-employed/small business owners and agricultural labor/seasonal employment/casual labourers, respectively.

Jothi (2010) with the aid of primary data brought out the changes in the social and economic aspects of the members of SHGs in Kanchipuram district.

The sample respondents, who were either unemployed or engaged in petty activities during their pre-membership period, had become very active by becoming fully employed in varied activities and thereby earning more.

Soman (2012) conducted a study for analysing the performance of VFPCK and Kudumbasree beneficiaries in Thiruvananthapuram district in terms of agricultural production marketing, resource use efficiency and credit utilization. It was found out that average annual income was highest for VFPCK farmers. It was also revealed that the area of cultivation and cost of plant protection chemicals had a significant impact on returns.

Reji (2013) analysed the income of the SHG members before and after joining SHGs in Kerala. It was found that majority of the respondent's income after joining SHGs were higher than the income before joining SHGs in both Ernakulam and Idukki districts.

Women's joint liability groups can have a positive impact on society by mobilising resources, adopting new technology, and building capacity. Group mobilisation can have a significant impact on reducing the difficulties and problems that small farmers, in particular, face. It was discovered that the most important factors influencing the effectiveness of farming groups were education level, economic motivation, and promoting institutions. (Sajesh, 2013)

Sayooj (2013) studied the performance of Vegetable and Fruit Promotion Council of Keralam (VFPCK). It was found that the council was moulding SHGs as the basic level institutional units for introducing innovative interventions in horticulture.

For 76 per cent of farmers farming as a profession and agriculture as a source of income is no longer a preferred option, owing to price and production risks. The returns to households from small and fragmented land holdings are so low that many men, mostly from rural areas, have left agriculture for non-farm occupations in the village or nearby towns.

To support their families, some have migrated to far-flung urban areas on a seasonal or durable basis to work in low-paying informal jobs in precarious industries such as construction (CSDS, 2014)

Palaniswamy and Mahesh (2014) conducted a study on agricultural landless labourers in Tirupur district of Tamilnadu and analysed the socioeconomic conditions of rural agricultural landless labourers. It was found that a balanced approach towards capital intensive technology without affecting the interest of manual labour is the need of the hour in the Indian context.

According to a study conducted by Pal (2015), kharif was the main and busiest season of crop production, and there was seasonality in wage employment and earnings among rural farm women. Participation in Self-Help Groups increased both wage employment and earning capacity among rural women. The most remarkable aspect of this study was the lack of wage difference between women labourers in SHGs and non-SHGs.

Pragathi (2015) in his study highlighted the profile of SHG beneficiaries, the socio economic factors giving impact on their lifestyle and adoption of new technologies. It was also found that the innovative technologies had been developed in different areas of agriculture, forestry, fisheries, animal husbandry etc.

Chinchu (2016) studied the indicators of sustainable agricultural development among SHG members involved in farming in Thiruvananthapuram district. It was found that the sustainability was above average in the study area.

Sing and Mittal, (2016) studied the socio-economic impact of microfinancing through SHGs in Mewat district using econometric analysis. It was found that SHGs helped their members to increase their income level through economic activities and provided them better living conditions.

The study conducted for revealing the entrepreneurial behaviour, sustainability and managerial efficiency of both men and women SHGs in Thiruvananthapuram district showed that both men and women had a medium managerial efficiency. The women groups differed from men SHGs by the entrepreneurial behaviour and sustainability as men were more innovative, able to adopt new technologies and were more sustainable (Sundaran and Sreedaya, 2016).

Magnan *et al.,* (2015) conducted a study in Utarpradesh to determine how gender influences the flow of information about new technologies. They discovered that women are more likely to have connections with poorer households in their village, which are less likely to adopt agricultural innovations, and thus may not be reliable sources of information.

Rajeev *et al.,* (2016) investigated kudumbasree in Kerala and discovered that itaims to motivate and engage housewives and women from various backgrounds to engage in agricultural operations. This allows them to earn a living while also reclaiming the land. As a result, collective farming became a source of livelihood as well as food for the state. The unique combination of women's empowerment and livelihood programmes redefined the term "sustainability."

Brady (2017) studied the role of SHGs as an alternative arrangement for the delivery of public services in high-density rural communities in India. It was observed that SHGs could create a space for rural women to tailor service provision to their community's needs.

Baresh and Ghosh (2018) conducted studies on SHGs in Meghalaya. It was reported that about 25 per cent, 16 per cent and 14 per cent of the SHG members were involved in income generating activities such as rearing farm animals, horticulture based activities, and agriculture based activities.

The study on SHG- Bank linkage programme in Karnataka district observed that substantial improvement in access to credit made possible through SHG bank linkage programme helped to enhance income-generating capabilities of the women in the groups (Rajeev *et al*., 2018).

Suresh *et al*.,(2018) studied the kudumbasree in Kerala and found that the lifestyle of Kudumbasree members has changed in comparison to the situation before they joined the Kudumbasree. The members' unwavering efforts have paved the way for agricultural and farming practises that require less land to cultivate. Agriculture promotion through self-help groups has been successful, and with government assistance, it can be even more successful.

Raghunathan *et al*., (2019) investigated whether a women's self help group (SHG) platform could be an effective way of improving access to information, women's empowerment in agriculture, agricultural practices, and production diversity by using cross-sectional data on close to 1,000 women from five states in India and found that participation in an SHG increases women's access to information and their participation in some agricultural decisions, but has limited impact on agricultural practices or outcomes. Agricultural inputs provided by SHGs include dissemination of information on best practices through a variety of methods, agricultural planning sessions, and increased access to input providers, government schemes, and markets. These livelihoods interventions expose women to, and encourage adoption of, better agricultural practices and improved crop selection.

Jayashree *et al*., (2021) conducted studies in two districts of Kerala which shows the uniform impact of the SHG movement in addressing rural poverty. More of the SHG women were landless and newer to farming still they spent less time in farming activities than their counterpart non SHG women, perhaps due to sharing of duties among group members reduced workload on individual members.

The study conducted by Moar and Kharge (2021) revealed that majority of respondents were participated in various agricultural activities having mean percent scores (MPS) of 86.67, 85.83, 82.08, 52.50, 49.16, 37.50 and 25.83 in winnowing, weeding and intercultural activities, seed sowing, spreading of FYM in field, application of insecticides, irrigation and purchasing of farm inputs respectively. The average overall MPS for agricultural activities 46.27 and allied activities 36.05 was recorded. It indicates that respondents were participated more in agricultural activities rather than allied activities.

2.2.STUDIES ON INCOME GENERATION FROM PRODUCTION AND MARKETING ACTIVITIES OF SHGs/JLGs

Verma and Rajput (2000) investigated the costs, returns, and marketing of potatoes in the Indore area of Madhya Pradesh. The overall cost of potato cultivation per hectare was Rs 35,035 on average (Cost C_2). The cost of cultivation per hectare was Rs 29,035 for Cost A_1, Rs 29,310 for Cost B_1, Rs 30,810 for Cost B_2, Rs 31,850 for Cost C_1 and Rs 35,035 for Cost C_2. The gross revenues were calculated to be Rs 59,400 per hectare.On average, the net returns above Cost A_1, Cost B_1, Cost B_2, Cost C_1, and Cost C_2 were Rs 30,365, Rs 30,090, Rs 28,590, Rs 27,550, and Rs 24,365 per hectare.

Balappa and Hugas (2003) analyzed the economics of onion production and sale in Karnataka and discovered that the overall average net returns obtained by onion producers amounted to Rs 45,429.29 per ha, with gross returns of Rs 6,828.67 per ha. Farmers in Gulbarga (Rs 64,714.41 per ha), Raichur (Rs 64,421.35 per ha), and Belgaum (Rs 16,578.86 per ha) areas, on the other hand, benefit from irrigation-based onion growing.

Grover *et al*., (2003) discovered that the total cost of cultivation (C_3) varied between Rs 32,296 per ha on small farms and Rs 37,746 per ha on large farms in a research regarding the production and marketing aspects of the tomato crop in Punjab. Because tomato farming is labour intensive, the percentage of human labour on Cost C_3 was around 32 per cent. In the instance of tomato cultivation, variable costs accounted for 69 per cent of the Cost C_3. The benefit-cost ratios were almost equal to or better than two for all expenses except Cost C_3 for all farm size categories, demonstrating the viability of tomato production in the state.

According to Navadkar *et al*. (2003), in Western Maharashtra the per ha cost of tomato growing during the summer season was the highest, followed by the kharif and rabi seasons. The per ha gross and net yields were higher in the kharif season, followed by the summer and rabi seasons.

Singh and Toor (2003) discovered that the highest per ha variable cost of Rs 21,468 was incurred on cauliflower crop, followed by Rs 20,528 on brinjal, Rs 17,991 on bhindi, Rs 15,718 on sponge gourd, Rs 14,932 on paddy, and Rs 10,923 on tida crop while studying the income and employment generation through summer vegetables vs paddy in Punjab. Returns on total variable cost for cauliflower, bhindi, tinda, sponge gourd, and paddy were Rs 40,201, Rs 20,301, Rs 13,790, Rs 13,389, and Rs 11,914 per ha. As a result, all summer vegetables gave larger yields than rice crop throughout the summer season.

While researching the economics of vegetable production and marketing in the Andaman and Nicobar Islands, Kumar et al. (2004) discovered that the cost benefit ratio for chilli was the highest, followed by cucumber, bhindi, cowpea, and snake gourd, and that it was higher in hilly land than in valley land for all vegetables.

Lokesh *et al*., (2005) observed in a research on the economics of tomato cultivation, processing, and marketing in Karnataka that the average output of tomato was 35 tonnes per acre, with a gross return of Rs 52,500 and a net return of Rs 18,410. As a result, the net returns per acre of tomato production with a long duration variety were Rs 13,209 which is 42 per cent more than with a short duration variety.

Srinivas and Ramanathan (2005) examined the economics of Elephant foot yam in a lowland production system in Kerala and found that the gross cost of cultivation was Rs 1,73,105 per hectare, with the highest spending on planting material (Rs 69,864). Farmers received an average production of 33.5 tonnes per ha, with a total income of Rs2,36,368 at a selling rate of Rs 7.15 per kg of tuber. The benefit-cost ratio was calculated to be 1.38:1. Farm business income, owned farm business revenue, farm investment income, and family labour income were anticipated to be Rs 91,395, Rs 85,033, Rs 67,353, and Rs 80,943 in that order.

Singla *et al.* (2006) investigated the economics of green peas in Punjab and discovered that the returns over variable costs in peas were Rs 40,182 per hectare, which was 128 per cent more than that in wheat (Rs 17,547 per ha). It was evident thatgrowing green peas was more profitable than growing wheat, its main competitor crop.

Khan and Basharat (2006) analyzed the economic variability of vegetable production in Kashmir and concluded that the most profitable crops were brinjal, saag, knoll khol, radish, cabbage, cauliflower, and spinach.

The marketing activities of SHGs fall far short of the new globalisation standards. They do nothing but direct marketing. Marketing is a social and management activity in which individuals and groups create and exchange products and value with others in order to obtain what they require and desire (Kotler, 2009).

Field studies done in Kerala state by Krishnadas (2009) records that the net income from cultivation of one acre of rice to be 2,400 rupees whereas the net income from cultivation of one acre of banana was Rs 46,000 by the group farmers.

Small farmers were the most economically efficient in tomato production in Karnataka, as evidenced by a higher profit per kilogramme of production (Rs 2.30 compared to Rs 1.57 for medium farmers and Rs 1.65 for large farmers), as well as a higher net return (Rs 1,10,671 per ha compared to Rs 90,567 per ha for medium farmers and Rs 88,108 per ha for small farmers) higher benefit cost ratio (2.17 compared to 1.79 in medium and 1.90 in large farms). (Murthy *et al.,* 2009)

Chatterjee *et al*. (2011) investigated the economics of solanaceous vegetables in West Benagl's Gangatic alluvial. It was discovered that when brinjal, hybrid tomato, and chilli were grown with an open pollinated local cultivar, the per hectare returns achieved were Rs 2.46, Rs 3.14, and Rs 1.27 for every Rupee spent, respectively. The study also revealed that the growing of hybrid tomato was the most profitable activity in west Bengal during the autumn-winter season, closely followed by brinjal.

Women farmers form Joint Liability Groups (JLGs) to assist women cultivators in obtaining agricultural credit from the banking system, according to Pammi and Kadassidappa (2014). The paper highlighted the various processes of promoting NHG women's JLGs and how they engaged in collective farming in Kerala's Idukki district by presenting various case studies. Through agricultural production and increased agricultural output through the collective farming programme of NHGs, the women achieved the twin benefits of poverty alleviation, food security, and financial returns.

Subhasis *et.al*.,(2014) studied about self help groups in meghalaya and showed that of the farmers in the sampled group were found to be growing ginger in various quantities ranging from 100 kg to 2000 kg. The total amount of ginger produced by all farmers was estimated to be 26.35q, with farmers producing an average of 828 kg of ginger. The total cost of ginger production was calculated to be Rs. 87,030 for the entire amount (26.35q), with a cost per kg of Rs. 5.70. The cost of seeds (which accounts for 67 % of the total cost) and the cost of labour are two major cost components for ginger cultivation (33 %). The total value of ginger produced by all farms was estimated at Rs. 2.37 lakh, with returns of Rs. 1.50 lakh.

Furthermore, JLGs earn significantly lower average farm returns than the state average of Rs.42,500 per farm (GoI, 2015), whereas JLGs earn significantly higher average returns. One five-member group farm in Thrissur achieved a maximum net return of nearly Rs. 1692,000, which is equally impressive. This resulted in an annual return of around Rs. 3,38,000 for each group member. In comparison, an individual farm's maximum return (also from Thrissur) is around Rs. 1028,000, resulting in a per capita return of around Rs. 2,05,600 in a five-member family. The difference between the net returns In Telangana, 70–85 per cent of all three types of farms, as well as individual farms in Kerala, are clustered in the Rs. 25,000-50,000 price range. In Kerala, however, 38 per cent of JLGs earn more than Rs. 50,000 in net returns.

Pal (2015) found that rural participation of women in agriculture in others' farms was highest in harvesting and transplanting, and it varied with crop seasons in katwa block. According to the findings, the foremost and busiest season for crop production is kharif, and wage employment and earnings among rural farm women are seasonal. Rural women's wage employment and earning capacity increased as a result of their participation in Self-Help Groups.

Chandran and Sreedaya (2016) looked at the scale of social capital formation in farm women groups in Kerala's Kollam district and discovered that the majority of farm women had a medium level of social capital formation (82%). Karavaloor panchayat had the highest level of social capital formation, with 71 per cent, followed by Pavithreshwaram, which had 68 per cent.

According to a study conducted by Agarwal (2018) in Kerala and Telengana, group farms perform significantly better than individual farms in terms of per hectare annual value of output as well as banana yields, but not paddy yields. In this study, group farms were found to have a 30 per cent higher annual output per gross cropped hectarethan individual farms. Farmers who have a larger gross cropped area and use more fertiliser, manure, pesticide, and labour per hectare have significantly higher yields. The use of labour and cropping patterns make a significant difference. The one per cent increase in labour time per hectare results in a 0.57 per cent increase in output. Those who grow paddy or bananas, either entirely or partially, outperform those who only grow tubers and vegetables or other mixed crops. This underlines the remarkable success of Kerala's group farms, particularly those in Thrissur(Agarwal,2018).

Mridula (2018) investigated SHGs in the Kerala districts of Thrissur, Ernakulam, and Alappuzha that were involved in rice, vegetable, and/or fruit cultivation. Approximately 71 per cent of SHGs had marginal holdings (less than 2.5 acres), 26 per cent had small holdings (2.5-5 acres), and three per cent of respondents had semi-medium holdings (5- 10 acre). SHGs engaged in rice and vegetable cultivation throughout 33 per cent of cases, vegetable and tuber cultivation in 46 per cent of cases, banana, vegetable and tuber cultivation in 13 per cent of cases, and banana and other plantains in the remaining cases.

The study undertaken by Jhansirani and Anjugam (2021) in Tamilnadu district showed that the total cost of cultivation involved in organic tomato farms was comparatively less (Rs. 36,000) than that of bitter gourd (Rs. 46,500). With respect to cost and returns, among the vegetables, the return structure of bitter gourd clearly revealed that the net return on organic farms was Rs 1,18,800 which was more remunerative for the farmers.

Khare and Parganiha (2021) conducted a study in Chattisgarh to identify the income generation of women self help groups members under state rura livelihood mission. It was found out that 36.67 per cent of the SHG members were indulged in production as their income generating activities. Arount 16.67 per cent of the SHG members had involved in vegetable production with an average income of 25.45 rupees per day.

The study of Bhat *et al.*, (2022) on livelihood improvement of rural growers through cut flower and bulb production in Kashmir valley showed that floriculture industry offers immense potential for economic activity, by providing income generating opportunities to a section of the rural population of the state, through the conservation and sustainable use of such important natural resources.

2.3. STUDIES ON IDENTIFICATION OF MARKETING CHANNELS AND PROCESSESS

Gadre *et al*., (2002) found four marketing channels for white onion in the Raigad area of Maharastra, which were,

A) Producer-Consumer

B) Channel 2: Manufacturer-Wholesaler-Consumer

C) Channel 3: Manufacturer-Retailer-Consumer

D) Channel 4: Producer- Wholesaler- Retailer- Consumer.

The producer's share of the consumer rupee was the highest (98.95%) in Channel 1 and the lowest (65.60%) in Channel 2. The producers' share of the consumer rupee differs between Channels 3 and 4, with 70.73 percent in Channel 3 and 68.60 per cent on Channel 4.

Chole *et al*. (2003) investigated the price spread in the marketing of brinjal in the state of Maharastra and found four marketing channels.

A) Producer-Retailer-Consumer (Channel 1)

B) Channel 2: Manufacturer-Wholesaler-Retailer-Consumer

C) Channel 3: Producer- Commission Agent- Wholesaler- Retailer-Consumer

D) Channel 4: Manufacturer-Retailer-Consumer

Channel 2 was the most significant channel in the selling of brinjal for the farmers in the research region since it marketed the majority of the output.

Balappa and Hugas (2003) examined the economics of onion production in Karnataka and discovered that the average marketing cost incurred by the producer-seller in onion in the overall study area accounted for Rs 56.72 per quintal, with the magnitude being higher in Gulbarga (Rs 68.76 per quintal), Belgaum (Rs 43.55 per quintal), and Dharwad (Rs 41.05 per qa) markets, mainly due to higher commison paid by them. In the whole research region, the commission fee (35.95%) accounted for the majority of the total marketing cost borne by the product-seller, followed by spending on transportation (32.04%) and cost of packaging (17.35%). Except for the Belgaum and Dharwad markets, where transportation costs were a considerable factor, a similar pattern was seen in other marketplaces. These three components alone accounted for approximately 85.34 percent of the farmers' overall making cost.

In Madhya Pradesh, three marketing routes for soyabean were discovered. Because of the lack of middlemen and the cheap marketing cost, Channel 2 had the best marketing efficiency. Soyabean marketing costs were found to be greatest in Channel 1 (Rs 202.52) and lowest in Channel 2. (Rs 160.40). The producer's share of the consumer price was nearly identical in channels 2 and 3. (Banafar *et al*.2003)

Birari et al. (2004) investigated the marketing of cole vegetables in Western Maharashtra and discovered that the marketing efficiency indices for cabbage and cauliflower were less than one hundred for all seasons. It revealed that these veggies were not effectively marketed during all seasons.

According to Khatkar et al. (2005), the producers' share of the consumer rupee in the selling of mushrooms in Haryana was 60 per cent. Wholesalers and retailers took the lion's share of three per cent and 31.67 per cent of consumer prices, respectively, without spending anything in the marketing process. The producer bears the whole cost of the marketing effort.

According to Kumar et al. (2005), the marketing of onions in Uttar Pradesh involves three major channels: (1) producer-consumer, (2) producer-hawker-shopkeeper-consumer, and (3) producer-wholesaler-retailer-consumer. Shepherds' indexes for Channel 1, 2, and 3 were 31.81, 15.87, and 1.90, respectively.

In a study conducted by Bhosale *et al* (2006) on the price spread in cucumber marketing in the Raigad district of Maharastra state, it was discovered that 68.16 Per cent of the total quantity of cucumber marketed was sold through village traders, 21.06 per cent was sold through retailers, and 10.78 per cent was sold directly toconsumers by the producers.

Patil *et al*. (2007) investigated the role of the Maharashtra Institute of Technology Transfer for Rural Areas (a non-profit development organization) in marketing the produce of Maharashtra's Bhil, Pawara, and Gavit tribal communities. MITTRA has formed many Self Help Groups for men and women in this area since 2003. Focus group sessions were used to raise awareness regarding custard apple marketing. According to the findings of the study, the organisations that maintained the grade and quality of their fruits had a decent return. Every group that had the opportunity to sell in this manner gained confidence in marketing.

Singh *et al*. (2010) identified four routes for mushroom commercialization in Haryana. The producers' share of the consumer rupee was lowest in channel 1 (62.62%) and highest in channel 4. (91.51 %). However, the growers obtained the greatest price on channel 4 (Rs 35 per kg) and the lowest price in channel 1. (Rs 32 per kg). The producer's marketing cost was observed to be highest in channel 2 (10.66%), followed by channel 1 (9.90%), channel 4 (8.49%), and channel 3 (6.56%), but in absolute terms, it was highest in channel 1 (Rs 4.37 per kg) followed by channel 2. (Rs 4.27 per kg).

Pramanik and Prakash (2010) evaluated the marketable surplus and marketing efficiency of vegetables in the Indore district, and it was discovered that the producers' share of the consumers' rupee was very low due to market intermediaries. This was also due to the perishable nature of vegetables, which resulted in forced sale.

The price spread of vegetables clearly shown that for the same item, the breakdown ofconsumer rupees and the consequent producer share varies substantially across different channels.

Sharma and Singh (2011) investigated the economics of post-harvest losses in vegetables in Uttakhand and discovered that post-harvest losses were highest in tomatoes (23.19%) and lowest in radishes (6.52%). Potato came in second with a loss of 16.88%, followed by brinjal (16.81%), chilly (16.75%), French bean (16.73%), pea (16.37%), okra (15.63%), onion (13.77%), cauliflower (13.43%), capsicum (10.43%), and cabbage (10.43%). (8.65 %). Across all levels, it was discovered that the losses were greatest at the grower level in all vegetables except capsicum.

In a case study of SHG farmer groups in Punjab, Kalra *et al*. (2013) discovered that the group has built links with other organisations such as the Punjab Agriculture University's Department of Agriculture, Horticulture, and Animal Husbandry and Farm Science Centres/Krishi Vigyan Kendras (KVKs) to market its products.

Kaur *et al*., (2017) investigated the role of SHGs in increasing farm income in Punjab and discovered that the economic benefits of joining the groups included receiving a higher price for their products rather than selling them individually (91%), understanding banking operations in order to obtain credit, and learning new skills (81.50 %). After joining the group, a large number of Punjabi women gained the confidence to think independently (99.50%), understand group activities (96%), and manage group activities (95.50%).

Franco *et al.,* (2018) evaluated the economic viability of self-help group production of selected vegetables in naturally ventilated polyhouses in Kerala's Palakkad district, using project evaluation methods such as Pay Back Period (PBP), Benefit Cost Ratio (BCR), and Net Present Value (NPV) for all vegetables. The study concludes that, under the current scheme of subsidy for the construction of poly houses, farmers' investments in poly houses are economically viable, as evidenced by the impressive NPV (131801), BC ratio (2.17), and IRR (37.51).

According to Sucharita and Bishnoi (2019), the majority of SHGs in Odissa market their products in local shops, with 80.50 percent doing so. The majority of respondents (89.80%) focused on maintaining product quality when it came to managing competition. When it came to product packaging, the majority of respondents (79.90%) used polythene bags (89.50%).

Kotey *et al*.,(2020) evaluated different marketing outlets associated with cowpea markets in Ghana and the result showed that production and marketing of cowpea is profitable with farmers who trade in wholesale markets recording the highest gross margin of US$227.76 and Return On Investment(ROI) of 63 per cent.

2.4. STUDIES ON RESOURCE USE EFFICIENCY IN CROP PRODUCTION

Suresh and Reddy (2006) conducted an economic analysis on resource use efficiency of paddy cultivation in peechi command area of Thrissur. The results showed that elasticity coeficients were 0.65, 0.55, 0.17 and 0.24 respectively for area under paddy cultivation, human labour, fertilizer and supplimentary irrigation provided. The average technical efficiency was found to be 66.18 per cent. An additional one rupee spent on fertilizer, plant protection chemical and human labour could increase the gross returns by Rs. 2.83, Rs. 1.57, Rs. 1.17 respectively. There was a positive and significant relation between education level of farmers and supplimentary irrigation provided, while the presence of water stress had a negative impact on the technical efficiency of farmers.

Landge *et al.* (2010) evaluated the resource utilisation efficiency and optimal resource use in banana production. A total of 48 drip-irrigated banana growers were chosen at random for the study. The data was fitted with a Cobb-Douglas production function. The regression coefficients for machine labour, irrigation, and banana area were 0.054, 0.203, and 0.213, respectively, which were positive and significant. With regard to area, bullock labour, and machine labour, marginal productivity was 51.29, 2.75, and 2.74 quintals, respectively.

Thakur (2016) investigated the usage of resources in banana farms in Padampur, Chitwan, Nepal. The findings revealed that the costs of suckers and labour were high, and that they were not being used to their full potential in banana production. He discovered that the FYM, irrigation, and pesticide costs were all positive but lower, indicating that they were overused and needed to be used more efficiently.

Kumar *et al.,* 2018 used the Cobb-Douglas production model to calculate the efficiency of resource utilisation in potato and tomato agriculture. The coefficient of multiple determinations (R^2) was 0.75 and 0.89, respectively, indicating that the independent variable in the model affected 75.0 and 89.0 percent of the potato and tomato yields. The only FYM resource had a large positive impact on potato yield, whereas irrigation had a considerable negative impact. This suggested that the use of

FYM was raised while the number of irrigations was reduced in order to boost potato output. Furthermore, the investigation revealed that water was used excessively in potato farming.

Dominic *et al*.,(2019) estimated resource use efficiency of rice farmers in the northern region of Ghana using marginal value product- marginal factor cost (MVP-MFC) approach. The results showed that apart from weedicide, factors such as farm size and fertilizer used have positive effects on output of rice. The factors such as weedicide, fertilizer and seed were overutilized in production.

The Cobb-Douglas production function was used by Dulal and Kattel (2020) to assess the impact of specified factors to banana production. Land preparation costs, suckers costs, labour costs, fertiliser costs, and the adoption of a banana insurance scheme were found to be the main factors that positively influenced banana income, while manure costs, irrigation costs, pesticide costs, and micronutrient costs had a negative impact on banana production. The farmer overspent on irrigation, fertiliser, pesticides, and micronutrients in order to cultivate bananas. There were no MVPs of inputs that were equal to one. Indicating that none of the farms sampled in the research region were efficient in their use of resources in banana farming.

In order to examine the resource use efficiency for rice production among salt water affected and unaffected farmers, Cobb- Douglas production function was fitted in the study by Raj (2020). The results showed that R^2 value for salt water unaffected and affected paddy cultivation was 0.90 and 0.89 respectively and it indicated good fit of both the regression models. Marginal productivity analysis for examining the allocative efficiency showed that, all the variables except manures and fertilizers were having suboptimal utilization of resources.

According to Sharma *et al*., 2021, the production function analysis found that suckers, fertilizers, labor, and fixed goods were important determinants of banana cultivation output. The return to scale (1.037) was discovered to be increasing significantly. Fixed variables, suckers, and labours were underutilised, whereas fertilizers, plant protection chemicals, and manures were overutilized, according to the resource use efficiency ratio. Spending more on fixed factors (rental costs and insurances), suckers, and labours would result in higher returns.

2.5.STUDIES ON CONSTRAINTS FACED BY THE SHGs/JLGs

Thaku *et al*. (1994) recognised the difficulties that farmers face while marketing their produce. They were

(1) unstructured marketing and low prices paid tofarmers,

(2) a lack of mechanical grading, packing, and suitable storage facilities,

(3) unethical practises, huge and unreasonable marketing margins and market costs, and

(4) lack of village roads and adequate and low-cost transportation facilities.

In the study on the marketing efficiency of the Anand vegetable market in Gujarat, Patel et al. (1997) reported that the major problems faced by cabbage and cauliflower growers were a lack of storage facilities, a delay in payment of sale proceeds, high cold storage charges, and a monopoly of a few middlemen.

Pests and diseases were the most common bittergourd production constraints, according to Jayapalan and Sushama (2001), followed by a labour shortage. Weather issues came in fourth place, followed by input shortages. Unpredictable productivity and a lack of knowledge about plant protection methods were also hindrances. The most significant economic constraint was the high cost of material inputs, followed by the high cost of labour. Producers of bitter gourds faced a third major major obstacle in the form of volatile output prices. Inadequate credit facilities came in fourth place, followed by excessive transportation costs.

According to Joshi *et al* (2006), who researched the effects of crop diversification on smallholders, current restrictions prevented smallholders from fully exploiting rising prospects in vegetable production. The lack of a reliable market and a well-developed seed market were major impediments in vegetable production. Because vegetables are perishable, a lack of an effective marketing system and enough infrastructure resulted in massive post-harvest losses. Furthermore, the lack of enhanced and high-quality seed diminishes profitability and increases production risk. Other key variables limiting vegetable area development include higher price and yield risks compared to cereals, as well as a limited marketable surplus, which raises transaction costs.

In Kerala's Palakkad and Thrissur districts, Subhadra *et al*. (2009) looked into the barriers to the production and commercialization of mixed farming. Farmers have identified 15 problems in crop production and milk production, of which four have been similar to both. Low productivity was a major issue, as was coming in second place in both categories. While land scarcity was the most pressing issue in agricultural production, the most pressing issue in milk production was feed costs. The low price of the product was the most important factor in both cases. There were also significant transportation issues (cost or distance) and a lack of marketing resources.

To identify the challenges faced by SHGs, Kalaiselvi and Muruganandam (2011) conducted an exploratory study in the Tamil Nadu districts of Erode, Namakkal, Tirupur, and Karur. A total of 400 people were surveyed using quota sampling. Low literacy, a lack of marketing awareness programmes, and poor financial management have all been identified as major challenges for SHGs.

Krishnan (2012) The most significant constraint faced by Kudumbashree farmers in that region was the discontinuity of land lease agreements. A major issue is a lack of competitive advantage in marketing. It was also revealed that the agencies procuring paddy from Kudumbashree farmers and independent farmers were the same.

Despite having a good product and a good team, the most important challenge for self-help groups is a lack of marketing support to ensure that they can make their product available in the market through efficient market linkages. This poses a significant challenge because most members lack the marketing expertise needed to negotiate with market channels and capitalise on these connections to expand their businesses (Singh, 2012).

In a study conducted in the Tamilnadu district of Coimbathur, Krishnaveni and Haridas (2014) found that the lack of machines and equipment to meet market capacity is the most significant problem faced by Self Help Group members, followed by a lack of knowledge in the marketing field. SHGs are always short on resources when it comes to marketing their products.

According to Kaur and Sachan (2016), the major challenges confronting members of self-help groups were a lack of facilities to facilitate transport of the final product to end consumers, a lack of adequate pricing for the products produced by them, and difficulty taking the product to market and ultimate consumers. Another factor impeding the growth of SHGs in Punjab was a lack of raw materials or funds, as well as the cost of raw materials (Devi et al, 2018).

Financial problems of SHG members, inefficient financial management, unawareness of schemes related to SHG activities, and unsightliness of SHG members in SHG activities were identified as the most common constraints faced by Subicsha Associated SHG Members in the Kozhikode district of Kerala, according to Abhinav *et al*., (2018).

The study conducted by Naik and Helen (2018) to identify the constraints faced by agripreneurs in Kerala's Central zone found that non-availability of input materials (61.66 %) and high labour costs (59.33 %) were the two most significant constraints, followed by non-availability of skilled workers (46.66 %)and high input cost of 39.66 per cent.

The study to find out marketing strategy of SHGs in the Ranapur Block of Odisha by Sucharita and Bishnoi (2019), shows some of the major issues faced by SHG members which included the lack of a separate market or shop for women's SHG products, a lack of information about markets, inability to withstand competition, lack of attractive packaging and necessary advertisement, customer perceptions of their products, and lower demand due to substitute products' availability.

Ragunathan *et al.,* (2019) studied the livelihood of SHGs across five states in India— Odisha, Madhya Pradesh, Jharkhand, Chhattisgarh, and West Bengal and identified income constraints, limited market access, social norms and traditions, and women’s domestic responsibilities impede the adoption of improved practices and more diverse cropping patterns.

Hansa and Bariya (2021) identified the constraints faced by the SHGs in Gir district of Gujrat and concluded that the major constraint of SHG women is related to marketing of their produce. Other constraints faced by the members were record maintenance, problems in taking group decision, internal loaning and loaning through bank.

The study undertaken by Meher *et al.*,*(*2021) in sonepur district showed that inadequate supply of farm publications in local language, lack of demonstration, lack of mass media, and lack of training facility were the major constraints perceived by the respondents.

The study of Gehlot (2022) in Udaiypur district depicts that women SHG members faced Obstacle in management of register due to illiteracy was in majority and ranked first overall with 79.17 mean percent score(MPS), where rishabhdev tehsil ranked it first with and kherwara tehsil ranked it second with 71.67 MPS. There were other obstacles faced by the women which were moderate they are: Lack of social support, lack of education, problem in return of loan, lack of financial support from family.

Materials and Methods

CHAPTER III
MATERIALS AND METHODS

The data, sampling technique used and the analytical tools employed in the present study are briefly described in this chapter and is divided into four parts.

3.1 Study area

3.2 Sampling and data collection

3.3 Variables and their measurement

3.4 Analytical framework

3.1 STUDY AREA

A study region's profile in terms of agro climatic conditions, topography, and other socioeconomic characteristics is important for understanding the problems of agricultural development in that region. This section provides basic information about the study area, such as location, climatic conditions, soil type, and cropping pattern.

The study was undertaken in Malappuram district of Kerala which has the maximum number of registered SHGs. It is also Kerala's most populous district, accounting for roughly 13 per cent of the state's total population and is Kerala's third-largest district in terms of land area bounded on the east by the Western Ghats and on the west by the Arabian Sea. After Ernakulam and Thiruvananthapuram, it is Kerala's third-largest contributor to the state's Gross State Domestic Product in 2019.

The district's eastern portion is hilly, while the western portion is coastal. The district includes seven sub districts (Taluks) viz., Eranad, Kondotty, Nilambur, Perinthalmanna, Ponnani, Tirur, and Tirurangadi.

The district is divided into three sections viz., highland (Malanadu), midland (Edanadu), and plain (valley).

3.1.1. Classification of area on the basis of land utilization in Malappuram district

Table 1. Land utilization pattern in Malappuram

Sl no.	Type of land	Area in sq.km
1.	Total geographical area	3,554.46
2.	Forest	1,034.17
3.	Land put to non agricultural use	444.39
4.	Barren and uncultivable land	12.40
5.	Permanent pastures and other grazing land	0.00
6.	Land under miscellaneous tree crops	3.84
7.	Cultivable waste	60.41
8.	Fallow other than current fallow	62.75
9.	Current fallow	89.82
10.	Marshy land	0.01
11.	Still water	60.82
12.	Water logged area	0.64
13.	Social forestry	1.80
14.	Net area sown	1,783.4
15.	Area sown more than once	681.59
16	Total cropped area	2,419.24

Source: Report on Agricultural Statistics, 2017-18, Directorate of Economics and Statistics, Kerala

3.1.2. Location of study

NILAMBUR BLOCK

The Nilambur block is found between 76^{o} 05' 34" and 76^{o} 33' 03" East longitude and 11^{o} 08' 21" and 11^{o} 31' 40" North latitude. Nilambur, within the Malappuram district's eastern block, may be a lovely place with a chic association of rivers, dense forest, and interesting wildlife.

Chaliyar is a hilltop town in Malappuram district, 27 kilometres from Nilambur. This blue mountain top is a significant tribal settlement area. The main attraction is a lovely perennial waterfall. The Chaliyar river flows through this hilltop's valley.

Vazhikkadavu is 20 kilometres north-east of Nilambur on the CNG (Calicut-Nilambur-Gudalur) road. The ghat road known as Nadukani Churam begins just after Vazhikkadavu town and leads through forests to Nadukani (20 km away) in the Nilgiris district.

3.1.3. Climate and soil

Normal rainfall of the district is 2,793.3 mm. April is the hottest month and rainfall is heavy particularly in the months of June and July. Climate is generally hot and humid. Temperature ranges between varies 20^{0} c and 39^{0} c. Maximum temperature ranges from 28.9^{0} c to 36^{0} c and minimum temperature ranges from 23^{0} c to 17^{0} c.

Malappuram district has laterite, alluvial and forest loam soils. These occur in Malappuram plains. The soils in the lowland are moderately well drained coastal alluvial soils with sand to loamy sandy texture. The midland soils include well drained laterite soils, shallow excessively drained laterite soils having petroferric contact and imperfectly drained colluvio-alluvial hydromorphic soils.

3.1.4. Demography

The district had a population of 44,94,998 people according to the 2018 Statistics Report. Malappuram is home to 12.98 percent of Kerala's total population. With a population density of 1,265 inhabitants per square kilometre (3,280/sq mi), it is the most populous district in Kerala and the 50th most populous of India's 640 districts.

3.1.5. Education

According to the 2019–20 school statistics, the district has the most schools in Kerala. In the district, there are 898 primary schools, 363 secondary schools, 355 high schools, 248 higher secondary schools, and 27 vocational higher secondary schools. There are also 120 CBSE schools and three ICSE schools. The literacy rate rate in Malappuram is 93.55 per cent.

3.1.6. Religion

Since the early medieval period, the areas that make up the Malappuram district have been multi-ethnic and multi-religious. Malappuram has a cosmopolitan population thanks to centuries of trade across the Arabian Sea. Islam, Hinduism, Christianity, and other minor religions are practised in the district. Malappuram is one of two districts in South India with a Muslim majority, the other being Lakshadweep. The majority of Christians in the district descended from Saint Thomas Christians who migrated to Malabar in the twentieth century from Northern Travancore.

3.1.7. Cropping pattern

In the agricultural sector, Malappuram district holds a unique position. The total cultivated area covers 2,30,288 ha out of a total geographical area of 3,55,446 ha.

The district's cropping pattern shows a significant reduction in the area under paddy cultivation over the years. Coconut, arecanut, rubber, cashew, pepper, betel vine, banana, tubers and other crops are also widely grown in the region.

The undulating plain is full of cashew, coconut, and tapioca. The Chaliyar river basin is home to important vegetation such as rubber, cashew, pepper, and coconut. The region is dominated by teak. Mango, jackfruit, banana, and other

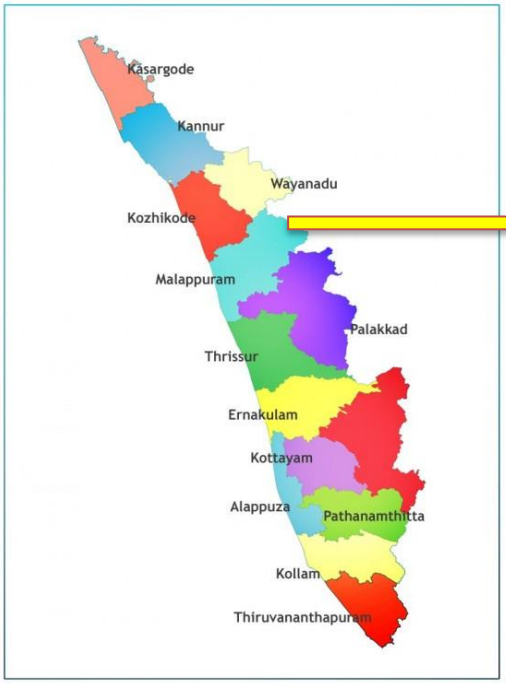
tropical fruits are grown in addition to common crops. Terrace farming is possible due to the district's hilly nature. A portion of the Thrissur-Ponnani Kole Wetlands is located in the district's Ponnani taluk, which is ideal for paddy cultivation

3.2. SAMPLING AND DATA COLLECTION

Malappuram district was purposively selected for the study because the district has maximum number of registered SHGs in Kerala. Nilambur block which has the maximum area under crop cultivation by the SHGs/JLGs was purposively selected. Two grama panchayats namely Chaliyar and Vazhikadavu with maximum area under crop cultivation by SHGs/JLGs were purposively selected from the block. About 10 SHGs/JLGs actively participating in crop cultivation were randomly selected from each of the selected panchayats comprising a total of 20 SHGs/JLGs. From each of the selected SHGs, 5 farmers were selected randomly and were interviewed. Thus, a total sample size of 100 farmers were selected. To collect information about marketing, 10 marketing intermediaries were also selected from each selected grama panchayats for study.

Data collection

Primary data on variables viz., socio-economic profile of participants, production and marketing constraints etc. were collected through personal interview. The survey was conducted during September month of 2021. All the primary data based on personal interviews and meetings with the respondents have been collected using a pre-tested schedule. The primary data pertained to the year 2020-21. The secondary data pertaining to the period from 2006-07 to 2021-22 were also collected from various sources such as NABARD, VFPCK, Kudumbashree publications, journals , official records of ministries concerned, relevant websites etc. Visits to the Kudumbashree State head quarters, District mission offices, Block panchayath offices, Kerala Agricultural University, Agricultural officers etc were conducted in order to get first hand experience on the working of the Kudumbashree mission.



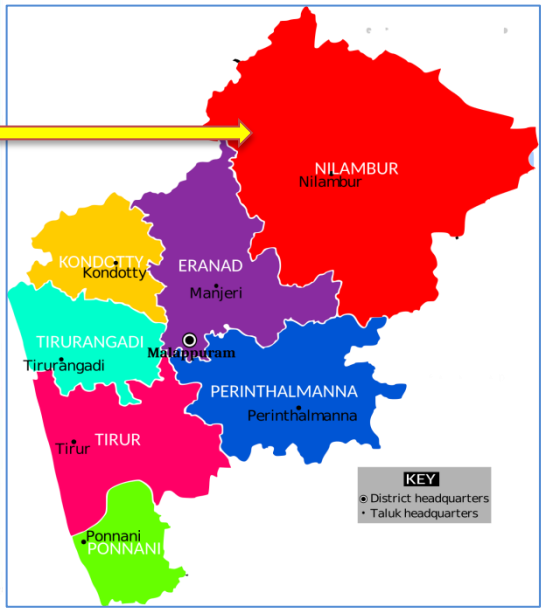
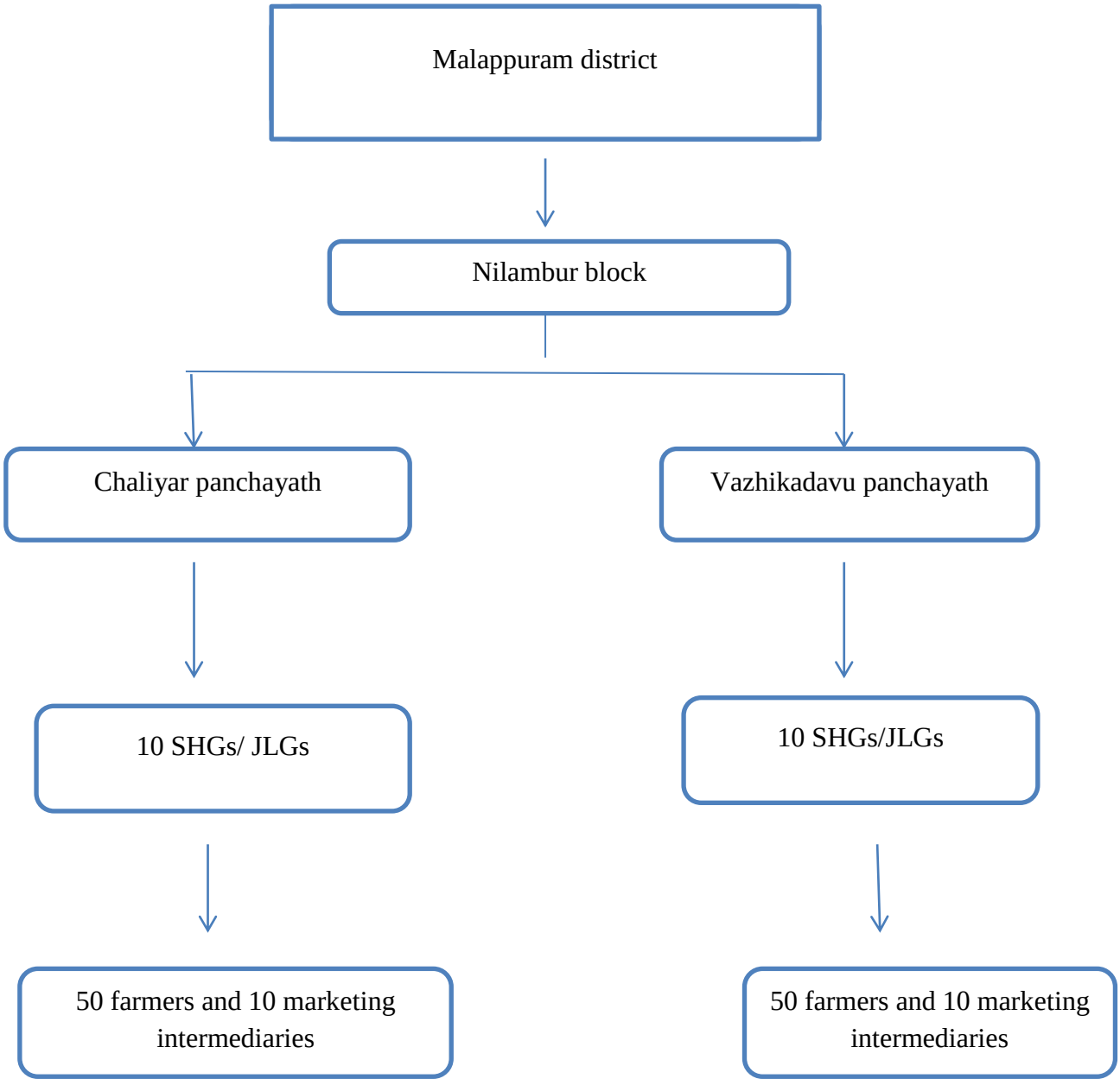


Fig1. Political map of Kerala

Fig2. Political map of Malappuram

Plate 1. Model plot of JLGs at Vazhikadavu panchayat, Malappuram district

Fig 3. Sampling framework of the study



3.3 VARIABLES AND THEIR MEASUREMENT

3.3.1 Socio-economic characteristics of the farmers

Socio-economic characteristics of the farmers such as gender, age, education, occupation, farming experience and annual income were collected and categorized into various groups.

3.3.2 Cost of seeds

The seed material used for the production may be the farm produced seed material or the purchased seed material. Incase of purchased seed material, market price was considered. Incase of farm produced seed material then it's value is imputed at market price.

3.3.3 Cost of manures and fertilizers

Farm produced manures were evaluated as per the prevailing market rate in the area. Fertilizers and non farm produced manures were evaluated at their purchase prices.

3.3.4 Cost of plant protection chemicals

The insecticides and fungicides were evaluated at their purchase prices.

3.3.5 Cost of labour

It mainly refers to the wages that are actually paid for the work rendered by the members in the SHG. The wage rate for men ranged from Rs. 700-800 and the wage rate for women ranged from Rs. 500-600 per day in the locality.

3.3.6 Land revenue

This is the actual rate that is paid by the farmers to the revenue department for the land they possess. The revenue paid by the farmers in the locality was Rs. 175 per acre per year.

3.3.7 Interest on working capital

Working capital refers to paid out cost. As the farmers go for year round cultivation they need more of working capital. The interest on working capital was worked at 12.5 per cent per annum.

3.3.8 Interest on fixed capital

Fixed capital refers to the value of the assets and equipment except land. The farmers borrow long term loan from the banking institution at the rate of 10 per cent per annum. So, the interest on fixed capital can be worked out at 10 per cent per annum.

3.3.9 Rental value of the leased in land

It is the rent paid by the farmers to the leased in land for cultivating crops for a year, so the rental value of the leased land was calculated as the rent paid per year.

3.3.10 Rental value of owned land

It was calculated by taking the rent of land that prevailed in the locality.

3.3.11 Depreciation

Depreciation means loss in the value of the asset over a period of time, due to wear and tear. Straight line method was used to calculate annual rate of depreciation of each of the machinery and implements, then the total depreciation allowance was calculated by aggregating.

Amount of depreciation = (Original cost of the asset - Junk value) /useful life of the asset

3.3.12. Miscellaneous expenses

These include costs such as the transportation of manures and fertilizers, rent of sprayer and purchase of small accessories like gunny bags, rope, baskets etc.

3.3.13. Quantity of output

Quantity of crops produced is given as kg.

3.3.14. Marketing cost

These include charges for weighing, loading and unloading, commission, rent etc, which were paid per kilogram by market functionaries.

3.3.15. Marketing margins

Marketing margins refer to the net shares to the different market intermediaries for a particular quantity of produce, after deducting marketing costs from gross margin at each stage of marketing.

3.4 ANALYTICAL FRAMEWORK

3.4.1. Tabular and percentage analysis

Tabular and percentage analysis were done in order to explain the various objectives like socio-economic profile of the participants, area of crops cultivated by the SHGs, marketing costs , margin and price spread through different marketing channels, cost of cultivation of crops etc.

3.4.2. Cost concepts

The total cost of cultivation was estimated by using ABC cost concepts. The profitability of crop enterprises can be estimated by finding the relationship between the cost incurred and the returns from the crop production. The various cost concepts studied are,

Cost A_1

It approximates the actual expenditure incurred in cash and kind and it includes the following items of costs,

1. Value of hired human labour (casual and permanent)
2. Value of machine labour (hired and owned)
3. Value of manures and fertilizers
4. Value of plant protection chemicals
5. Value of seeds
6. Depreciation of farm buildings and implements
7. Interest on working capital
8. Miscellaneous expenses

Cost A_2 = Cost A_1 + Rental value of leased in land

Cost B_1 = Cost A_1 + Interest on the value of owned fixed capital assets (excluding land)

Cost B_2= Cost B_1 + Rental value of owned land (less land revenue) and rent paid for leased in land

Cost C_1 = Cost B_1 + Imputed value of family labour

Cost C_2 (Cost of Cultivation) = Cost B_2 + Imputed value of family labour

Cost C_3 = Cost C_2 + 10 per cent of cost C_2 (to account for managerial input of the farmer)

3.4.3. Returns

3.4.3.1. Gross return

It can be worked out as the product of total quantity per year with the unit price.

The market price of banana, bittergourd and cowpea during the study period were Rs. 28, 27 and 38 per kg respectively.

$$Gross\ return = quantity\ of\ product * unit\ price$$

3.4.3.2 Net return

Net return was worked out by deducting the annual maintenance cost from the gross return.

$$Net\ return = Gross\ return - Cost\ of\ cultivation$$

3.4.4 Benefit- Cost ratio

It is the ratio between gross return and total annual expenses incurred

$$B - C\ ratio = \frac{Gross\ returns}{Cost\ of\ cultivation}$$

3.4.5 Income Measures

These are the returns over different cost cncepts. Different income measures are derived using cost concepts. These measures includes farm business income, family labour income, net income and farm investment income, etc.

- Farm business income = Gross income – cost A1/A2
- Family labour income = Gross income- cost B
- Net income = Gross income – cost C
- Farm investment income = Farm business income- imputed value of family labour

3.4.6.Resource use efficiency

Cobb -Douglas production function was used to analyse the resource use efficiency of the various factors used in the production process by the SHG/ JLG members. The resource use efficiency was analysed to know how the beneficiaries are allocating the resources that they possess and the allocation of resources by them so that we can say who is allocating the resource more efficiently. From the production function , elasticities of production were worked out for each input, which in turn have been used to calculate their marginal value products at their geometric means. Marginal productivity is the measure of the increase in total product, for the addition of one unit of a particular resource above its mean level while other resources are held constant at their respective mean levels. A significant difference between marginal value product and the market price of individual inputs would indicate whether farmers are using, on an average, the factors of production efficiently or inefficiently .

The Cobb-Douglas production function is given as

$Y=aX_1^{b1}X_2^{b2}X_3^{b3}X_4^{b4}X_5^{b5}X_6^{b6}X_7^{b7}X_8^{b8}e^u$

This is modified into a log linear model by application of logarithm.

$\ln Y=\ln a+b_1 \ln X_1+ b_2 \ln X_2+ b_3 \ln X_3+ b_4 \ln X_4+b_5 \ln X_5+ b_6 \ln X_6 + b_7 \ln X_7+ b_8 \ln X_8+ u$

where, Y= yield (kg)

X_1 = area under cultivation (ha)

X_2 = quantity of seeds (kg) or number of banana suckers

X_3 = quantity of fertilizers (kg)

X_4 = quantity of manures (kg)

X_5 = quantity of plant protection chemicals (kg)

X_6 = quantity of hired labour (No. of man days)

X_7 = quantity of family labour (No. of man days)

X_8 = quantity of soil ameliorant (kg)

a = intercept

$b_1,b_2,\ldots$= regression coefficients of explanatory variables

e^u= stochastic error term

The Cobb-Douglas production function was estimated by using OLS method assuming the error term (e) to be independently and normally distributed.

3.4.7 Marginal productivity analysis

In this study marginal product (MP) and marginal value product (MVP) were also calculated. MVP of each resource was compared with the marginal factor cost (MFC).

The marginal products were calculated at geometric mean levels of variables by using the following formula

$$\text{Marginal product of input (MPi)} = bi \times \frac{\bar{Y}}{\bar{Ki}}$$

Where

$\bar{Y}$=geometric mean of output

$\bar{X}i$= geometric mean of i^{th} independent variables

b_i =the regression coefficient of i^{th} independent variable

The formula used for MVP calculation was

Marginal value product of Xi = $bi \times \frac{\bar{F}}{Ki} \times Py$

P_y= price of crop grown by the respondents

The comparison of ratios (MVP/MFC=k) for judging the efficiencies are

k>1 indicating under use or suboptimal use of resources

k=1 optimum use of resources (allocative efficiency)

k<1 indicating excess use of resources

3.4.8. Marketing efficiency

3.4.8.1. Marketing channel

A marketing channel is a path through which the agricultural products move from the producer to the ultimate consumer through different intermediaries. the marketing costs and margins, price spread, farmer's share in consumer rupee and efficiency of the marketing channels were calculated.

3.4.8.2. Marketing cost

Marketing cost is the real expenses incurred for moving the products from the production centre to the consumption centre. The marketing cost includes all the costs of performing various marketing functions carried out by the farmer and market intermediaries at different stages of marketing.

$$MC = Cp + Cm1 + Cm2 + \ldots\ldots + Cmn$$

Where,

MC = Total marketing cost

Cp= Cost incurred by the producers from the time the produce leaves the farm till he sell it, and

Cmi = Cost incurred by the ith middleman in the process of buying and selling the product

3.4.8.3 Marketing Margins

The intermediaries earn some profit to remain in the trade after meeting the cost of different marketing functions. The marketing margin is the profit of the various market functionaries involved in moving the products from the initial stage of production to the end customer. The absolute value of marketing margin differs from channel to channel, market to market, and time to time.

Absolute margin of i^{th} middleman (Am_i)

$Ami = Pr_i-(Pp_i + Cm_i)$

Where,

Pr_i = Sale price of i^{th} middleman

Pp_i = Purchase price of i^{th} middleman

Cm_i = Cost incurred in marketing for i^{th} middleman

3.4.8.4 Farmer's share in consumer's rupee

The farmer's share in consumer's rupee is an indicator of the efficiency in marketing. It was estimated using the following formula.

$$FS = \frac{(RP-MC)}{RP} * 100$$ where;

FS = Farmer's share in consumer's price (Percentage)RP = Retail Price (Rupees/kg)
MC = Marketing Costs (Rupees/kg)

Or

$$FS = \frac{PF}{RP} * 100$$

PF = Price received by the farmer (Rupees/kg)

3.4.8.5 Price spread

It was calculated by taking difference between the price paid by the consumers and the price received by the producers for an equivalent quantity of farm produce. Price spread comprises marketing costs and marketing margins. In the current study price spread was computed using the concurrent margin method.

Price spread= consumer price-producer price.

3.4.8.6 Marketing efficiency

The movement of goods from producers to consumers at the lowest possible cost, consistent with the provision of the services desired by the consumer, may be termed as efficient marketing. The efficiency of selected markets was estimated using Shepherd's method.

Shepherd's Method

ME=V/I

Where,

ME= Marketing efficiency

V= Consumer's price

I= Total marketing cost

3.4.9 Garrett's ranking technique

Garret's ranking method was employed to rank the constraints faced by SHGs involved in collective farming.

Garrett's formula for converting ranks into per cent is given by;

Per cent position $= 100 \times \frac{R_{ij} - 0.5}{N_j}$

Where

R_{ij}=rank given for i^{th} factor by j^{th} individual

N_j =number of factors ranked by the j^{th} individual.

For each factor, the scores of individual respondents were added together and divided by the total number of the respondents for whom scores were added. These mean scores for all the factors were arranged in descending order, ranks were given and the most important factors were identified.

Results and Discussion

CHAPTER IV

RESULTS AND DISCUSSION

In the present chapter the data obtained from the survey was tabulated and analysed in order to draw meaningful conclusions. Major findings of the study are presented in this chapter under the following sub headings. The following sections in this chapter go through the results of the analysis based on the objectives in detail:

4.1. Identification of livelihood generation through agriculture among SHGs/ JLGs

4.2. Socio economic status of respondents

4.3. Economics of production

4.4. Resource use efficiency

4.5. Marginal productivity analysis

4.6. Marketing

4.7. Major constraints faced by SHG/JLG members

4.1. IDENTIFICATION OF LIVELIHOOD GENERATION THROUGH AGRICULTURE AMONG JLGS

Kerala's group farming project began in the 2000s, but it was meticulously built by senior officials from the State Planning Board, Kerala's Ministry of Rural Development, and the National Bank for Agriculture and Rural Development (NABARD). The SHG concept was modified to include village-level Neighbour-Hood Groups (NHGs) as savings-and-credit groups within a three-tiered multi-level governance framework. The Kerala Government's State Poverty Eradication Mission is the first pillar (the Kudumbashree Mission or K. Mission). The second pillar is the Kudumbashree community network (or K. Network), which consists of Community Development Societies (CDSs) at the panchayat (village council) level, Area

Development Societies (ADSs) at the ward level, and village-level neighbourhood groups. It was established as an autonomous registered body with elected office bearers. Women who have previously been members of pre-existing Neighbourhood groups (NHGs) or who are related to Neighbourhood group members form group farms, also known as Joint Liability Groups (JLGs).

In a 2015–16 sample survey of 350 NHGs in Kerala, 95 per cent of members had their own bank account, and 95 per cent came from households with extremely small landholdings (homestead or farmland) (Kannan and Raveendran, 2017). While not all NHG members participate in collective farming (thus some self-selection), there is little systematic difference between those who do and those who do not on critical variables such as primary schooling, general economic position, and access to credit.

Table 2. JLG and bank linkage details, 2015-16.

Sl No	Particulars	Item
1	No. of JLGs (No.)	54,167
2	No. of JLG members (No.)	2,65,273
3	Area under cultivation (ha.)	49,960
4	Bank linkage (No.)	27,381 linked with bank

Source: Kudumbashree, 2018

NABARD is providing a promotional incentive of Rs 2,000 per JLG to CDS at the start of the collective farming process. JLGs receive a four per cent interest subsidy for agricultural loans with a maximum interest rate of seven per cent under the interest subsidy scheme. Area incentives are given to JLGs based on their area of cultivation. After the crop harvest, the groups took advantage of production incentives.

Although NABARD pioneered the notion of a JLG to give institutional financing to small farmers, Kudumbashree adopted the name to refer to women's group farms when they registered with the CDS, and bank connectivity was only required in 2015 (Kudumbashree Mission, 2015). Table 2 shows the number of JLGs

linked with the banks and the area of cultivation by them in Kerala. Over 54000 JLGs were present in all 14 district of Kerala during 2015-16 and about 75,000 JLGs were cultivating an area of 33,310 ha in all 14 districts of Kerala in 2022 (Kudumbashree, 2022). Extension services, training in agricultural practices (preparing organic inputs, growing specialised fruits and vegetables, etc.) and the use of farm machinery, as well as crop specific area incentives (based on area under the specified crop) and production incentives, are all supposed to be provided by the K. Mission and CDS to JLGs (based on crop yields of JLGs relative to state averages).

The following table 3 and 4 show the progress in area cultivated by the JLGs in the state of Kerala overtime and the district wise area under cultivation by the groups respectively. The area cultivated by the JLGs increased nearly three times during 2017-18 as compared to that during 2006-07.

Table 3. Progress in area cultivated by JLGs in Kerala during 2006-07 to 2017-18

Year	No.of groups	Area cultivated (ha)
2006-07	26,499	17,370
2007-08	31,680	21,805
2010-11	39,734	19,850
2011-12	45,776	44,549
2014-15	61,836	38,706
2015-16	54,167	49,960
2017-18	65,601	51,113

Source: Kudumbashree various years.

If we examine the increase in number of women engaged in lease land farming over a decade, from 2006-07 to 2016-17, the numbers have risen from 2,34,812 women (engaged in 26,499 JLGs) in 2006-07 to 2, 88,005 women (engaged in 65,601 JLGs). Thus the number of women in the JLGs have increased by 22.70 per cent, while the farming groups or number of JLGs have risen by 147.60 per cent. This difference is attributed to one major change, the introduction of the ‘joint liability groups’. With the JLG concept, the initial farming groups that were larger (with about10 members on an average) shrunk to smaller sized groups, comprising of 4-12members.

Table 4 : District wise data on area and crops cultivated by JLGs in Kerala, 2017

Sl. No	Name of district	No. of JLG	Area under cultivation (ha)					Total area (ha)
			Paddy	Banana	Tuber	Vegetables	others	
1	Thiruvananthapuram	4,212	252	1,787	565	694	157	3,455
2	Kollam	3,455	178	353	783	244	164	1,722
3	Pathanamthitta	3,493	303	724	411	734	89	2,261
4	Alappuzha	5,206	923	264	402	561	246	2,396
5	Kottayam	1,924	379	508	345	193	61	1,486
6	Idukki	6,522	122	840	1,194	1,178	412	3,745
7	Ernakulam	4,173	2,801	1,604	1,198	1,833	410	7,847
8	Thrissur	4,366	1,473	1,163	457	762	71	3,927
9	Palakkad	2,832	2,343	1,325	615	560	35	4,877
10	Malappuram	3,146	1,742	1,089	611	793	190	4,425
11	Kozhikode	3,560	243	633	416	309	64	1,664
12	Wayanad	4,374	327	198	414	170	11	1,120
13	Kannur	4,014	1,524	844	742	854	289	4,253
14	Kasargod	2,890	390	275	210	385	70	1,330
Total Area		54,167 (No. of JLG)	13,300 (29.5)	11,707 (26)	8,364 (18.5)	9,268 (20.5)	2,469 (5.5)	45,108(100)

Source: Kudumbashree, 2017.

Note: figures in parentheses indicate per cent area with the specific crop grown out of total area cultivated by JLGs.

The maximum area under cultivation of various crops by the JLGs was in Ernakulam (7,847 ha) followed by Palakkad and Malappuram districts with 4,877 and 4,425 hectares respectively. Area under paddy was more in comparison to other crops, followed by banana and vegetables. This to a large extent was primarily due to type of land available on lease in the locality, interest of groups and terms of lease.

Table 5: Number of JLGs and area cultivated by JLGs in Malappuram district during 2019-2020

Sl. No.	Block	No. of JLGs	Area cultivated (ha)
1	Perumbadav	180	216.00
2	Ponnani	208	112.00
3	Kuttipuram	202	128.90
4	Thiroor	340	320.00
5	Thiroorangadi	230	268.40
6	Kondotty	223	281.50
7	Malappuram	157	106.00
8	Mangada	108	95.40
9	Kalikavu	203	152.80
10	Nilambur	384	327.50
11	Areekkod	352	140.00
12	Perinthalmanna	202	186.20
Total		2789	2,334.82

Source: Kudumbasree District Mission, 2021

It was clear from table 4 that, in the study area maximum area under cultivation by the group farmers is in the Nilambur block (327.5 ha). The number of JLG groups in Nilambur consisted of about 384 in number. The majority of women farmers were engaged in JLG farming because it was their primary source of income. In the Vazhikadavu and Chaliyar panchayaths the main crops grown were rice, banana, tubers (mainly

cassava) and vegetables grown include cowpea, amaranthus, bittergourd, snakegourd etc. even cabbage and cauliflower are grown on experimental basis. In the study area, nearly 1,561 women farmers work in these groups and the cultivated area ranges to about 2,000 acres. Cultivation was mainly done either in owned land or in leased in lands. Many groups which started cultivation to satisfy their own need have now started to grow on a large scale. Agricultural produce was even transported to neighbouring districts. The vegetables were mainly transported to Aloor vegetable market, Thrissur and Kenathuparamb vegetable market of Palakkad. The banana was often transported to Melmuri market of Palakkad district. The surplus produce was always being processed into different items (chips, dried cassava etc). These groups not only grow crops but they were also involved in allied activities like raising cows, goats, chickens, ducks etc., hence they practiced integrated farming. Manures (dung, vermi compost) required for the farming were got from the livestock. The farmers were mostly using organic fertilizers and pesticides for the production of crops and thereby fetches premium prices in the market.

4.1. SOCIO ECONOMIC CHARACTERISTICS OF THE SAMPLE RESPONDENTS

This section included a detailed description of the socioeconomic characteristics of the sample respondents, including their age, gender, educational status, family size, size of land holding, farming experience, caste, occupation and annual income.

4.2.1.Age

Based on the age details collected from the sample farmers, they were divided into four categories viz., 0-30 years (youth), 30-45 years (adulthood), 45-60 years (middle age), and more than 60 years (old age) in table 6.

The respondents' average age was 45.13 years. The average age of the Chaliyar and Vazhikkadavu panchayat respondents was 48.06 and 42.20 years respectively. Out of the 100 JLG respondents, 36 were between the age of 30-45 years

and 57 were between the age of 45 and 60 years, accounting for 36 and 57 per cent of the total respectively. People in their adulthood and middle age make up 93 per cent of the total respondents. This demonstrates the adulthood age group's interest in group farming activities. Only three members, or three percentages of the total respondents, were over the age of 60. There were only four people in the under 30 years age group, accounting for four per cent of all respondents. It was found that 45-60 age group members were more in total sample. This was due to the reason that women in the early 30's age group were pre occupied with child care and other household chores, leaving little time for their groups.

Table 6. Age wise classification of the sample farmers

Sl. No.	Name of panchayath	Age profile (years)				Total	Average
		<30	30-45	45-60	>60		
1.	Chaliyar	0 (0)	11 (22)	36 (72)	3 (6)	50 (100)	48.06
2.	Vazhikad	4 (8)	25 (50)	21 (42)	0 (0)	50 (100)	42.20
	Total	4 (4)	36 (36)	57 (57)	3 (3)	100 (100)	45.13

Note: Figures in parentheses indicates percentage to total

The study conducted by Aji and Abraham (2021) also showed that, the majority of the participants (58%) in the self help groups belonged to the age group of 30 to 45 years. The findings of the study were contradictory to the study of Pal (2015) in Katwa block of Burdwan district which showed that 59 per cent of the women respondents belonged to young age (20-35 yrs) were engaged in various agricultural activities.similar results were obtained from the study of Meher et al.,(2021) which showed that majority of the respondents belonged to 30 to 50 years.

4.2.2 Education

All those surveyed in the study area were literate. Of the total respondents in the Chaliyar panchayath, 56 per cent have completed high school education, 22 per cent have completed upper primary, 16 per cent have completed higher secondary, four per cent have completed primary schooling, and remaining two per cent have completed the graduation. Similarly in Vazhikkadavu panchayath, 52 per cent have completed high school, 24 per cent have completed higher secondary school, 16 per cent have completed upper primary school and remaining eight per cent respondents were completed primary level (table 7).

Table 7. Distribution of respondents based on educational status

Sl. No.	Name of panchayath	Educational status					Total
		Primary	Upper primary	High school	Higher secondary	Graduation	
1.	Chaliyar	2 (4)	11 (22)	28 (56)	8 (16)	1 (2)	50 (100)
2.	Vazhikadavu	4 (8)	8 (16)	26 (52)	12 (24)	0 (0)	50 (100)
	Total	6 (6)	19 (19)	54 (54)	20 (20)	1 (1)	100 (100)

Note: Figures in parentheses denote percent to row total

The observations were in line with the results of study conducted by Tejaswini and Panigrahi (2021) on the socio economic profile of SHG members of Andra Pradesh, in which 55.8 per cent and 28.33 per cent respondents received high school and primary education, respectively. The data revealed that the majority of the respondents were literate and possess high school education and engaged in farm work.

4.2.3.Family size

The distribution of the farmers based on size of the family was presented in table 8. Out of the total respondents, 30 per cent farmers belonged to joint family, which consists of 5-8 members. 70 per cent of the respondents, on the other hand, had a nuclear family of less than or equal to four members. The average family size of the respondents was around four. There were 36 per cent and 24 per cent of respondents with joint families in Chaliyar and Vazhikkadavu panchayaths, respectively. The majority of the respondents (70%) were members of nuclear families.

Table 8. Distribution of respondents based on family size.

Sl. No.	Name of panchayath	≤4 members	5-8 members	Total	Average size of the family
1.	Chaliyar	32 (64)	18 (36)	50 (100)	4.26
2.	Vazhikadavu	38 (76)	12 (24)	50 (100)	4.10
	Total	70 (70)	30 (30)	100 (100)	4.18

Note: Figures in parentheses denote percentage to row total

The findings were similar to the study on women empowerment through self help groups by Sandhu (2015), in which he concluded that majority (60 %) of women belonged to nuclear families. Similar results were obtained in the study of Bhardwaj and Gebrehiwot (2012) where nuclear families appeared in largest proportion. Thus, majority of the respondents have nuclear family size in the study area reflect a modern way of living style due to inability to maintain large families with meagre income may not be sufficient to fulfil needs and joint families are only an added burden for the SHG members.

4.2.4.Gender

It was observed that all the respondents were female. Although NABARD pioneered the notion of a JLG to give institutional financing to small farmers,

Kudumbashree adopted the name to refer to women's group farms when they registered with the CDS, and bank connectivity was only required in 2015. (K. Mission, 2015).

4.2.5.Caste

Table 9 shows the distribution of respondents based on caste. From the table it was clear that among the total respondents, majority of the members (57%) belonged to OBC category followed by general category (35 %), SC (5 %) and ST (3 %). In Chaliyar panchayath, 52 per cent of the members were belonged to OBC and 38 per cent were belonged to general category. The SC and ST category constitutes 6 per cent and 4 per cent respectively. Similarly in the Vazhikkadavu panchayath 62 per cent of members belonged to OBC and 32 per cent belonged to the general category.

Table 9. Distribution of respondents based on caste

Sl. No.	Name of panchayath	SC	ST	OBC	GEN	Total
1.	Chaliyar	3 (6)	2 (4)	26 (52)	19 (38)	50 (100)
2.	Vazhikadavu	2 (4)	1 (2)	31 (62)	16 (32)	50 (100)
	Total	5 (5)	3 (3)	57 (57)	35 (35)	100

Note: Figures in parentheses indicates percentage to row total

The study of Suresh and Praveen (2015) on the performance of kudumbashree neighbourhood groups in three districts viz, Kozhikode, Thiruvananthapuram and Malappuram of Kerala also found out similar conclusion that among all these districts of Kerala, the participation of OBCs in the JLG groups was highest in the Malappuram district.

4.2.6.Farming experience

Table 10 shows the distribution of respondents based on their farming experience. The respondents were divided into three groups based on their farming experience viz., less than or equal to 10 years, 11 to 20 years, and more than 20 years.

Table 10. Classification of respondents based on farming experience

Sl. No.	Name of panchayath	Experience in farming (years)			Total	Average
		≤10	11-20	>20		
1.	Chaliyar	12 (24)	30 (60)	8 (16)	50 (100)	14.94
2.	Vazhikadavu	22 (44)	19 (38)	9 (18)	50 (100)	12.06
	Total	34 (34)	49 (49)	17 (17)	100 (100)	13.5

Note: Figures in parentheses denote percentage to row total

The majority of the respondents (49%) had an experience of 11-20 years. 34 per cent of the respondents had an experience of less than 10 years. In Chaliyar panchayath, 24 percent of farmers had less than ten years of experience, whereas in Vazhikkadavu panchayath, 44 per cent had less than ten years of experience. Farmers in the Chaliyar panchayath had higher average years of experience (14.96) than farmers in the Vazhikkadavu panchayath (12.06).

4.2.7.Occupation

Based on the information gathered from the sample farmers, the occupational status was divided into two categories viz., agriculture as the primary occupation and agriculture as a secondary component of the occupation, as shown in table 11. Three major constrains that prevent the disadvantaged poor people from improving their lives are lack of access to formal financial services, absence of self-employment opportunities and lack of skills (Hossain, 2012). The Government of India realized that if different employment opportunities can be created, along with sufficient training and refreshers for capacity development, the poor could be linked to the

mainstream economy which would ultimately bring them out of poverty (Saranya, 2015).

Table 11. Classification of farmers based on occupational status

Sl. No.	Name of panchayath	Agriculture as main	Agriculture as subsidiary	Total
1.	Chaliyar	46 (92)	4 (8)	50 (100)
2.	Vazhikadavu	45 (90)	5 (10)	50 (100)
	Total	91 (91)	9 (9)	100 (100)

Note: Figures in parentheses denote percentage to row total

The occupation-wise classification reveals that the JLG members are engaged in agricultural farming for their livelihood. Agriculture was the primary occupation of the vast majority of farmers (91 %). Farmers who did agriculture as a secondary source of income made up about 9 per cent of the total Agriculture was chosen as the primary occupation by a higher percentage of sample farmers in the Chaliyar panchayath (92%) as well as in the Vazhikkadavu panchayath (90%).

Similar pattern was observed in the study conducted by Tejaswini *et al.*,(2021) on the socio economic profile of the SHG members that the majority of the respondents (71%) were having agriculture+dairy as their family occupation followed by Agriculture+labour (16%), Agriculture+business (11 %), and Agriculture+service (2%). From this result, it is concluded that the main occupation of people was in the agriculture sector and very few were in the service sector.

The study of More and Kharge (2021) was also in line with the present study which indicated that the respondents were participated more in agricultural activities rather than allied activities with an average overall Mean Percent Score (MPS) of 46.27.

4.2.8.Annual income

Respondents were divided into three categories based on their annual income viz., under Rs. 50,000, 50,000 - 1,00,000 and more than 100,000. Table 12 shows the grouping of farmers based on their annual income.

Table 12. Classification of the sample respondents according to average annual income

Sl. No.	Name of panchayath	Annual income (Rs)			Total	Average
		≤50,000	50,000-1,00,000	>1,00,000		
1.	Chaliyar	30 (60)	12 (24)	8 (16)	50 (100)	62,550.80
2.	Vazhikadavu	28 (56)	13 (26)	9 (18)	50 (100)	63,260
	Total	58 (58)	25 (25)	17 (17)	100 (100)	62,905.40

Note: Figures in parentheses denote percentage to row total

The average annual income of the respondents was Rs. 62,905.40. Around17 per cent of all respondents earned more than Rs. 1,00,000 per year and 25 per cent earned income in the range of 50,000 to 1,00,000. Farmers in the Chaliyar panchayath had an average annual income of Rs. 62,550.80 and in the Vazhikkadavu panchayath the average annual income is Rs. 63,260. Majority of the respondents (58 %) have annual income of less than 50,000 per year.

The study on socio economic profile of SHG members in Odisha carried out by Singh *et al*.,(2021) were also showed similar results that majority of the respondents (79%) had annual income less than Rs. 50,000(Rs.20.001-40,000).

4.2.9. Tenancy status and average size of land holdings

Table 13 shows the details of the sample respondents' ownership of land holdings. Respondents were divided into three groups based on their land ownership viz., those cultivating on their own land alone, those cultivating on leased in land alone, and those cultivating on both lands. The majority of the farmers in the sample (95 %) were cultivating on leased land followed by cultivating in both leased and owned land (5 %). In both the panchayaths, there were no sample farmers cultivating on owned land alone. The average size of leased in land in Chaliyar and Vazhikadavu panchayaths were 4.6 and 5.4 acres respectively.

Table 13. Details on the ownership of holdings of the sample farmers

Sl. No.	Name of Panchayath	Cultivation in leased land (acres)		Cultivation in owned and leased land		Total
		Number	Average size	Number	Average size	
1.	Chaliyar	47 (94)	4.6	3 (6)	5.46	50 (100)
2.	Vazhikkadavu	48 (96)	5.4	2 (4)	5.5	50 (100)
	Total	95 (95)	5.0	5 (5)	5.48	100 (100)

Note: Figures in parentheses denote percentage to row total

Table 14. Average size of land holding

Particulars	Total (acres)
Owned land	1.11 (0.44)
Leased land	6.03 (2.41)
Average size of holding	7.14 (2.85)

Note: Figures in parentheses denote area in hectares

Land owned by a person is an important economic parameter to assess the economic standing of the individual in the rural society. JLG farmers, who worked in groups of four to ten, shared 2.4 hectares of rented land. The respondents had 0.44 hectares of owned land. The land holdings were on average 2.85 hectares in size (Table 14). Singh (2006) in his study also revealed that most of the members (70.83%) had small size of land holding (less than 3 acres).

Land holding possessed by the women SHG members was measured by Meher *et al.*,(2021) in Odisha was also in line with the present study which revealed that majority of the respondents were having land upto one hectares (50.80%).

4.3.Economics of production

The major crops cultivated in the study area were banana, bittergourd, and cowpea, and the costs of cultivating each of these crops were calculated and discussed separately using the ABC cost concepts, namely cost A_1, cost A_2, cost B_1, cost B_2, cost C_1, cost C_2, and cost C_3. *Nendran* for banana and *preethi* for bittergourd were the most popular varieties among farmers. JLGs primarily use *local* varieties of cowpea.

4.3.1.Cost of cultivation of banana

The average annual cost of banana (Nendran) cultivation per hectare was estimated and the detailed cost of cultivation of banana was shown in table 15.

The total cost of cultivation for the JLG farmers at cost C_3 was Rs. 5,04,643 per hectare. Cost A_2 constituted Rs. 4,43,260 per hectare, to which cost incurred for manures and fertilizers had the highest contribution (46.46%). Since banana takes 10 months to yield, quantity of manures and fertilizers applied were also more. The manures used by the farmers were farm yard manure, neem cake and compost. The fertilizers used in the study area were urea and rajphose and muriate of potash. The rental value on leased in land (24.58%) and cost of suckers (8.35%) occupied second and third positions respectively. Majority of the farmers in the study area cultivated in leased-in land due to which land rent was apparently more and stood at Rs.1.08 lakh per hectare. The total cost of cultivation at cost C_2 was Rs. 4,58,766.39 per hectare. Many farmers have worked in the fields with their own farm implements. Plant protection chemical costs accounted for three per cent of cost A_2. The cost of hired labour, value of soil ameliorants, land revenue, depreciation, and interest on working capital made up 14 per cent of cost A_2, with the rest falling under miscellaneous costs (1%).

Table 15. Cost of cultivation of banana

Sl. No.	Item	Cost (Rs/ha)	Percentage to cost A_2
1	Cost of sucker	36,962.96	8.35
2	Cost of hired labour	2,498.316	0.56
3	Cost of manures and fertilizers	2,05,931.45	46.46
4	Cost of plant protection chemicals	13,232.99	2.98
5	Value of soil ameliorants	25,622.89	5.78
6	Land revenue	453.58	0.10
7	Depreciation	903.33	0.20
8	Interest on working capital	28,480.92	6.42
9	Miscellaneous expenses	5,841.75	1.32
	Cost A_1	3,34,472.32	75.46
10	Rent of leased in land	1,08,787.88	24.58
	Cost A_2	4,43,260.20	100
11	Interest on owned fixed capital excluding land	1,174.58	-
	Cost B_1	3,35,646.87	-
12	Rental value of own land		-
	Cost B_2	4,44,434.75	-
13	Imputed value of family labour	14,331.65	-
	Cost C_1	3,36,821.48	-
	Cost C_2	4,58,766.39	-
	Cost C_3	5,04,643.03	-

Fig 3. Cost A_2 components (%) of banana cultivation

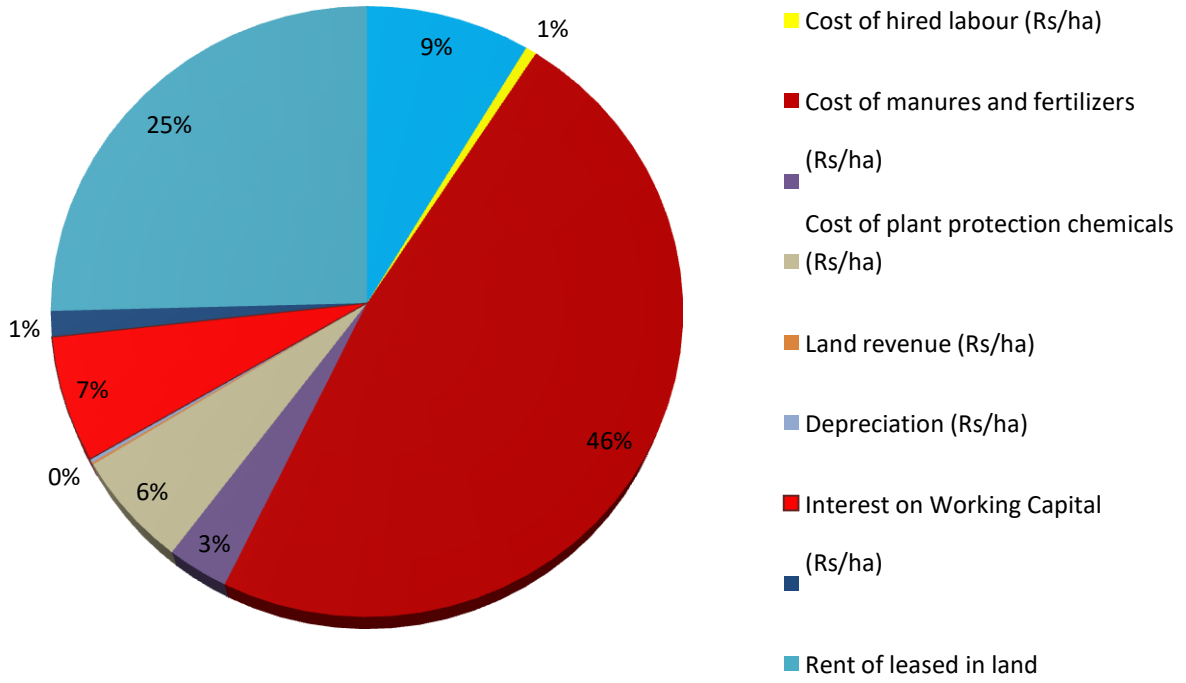


Plate 2. Banana field of JLG farmers at Vazhikkadavu panchayath

Figure 3 shows a diagrammatic representation of the components of cost A_2 of banana cultivation. Cultivation on leased in lands was prominent in the study region, which increased demand for leased in lands. Based on the crops cultivated, the lease value of land is different in different locations. The reason for high rental value of land was that, high gross value of output of banana crop. Since, the value of banana production was high side; estimated rental value also turns out to be very high.

Similar results were obtained from the study on economic analysis of banana by Rathod and Gawali (2021) which concluded that, the major items of input for banana cultivation were human labour, seedlings, fertilizers and irrigation etc. and had been observed that, the expenditure onfertilizers were more among the groups (22.9%).

4.3.2.Cost of cultivation of bittergourd

The average annual cost of cultivation of bittergourd in the study area is shown in Table 16. For the JLG farmers, the total cost of cultivation at cost C_2 was Rs. 1,64,060.84 per hectare. Cost A_1 was Rs. 1,11,041.09 per hectare. The cost A_2 wasRs. 1,38,329.83 per hectare with the cost of manures and fertilisers accounting for nearly 29 per cent of cost A_2 (Rs 3,37,22.25). It was found that the miscellaneous expenses including trailing accounts highest percentage of Cost A_2 (31 %). As the group farmers uses family labour, the hired labour cost accounted only three per cent of cost A_2 which is nearly Rs. 3,345.07 per hectare. The cost of seeds, cost of plant protection chemicals, cost of soil ameliorants, land revenue, depreciation, and interest on working capital made up nine percent of cost A_2. Figure 4 shows a diagrammatic representation of the components of cost A_2 for farmers. The rent on leased land varies from Rs. 10,000 to Rs. 15,000 per acre per year. The costs B_1 and B_2, were Rs. 1,13,550.25 and Rs. 1,40,838.98 respectively. The cost C_1 was estimated to be Rs. 1,64,060.84.

Table 16. Cost of cultivation of bittergourd

Sl. No.	Item	Cost (Rs/ha)	Percentage to cost A2
1	Cost of seed	3,630.28	2.62
2	Cost of hired labour	3,345.07	2.42
3	Cost of manures and fertilizers	33,722.25	24.37
4	Cost of plant protection chemicals	953.87	0.70
5	Value of soil ameliorants	4,410.21	3.20
6	Land revenue	434.12	0.33
7	Depreciation	1,400.38	1.01
8	Interest on Working Capital	4,606.17	3.33
9	Miscellaneous expenses	35,316.90	30.53
	Cost A_1	1,11,041.09	80.27
10	Rent of leased in land	27,288.73	19.73
	Cost A_2	1,38,329.83	100
11	Interest on owned fixed capital excluding land	2,509.15	-
	Cost B_1	1,13,550.25	-
12	Rental value of own land		-
	Cost B_2	1,40,838.98	-
13	Imputed value of family labour	23,221.83	-
	Cost C_1	1,36,772.08	-
	Cost C_2	1,64,060.84	-
	Cost C_3	1,80,466.90	-

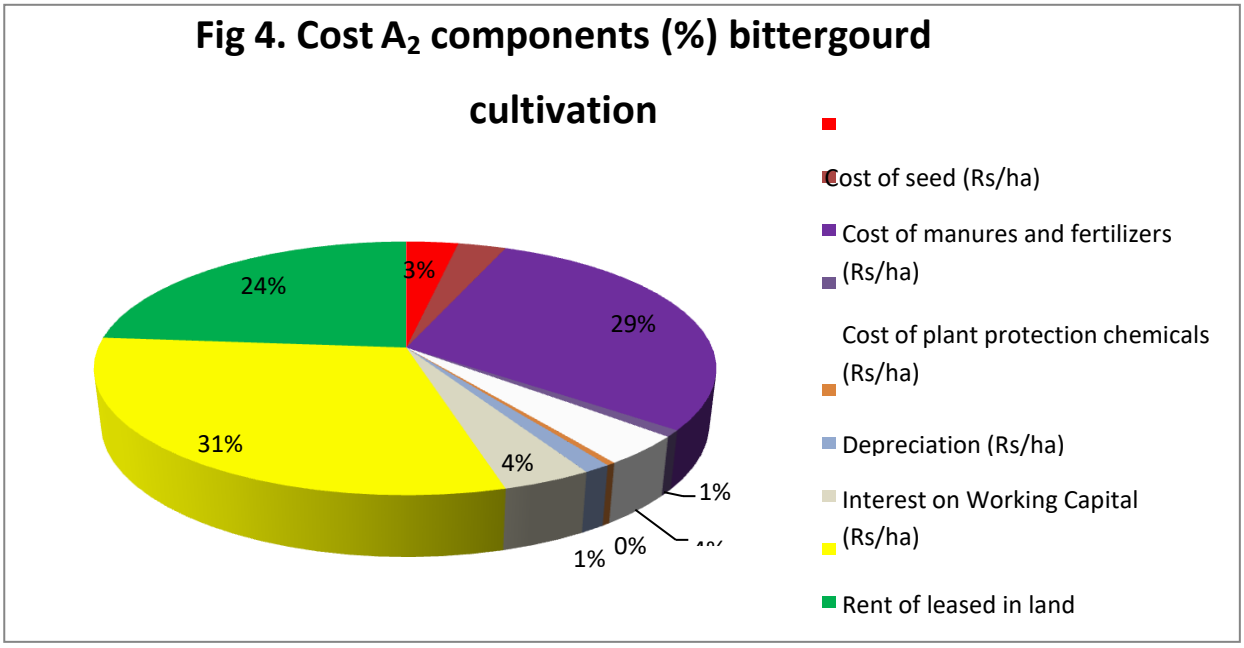


Fig 4. Cost A2 components (%) bittergourd cultivation
3%
29%
24%
31%
4%
1%
1%
0%
Cost of seed (Rs/ha)
Cost of manures and fertilizers (Rs/ha)
Cost of plant protection chemicals (Rs/ha)
Depreciation (Rs/ha)
Interest on Working Capital (Rs/ha)
Rent of leased in land

Plate 3a. Construction of pandals for trailing bittergourd

Plate 3b. model plot for bittergourd by the JLG at Chaliyar panchayath

4.3.3.Cost of cultivation of cowpea

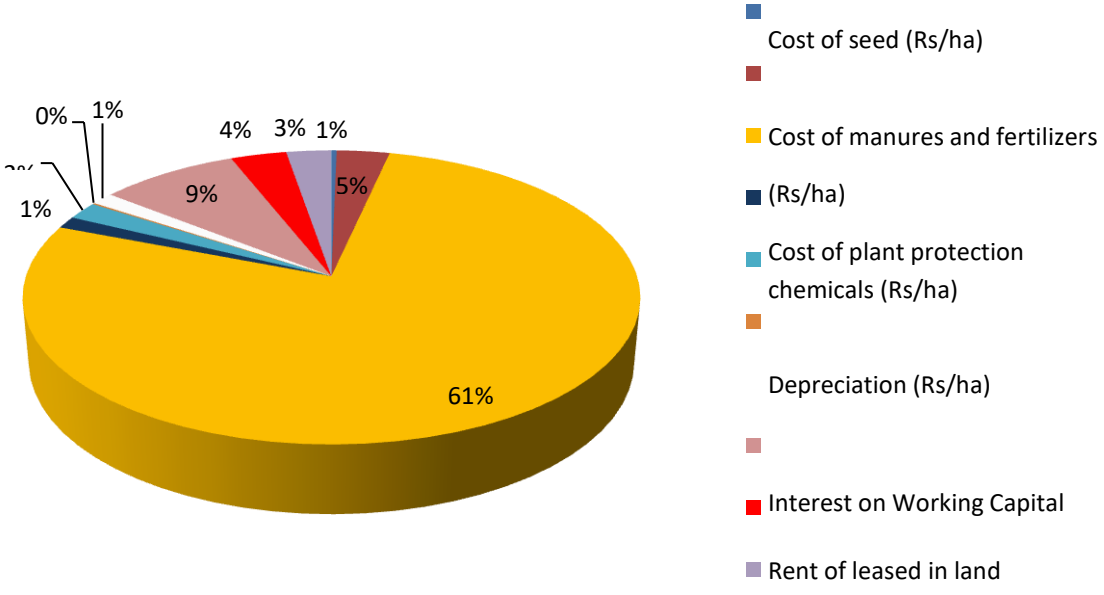
The average annual cost of cultivation of cowpea is shown in Table 17. For the JLG farmers, the total cost of cultivation at cost C_2 came to Rs.4,33,198.93 per hectare. Cost A_1 was Rs. 3,48,477.78 . The cost of manures and fertilizers accounting for nearly 61 per cent of cost A_2 (Rs. 2,16,225.29). The cost of seeds, hired labour, plant protection chemicals, cost of soil ameliorents, land revenue, depreciaton and interest on working capital together constituted about 13 per cent of total cost A_2. The rent on leased land vary between Rs. 10,000 to Rs. 15,000 per acre per year for the vegetable crops in the study area. The cost A_2 was found to be Rs. 3,56,050.53. The costs B_1 and B_2, were Rs. 3,54,008.82 and Rs. 3,61,581.57 respectively. The computed cost C_1 was Rs. 4,25,626.18.

Figure 5 showed a diagrammatic representation of the components of cost A_2 for farmers in cowpea cultivation. From the figure it was clear that major portion of costA_2 was constituted by the cost of manures and fertilizers (61%).

Table 17**.** Cost of cultivation of cowpea

Sl. No.	Item	Cost (Rs/ha)	Percentage to cost A_2
1	Cost of seed	903.49	0.25
2	Cost of hired labour	8,887.00	2.50
3	Cost of manures and fertilizers	2,16,225.29	60.73
4	Cost of plant protection chemicals	3,679.68	1.03
5	Cost of soil ameliorants	5,433.50	1.53
6	Land revenue	441.51	0.12
7	Depreciation	3,770.00	1.06
8	Interest on Working Capital	23,395.29	6.57
9	Miscellaneous expenses	9,420.46	2.64
	Cost A_1	3,48,477.78	97.87
10	Rent of leased in land	7,572.74	2.13
	Cost A_2	3,56,050.53	100
11	Interest on owned fixed capital excluding land	5,531.03	-
	Cost B_1	3,54,008.82	-
12	Rental value of own land		-
	Cost B_2	3,61,581.57	-
13	Imputed value of family labour	71,617.36	-
	Cost C_1	4,25,626.18	-
	Cost C_2	4,33,198.93	-
	Cost C_3	4,76,518.82	-

Fig 5. Cost A2 components (%) of cowpea cultivation



4.3.4.Cost of production

The average cost of production per kilogram of each of the crops were given in Table 18. The average cost of production at cost C_2 for banana, bittergourd and cowpea were Rs. 26.44, Rs. 28.04 and Rs. 33.26 per kilograms respectively. The cost of production incurred for cowpea was highest among the crops selected for study.

Table 18. Cost of production of major crops grown (₹ /kg)

Sl. no.	Particulars	Banana	Bittergourd	Cowpea
1	Cost A_1	18.57	15.59	24.34
2	Cost A_2	24.61	19.43	24.87
3	Cost B_1	18.64	15.95	24.73
4	Cost B_2	24.68	19.78	25.26
5	Cost C_1	18.70	19.21	29.73
6	Cost C_2	26.44	28.04	33.26
7	Cost C_3	29.02	31.07	36.76

From the analysis, it was found that the cost of production of cowpea was slightly higher when compared to that of other crops cultivated. The cost of ferlizers and manures and imputed value of family labour were also higher for cowpea caused the cost of production to be higher.

The results were in line with the study of Priscilla and Singh (2015) which reported that the cost of cultivation and cost of production was found to be highest in the case of peas. The cost incurred on human labour was found to be the major component in the cultivation of all the vegetables suggesting that vegetables are labour intensive crops.

4.3.5.Returns

The net returns obtained by the JLG farmers from banana and vegetable production was worked out to evaluate the profit from crop cultivation and are presented in table 19. The average price obtained for banana, bittergourd and cowpea were Rs. 27.05, Rs. 27.15 and Rs. 38.20 per kg respectively. The gross and net returns obtained from these crops were worked out at various costs. Average yield obtained for banana, bittergourd and cowpea were about 18,000, 7,120 and 14,313 kg/ha respectively. The gross returns was highest in cowpea followed by bittergourd and banana. Kaur et al. (2017) revealed in her study on comparative analysis on returns from the group farmers showed that pea yielded maximum returns when compared to cauliflower and wheat.

The net returns at cost A_2 for banana, bittergourd and cowpea were found to be Rs. 41,446.88, Rs. 52,233.55 and Rs. 1,94,676.9 respectively. The net returns at cost C_2 were found to be Rs. 25,940.65, Rs. 26,505.56 and Rs. 1,17,528.5 for banana, bittergourd and cowpea respectively. The premium price fetched in the market led to higher net returns for the crops cultivated in the study area.

Table 19. Yield and Returns from the crops cultivated

Sl. No	Particulars	Banana	Bittergourd	Cowpea
1	Yield (kg/ha)	18,006.73	7,119.71	14,313.77
2	Price(₹/kg)	27.05	27.15	38.20
3	Gross returns (₹/ha)	48,4707.07	1,90,563.38	5,50,727.45
4	Net returns at cost A_1(₹/ha)	1,50,234.75	79,522.28	2,02,249.7
5	Net returns at cost A_2(₹/ha)	41,446.88	52,233.55	1,94,676.9
6	Net returns at cost B_1(₹/ha)	1,49,060.20	77,013.13	1,96,718.6
7	Net returns at cost B_2(₹/ha)	40,272.30	49,724.39	1,89,145.9
8	Net returns at cost C_1(₹/ha)	1,47,885.58	53,791.3	1,25,101.3
9	Net returns at cost C_2(₹/ha)	25,940.65	26,505.56	1,17,528.5

4.3.6.INCOME MEASURES

The income measures in relation to various cost concepts were worked out to find out the efficiency in crop cultivation and are given in table 20. The profitability of the crop can be judged from the income measures. The farm business income which is the profit at cost A_2 for banana, bittergourd and cowpea were Rs. 1,50,234.75, Rs.1,79,522.29 and Rs. 2,02,249.67 respectively. The net income is high for cowpea (Rs.1,17,528.5) which shows more profitability followed by bittergourd and banana.

Table20: Income measures in relation to different cost concepts for different crops in study area

Sl. No.	Particulars	Banana	Bittergourd	Cowpea
1.	Gross income(GI) or Gross returns(GR) (Rs.)	4,84,707.07	1,90,563.38	5,50,727.45
2.	Farm business income(GI – Cost A1) (Rs.)	1,50,234.75	1,79,522.29	2,02,249.669
3.	Family labour income (GI – Cost B) (Rs.)	40,272.32	49,724.40	1,89,145.979
4.	Net income (Profit) (GI – Cost C) (Rs.)	25,940.68	26,505.56	1,17,528.5
5.	Farm investment income (GI – Imputed value of family labour) (Rs.)	4,81,257.07	1,67,341.55	4,79,110.089

4.3.7 Benefit Cost Ratio

Benefit cost ratio indicates value of output per rupee of input cost. The ratio would indicate whether the costs incurred compensate with the returns obtained. Benefit-cost ratio of all the crops cultivated by the JLG farmers are given in table 21.

Table 21. Benefit cost ratio of crops cultivated at various costs

Sl. No	Cost	Banana	Bittergourd	Cowpea
1	Cost A_1	1.43	1.72	1.56
2	Cost A_2	1.11	1.38	1.52
3	Cost B_1	1.42	1.67	1.51
4	Cost B_2	1.10	1.36	1.48
5	Cost C_1	1.41	1.37	1.21
6	Cost C_2	1.05	1.14	1.19
7	Cost C_3	0.95	1.04	1.08

The benefit cost ratio at cost C_2 were found to be the highest for cowpea (1.19) followed by bittergourd (1.14) and banana (1.05). These can be due to the higher returns or high value of the product from cowpea. The BC ratio of all crops were found to be more than one. Hence, it was clear that all the crops were profitable as the average output input ratios are greater than unity.

4.4.Resource Use Efficiency

In the present study the resource use efficiency of banana, bittergourd and cowpea cultivation were examined by fitting Cobb- Douglas production function. It helps to define a relationship between physical inputs and physical output of a farm (Dhondyal, 1997). Physical quantities of the dependent and independent variables were used for regression analysis (ordinary least square method) and the parameters corresponding to respective production function for all the three crops were estimated and were used for generating conclusions.

4.4.1.Resource use efficiency of banana cultivation

The results of resource use efficiency in banana cultivation were tabulated and presented in table 22.

Estimated form of the production function obtained for banana from the analysis is given below:

$Y= 6.53+ 0.63 \ln X_1+ 0.18 \ln X_2 +0.05 \ln X_3 + 0.17 \ln X_4 - 0.02 \ln X_5 + 0.004 \ln X_6 - 0.41 \ln X_7 +0.13 \ln X_8+ u$

Where,

Y= yield of banana

X_1= Area

X_2= No. of suckers

X_3= quantity of fertilizers,

X_4= quantity of manures

X_5= quantity of plant protection chemicals

X_6= quantity of hired labour

X_7= quantity of family labour

X_8= quantity of soil ameliorants

u = random error

Table 22 . Estimated production function of banana cultivation by the JLG farmers

Sl. No.	Particulars	Banana		
		Coefficient	Standard error	P value
1.	Intercept	6.53	2.27	0.015
2.	Area	0.63*	0.33	0.08
3.	No. of of suckers	0.18**	0.36	0.02
4.	Quantity of fertilizers	0.05	0.005	0.38
5.	Quantity of manures	0.17*	0.08	0.07
6.	Quantity of plant protection chemicals	-0.02*	0.01	0.09
7.	Quantity of hired labour	0.004	0.012	0.70
8.	Quantity of family labour	-0.41**	0.19	0.04
9.	Quantity of soil ameliorant	0.13	0.07	0.11
	R^2	0.98		
	Adjusted R^2	0.97		
	Calculated F	108.90		
	∑bi	0.75		
	No. of Observations	20		

*Significant at 10 % level ** Significant at 5 per cent level

Note: Coefficientswere obtained with log values

The adjusted R^2 value for the fitted production function was 0.98, which means that 98 per cent of the variation in yield of banana was explained by all the independent variables included in the production function. The variables such as area and quantity of manures were foundto be positively significant and quantity of plant protection chemical is found to be negatively significant at 10 per cent level of significance. The quantity of seeds and quantity of family labour were found to be significant at five per cent level of which the later is negatively significant. The ∑bi values indicates the returns to scale of production function. The ∑bi value of banana cultivation was 0.75, which means decreasing returns to scale. ie, a simultaneous one per cent increase in all the independent variables will increase the yield by 0.75 per cent(less than proportionate change in the inputs). Thus the results of production function analysis depicted that the farmer can increase their yield by either increasing the use of manures , area undercultivation or by using suckers.

Choudhari et al.,(2020) also observed in their study on resource use efficiency and constraints in banana cultivation in Uttar Pradesh that among various independent factors affecting yield, seed, manures and fertilizes were found statistically significant for the farmers.

In another attempt by Sharma et al., (2021) to study the resource use efficiency in banana, it was found that suckers, fertilizers and labor were important determinants of banana cultivation output. The return to scale (1.037) was discovered to be increasing significantly.

4.4.2.Resource Use Efficiency of Vegetables (bittergourd and cowpea) cultivation

The resource use efficiency for bittergourd and cowpea is presented below in table 23.

Estimated production function obtained for bittergourd is:

$Y= 10.60+ 1.20 \ln X_1- 0.005 \ln X_2 -0.01 \ln X_3 - 0.24 \ln X_4 +0.08 \ln X_5 + 0.003 \ln X_6 - 0.006 \ln X_7 +0.16 \ln X_8+u$

Where,

Y= yield of bittergourd

X_1= Area

X_2= quantity of seeds

X_3= quantity of fertilizers

X_4= quantity of manures

X_5= quantity of plant protection chemicals

X_6= quantity of hired labour

X_7= quantity of family labour

X_8= quantity of soil ameliorants

u = random error

Estimated production function obtained for cowpea is:

$Y= 4.75 +0.34 \ln X_1+0.25 \ln X_2 -0.24 \ln X_3 +0.38 \ln X_4 +0.31\ln X_5 -0.01 \ln X_6 +0.28 \ln X_7 +0.01 \ln X_8+u$

Where,

Y= yield of cowpea

X_1= Area

X_2= quantity of seeds

X_3= quantity of fertilizers

X_4= quantity of manures

X_5= quantity of plant protection chemicals

X_6= quantity of hired labour

X_7= quantity of family labour

X_8= quantity of soil ameliorants

u = random error

Table 23 . Estimated production function of bittergourd and cowpea production by the JLG farmers

Sl. No.	Particulars	Bittergourd			Cowpea		
		Coefficient	Standard error	P value	Coefficient	Standard error	P value
1.	Intercept	10.60	1.50	2.19E-05	4.75	1.45	0.007
2.	Area	1.20***	0.25	0.0005	0.34	0.36	0.36
3.	Quantity of seeds	-0.005	0.09	0.95	0.25	0.35	0.49
4.	Quantity of fertilizers	-0.01	0.04	0.82	-0.24	0.24	0.35
5.	Quantity of manures	-0.24**	0.24	0.035	0.38***	0.09	0.001
6.	Quantity of plant protection chemicals	0.08	0.08	0.38	0.31*	0.16	0.08
7.	Quantity of hired labour	0.003	0.004	0.44	-0.01	0.014	0.31
8.	Quantity of family labour	0.006	0.33	0.98	0.28**	0.29	0.035
9.	Quantity of soil ameleorent	0.16**	0.06	0.02	0.01	0.012	0.41
	R2	0.97			0.95		
	Adjusted R2	0.95			0.92		
	Calculated F	49.11			32.98		
	∑bi	1.20			1.32		
	No. of Observations	20			20		

*Significant at 10 % level ** Significant at 5 per cent level, *** significant at 1% level

Note: Coefficients were obtained with the log values

The adjusted R^2 was found to be 0.97 for bittergourd cultivation and 0.95 for cowpea cultivation , which means that 97 per cent and 95 per cent of the variation in yield for the crops respectively were explained by their independent variables in the production function. The variables such as area and value of soil ameliorent were found to be positively significant for bittergourd and the quantity of manures were found to be negatively significant for bittergourd. The quantity of manures, plant protection chemical and quantity of family labour were found to be positively significant for cowpea cultivation. The ∑bi value indicates the returns to scale of production function. The ∑bi value for bittergourd and cowpea were 1.20 and 1.32 respectively, which means increasing returns to scale. *ie.*, is a simultaneous increase in all the independent variables will increase the yield by 1.20 percent for bittergourd and 1.32 per cent for cowpea respectively.

Similar results were obtained from the study of Kaur et al. (2017) in which they analyzed the resource use efficiency of pea and was found that area, family labour and plant protection chemicals were significant in the case of pea cultivation.

Rajput et al. (2017) analyzed the resource use efficiency of bitter gourd under contract vis-à-vis non-contract farming in the Jaipur district of Rajasthan in which human labour and manures were found to be significantly influencing gross returns of farms and as of present study he also showed that manures had negative influence on the output.

4.5.Marginal productivity analysis

Marginal productivity is the measure of increase in total product, for the addition of one unit of a particular resource above its mean level while other resources are held constant at their respective mean level. Marginal value product is the marginal physical product represented in its value terms. The resource use efficiency has been judged on the basis of criterion that each factor of production is paid according to its marginal productivity.

A significant difference between marginal value product and market price of individual input indicate whether the farmers are using on an average, their factors of production efficiently or inefficiently (Thakur *et al*, 1990).In the present study, all inputs in physical terms except land were changed into their respective marginal values. Marginal value products of all inputs were worked out at their geometric mean levels. For efficient and optimum use of one input in the existing production function, marginal value product to factor prices ratio (MVP/MFC) should be equal to one. Any values deviating from unity would indicates whether the resources are efficiently utilized or not (Soman, 2012). If it is more than one, that particular resource is underutilized and there is scope for increasing the use of that input till it reaches one. If the value is less than one, it means that particular resource is over utilized.

The results for marginal productivity analysis for banana, bittergourd and cowpea cultivation by the JLG farmers presented in table 24, table 25 and table 26 respectively. It could be observed from the table 24 that for banana, the MVP/MFC ratios for inputs such as seed, fertilizers, hired labour and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of manures, plant protection chemicals and family labour were less than unity indicating the overutilization of the resource. This is in agreement with the results obtained by Sharma et al., (2021) in his study on resource use efficiency in banana in Nepal.

Table 24. Marginal productivity analysis in banana cultivation

Sl No	Particulars	Geometric mean	MVP	MFC	k=MVP/MFC	Inference
1	Yield	22,557.59	-	-	-	
2	Quantity of seed	2,744.19	40.82	16.86	2.42	Under utilized
3	Quantity of fertilizers	133.23	222.25	18.91	11.75	Under utilized
4	Quantity of manures	25,273.46	4.17	8.53	0.48	Over utilized
5	Quantity of plant protection chemical	96.40	-118.31	57.33	-2.06	Over utilized
6	Quantity of hired labour	0.64	4,670.14	41.68	112.03	Under utilized
7	Quantity of family labour	30.81	-8,115.84	34.42	-235.79	Over utilized
8	Quantity of soil ameliorant	2,521.98	31.76	12.45	2.55	Under utilized

Table 25. Marginal productivity analysis in Bittergourd cultivation

Sl No	Particulars	Geometric mean	MVP	MFC	k=MVP/MFC	Inference
1	Yield	4625.99	-	-	-	
2	Quantity of seed	1.54	-409.88	1,338.96	-0.30	Over utilized
3	Quantity of fertilizers	1711.08	-0.80	2.57	-0.31	Over utilized
4	Quantity of manures	1660.46	-18.02	9.98	-1.80	Over utilized
5	Quantity of plant protection chemical	0.82	12,018.61	719.07	16.71	Under utilized
6	Quantity of hired labour	0.72	649.66	778.68	0.83	Over utilized
7	Quantity of family labour	26.73	32.44	614.06	0.05	Over utilized
8	Quantity of soil ameliorent	211.85	97.15	12.40	7.83	Under utilized

It could be observed from the table 25 that for bittergourd, the MVP/MFC ratios for inputs such as plant protection chemical and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of all other inputs were less than unity indicating the overutilization of the resource.

It could be observed from the table 26 that, for cowpea, the MVP/MFC ratios for inputs such as seed, manures, plant protection chemicals, family labour and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of fertilizers and hired labour were less than unity indicating the overutilization of the resource.

Table 26. Marginal productivity analysis in cowpea cultivation

Sl No	Particulars	Geometric mean	MVP	MFC	k=MVP/MFC	Inference
1	Yield	2215.43	-	-	-	
2	Quantity of seed	6.71	3,180.56	21.111	150.66	Under utilized
3	Quantity of fertilizers	7.91	-2,546.61	36.62	-69.54	Over utilized
4	Quantity of manures	1181.40	27.10	24.34	1.11	Under utilized
5	Quantity of plant protection chemical	0.43	59,349.45	890.8	66.63	Under utilized
6	Quantity of hired labour	0.095	-13,427	814.44	-16.48	Over utilized
7	Quantity of family labour	20.36	1,181.25	660.74	1.78	Under utilized
8	Quantity of soil ameliorent	5.98	151.48	12.5	12.12	Under utilized

4.6.MARKETING

Agricultural marketing can be defined as comprising of all activities involved in the supply of farm inputs to the farmers and movement of agricultural products from farms to consumers. The marketing channel denotes the path taken by a product from its point of production to the end consumer. Agricultural commodities, in general, move through a network of marketing channels. The major marketing channels, through which banana and vegetables produced in JLG collective farming move, were identified.

In the study area, three marketing channels were identified for banana and two were identified for cowpea and bittergourd. They were,

Marketing channels for banana;

Channel I: Producer → consumer

Channel II: Producer → wholesaler → retailer → consumer

Channel III: Producer → wholesaler → processer → retailer → consumer

Marketing channels for cowpea and bittergourd;

Channel I : Producer → consumer

Channel II : Producer → wholesaler → retailer → consumer

4.6.1.Price spread under different marketing channels

Market functionaries or institutions move the commodities from the producers to consumers. Every function or service involves cost. The intermediaries or middlemen make some profit to remain in the trade after meeting the cost of the function performed. In the marketing of agricultural commodities, the difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of farm produce is often known as a farm-retail spread or price spread. Sometimes, this is termed as gross marketing margin. To determine the marketing margins, the concept of concurrent margin was used in the present study in which the prices prevailing at the successive stages are compared. The marketing margin of the various functionaries was worked out by deducting the costs incurred by them from the total price received by the particular intermediary. The tables below shows the price spread identified for different marketing channels in the study area.

Table 27. Price spread identified in channel 1 (Rs per kilogram)

Particulars	Banana	Per cent	Cowpea	Per cent	Bittergourd	Per cent
Marketing cost incurred by JLG	2	6.66	1.5	3.75	1.5	5
Commission paid by the farmer	0.00	0.00	0.00	0.00	0.00	0.00
Net Price received by the farmer	28	93.33	38.5	96.25	28.5	95.00
Price paid by the consumer	30	100	40	100	30	100
Price spread	2		1.5		1.5	

In channel I, marketing cost was the only expense incurred by the farmers who themselves sold off their produce at local markets or to their neighbors. The marketing cost was Rs.2 per kilogram for bananas and Rs. 1.5 per kilogram for both cowpea and bittergourd (Table 27). The net prices received by farmers were Rs. 28, 38.50 and 28.50 per kilogram for banana, cowpea and bittergourd respectively. The price spread was found to be Rs. 1.5 each for both bittergourd and cowpea and Rs.2 per kilogram for banana.

The JLG farmers mainly used Channel II in the absence of fairs of Kudumbasree. In Channel II, the producers received a net price of Rs. 26.83, Rs. 37.67 and Rs. 26.50 per kilogram respectively for banana, cowpea and bittergourd which were nearly 61 per cent, 64 per cent and 68 per cent of what consumer's purchase price. (table 28). It was found that majority (80.5%) of the respondents were marketing their product in local shops rather than selling directly to the consumer. (Sucharita and Bishnoi (2019).

Similar results were obtained from the study of Kotey *et al*.,(2020) who evaluated different marketing outlets associated with cowpea markets in Ghana and the result showed that production and marketing of cowpea is profitable with farmers who trade in wholesale markets recording the highest gross margin of US$227.76 and Return On Investment (ROI) of 63 percent.

Table 28. Price spread identified in Channel II

Sl no	Particulars	Banana	Cowpea	Bittergourd
1	**Producer**			
	Producers sale price(Rs/kg)	26.83	37.67	26.50
	Marketing cost (Rs/kg)	0.00	0.25	0.75
	Net price received (Rs/kg)	26.83	37.42	25.75
2	**Wholesaler**			
	Purchase price (Rs/kg)	26.83	37.67	26.50
	Marketing cost(Rs/kg)	1.93	1.83	1.63
	Marketing margin(Rs/kg)	2.14	3.5	2.5
	Price received by the wholesaler(Rs/kg)	30.90	43.00	31.25
3	**Retailer**			
	Purchase price (Rs/kg)	30.90	43.00	31.25
	Marketing cost(Rs/kg)	6.86	5.67	1.75
	Marketing margin (Rs/kg)	6.36	9.67	5.63
	Price received by the retailer(Rs/kg)	44.12	58.34	38.63
4	**Consumer**			
	Purchase price(Rs/kg)	44.12	58.34	38.63
5	Total cost(Rs/kg)	8.79	7.75	4.13
6	Total margin(Rs/kg)	8.5	13.17	8.13
7	Price spread (Rs/kg)	17.29	20.67	12.26
8	Producers share on consumer rupee (%)	60.81	64.58	68.49

The total margin of intermediaries was Rs. 8.5 for banana, Rs.13.17 for cowpea and Rs. 8.13 for bittergourd. The price spread was found to be Rs. 17.29, Rs. 20.67 and Rs.12.26 for banana, cowpea and bittergourd respectively (Table 28).

Table 29 shows the price spread in channel III for banana. Banana moves from producers to different marketing intermediaries until it reaches the consumer. The table revealed that, in channel III the net price received by the farmer is Rs. 24.20 per kilogram of banana which was only 42.6 per cent of what the consumer pays. The total margin of the intermediaries was Rs. 16.9 per kilogram. The price spread estimated was Rs. 32.5 per kilogram for banana in channel 3, which was almost 16 times as that in channel 1.

The study of Kumar and Tegar (2021) on the production and marketing aspect of banana also showed that the net price received by the producer is less and price spread were more in in channel 3 when compared to channel1 and channel 2.

Table 29. price spread identified in channel III (only for banana)

Sl no	Particulars	Banana
1	**Producer**	
	Producers sale price(Rs/kg)	24.20
	Marketing cost (Rs/kg)	0.00
	Net price received (Rs/kg)	24.20
2	**Wholesaler**	
	Purchase price (Rs/kg)	24.20
	Marketing cost(Rs/kg)	2.20
	Marketing margin(Rs/kg)	2.10
	Price received by the wholesaler(Rs/kg)	28.60
3	**Processor**	
	Purchase price (Rs/kg)	28.60
	Marketing cost(Rs/kg)	2.80
	Marketing margin(Rs/kg)	3.40
	Price received by the processor(Rs/kg)	34.80
4	**Retailer**	
	Purchase price (Rs/kg)	34.80
	Marketing cost(Rs/kg)	10.60
	Marketing margin(Rs/kg)	11.40
	Price received by the retailer (Rs/kg)	56.80
5	**Consumer**	
	Purchase price(Rs/kg)	56.80
6	Total cost(Rs/kg)	15.6
7	Total margin(Rs/kg)	16.9
8	Pricespread (Rs/kg)	32.5
9	Producers share on consumer rupee (%)	42.60

4.6.2.Producer’s share in consumer’s rupee in identified marketing channels

It was observed that majority of the JLG farmers directly sell their produce to consumer through kudumbasree fairs (80%). If no fairs were conducted most of them go for the second channel for marketing their produce (70%). It was also identified from all the three channels that the producer was getting higher share of consumer rupee in channel I than that of channel II and III (Table 30). Price spread was also lower when the farmer sell directly to the consumer.

Pramanik and Prakash (2010) evaluated the marketable surplus and marketing efficiency of vegetables in the Indore district, and it was also reported that the producers' share of the consumers' rupee was very low (61%) due to market intermediaries in the channels.

Table 30. Producer’s share in consumer’s rupee in identified marketing channels

Sl.no	Marketing channel	No. of JLGs	Producer’s share in consumer’s rupee (%)		
			Banana	Cowpea	Bitter gourd
1	Producer → Consumer	16(80)	93.33	96.25	95.00
2	Producer → wholesaler → retailer → consumer	14(70)	60.81	64.58	68.49
3	Producer → wholesaler → processor → retailer → consumer	6(30)	42.60	-	-

4.6.3.Marketing efficiency

Marketing efficiency is defined in several ways. Shepherd suggested that ratio of total value of goods marketed to the marketing cost may be used as a measure of efficiency. The marketing efficiency for all the three channels were estimated for the three crops using Shepherd's formula and furnished in table31.

Table 31. Marketing efficiency of crops

Marketing channel	Banana			Cowpea			Bittergourd		
	Value of good sold (Rs/kg)	Total marketing cost (Rs/kg)	Marketing efficiency(%)	Value of good sold (Rs/kg)	Total marketing cost (Rs/kg)	Marketing efficiency(%)	Value of good sold (Rs/kg)	Total marketing cost (Rs/kg)	Marketing efficiency(%)
Channel I	30	2	1500	40	1.5	2666.66	30	1.5	2000
Channel II	44.12	8.79	401.93	58.34	7.50	677.86	33.13	4.13	802.18
Channel III	56.80	15.60	364.10	-	-	-	-	-	-

From table 31, it was clear that, marketing efficiency was the highest for channel I for all the three crops since it was a direct channel. The second most efficient channel was channel II with a shephered's index values of 401.93, 677.86 and 802.18 for banana, cowpea and bitter gourd respectively.

Similar results were obtained from the study of Dukpa and Ezung (2020) on analysis of vegetable marketing efficiency in Nagaland which found that among the three marketing channels, the most efficient channel was found to be channel 1, where there is direct marketing between the producer and the consumer.

Kumar and Tegar (2021) in their study on economic analysis of banana is also in line with the present study in which three marketing channels were observed for banana and the marketing efficiency ratio was 34.46 in first channel, 4.62 in second channels and 2.35 in third channels which shows channel-I was more efficient followed by channel-II and channel-III.

Plate 4. Nattuchantha at Chaliyar Panchayath

4.7.Major Constraints faced by JLG members

The group farmers in Nilambur block were facing numerous challenges. Producers in the Chaliyar and Vazhikkadavu panchayaths were surveyed in order to gather data. To continue improving the farmers' productivity, income, and thus livelihood, a detailed assessment and interpretation of the constraints was required. During the pilot study the constraints faced by the farmers were enlisted. These constraints were ranked by the farmers during the main study. Also the farmers were asked to enlist constraints. The top eight constraints, as ranked by the majority of farmers, were tabulated and presented in Table 32. Garrett's ranking method was used for the constraint analysis.

Table 32. Constraints faced by JLG farmers in the study area

Sl No.	Constraints	Garret's score	Rank
1	Attack of wild animals	72.45	1
2	Wide price fluctuations and price fall	68.75	2
3	Incidence of Pest and diseases	63	3
4	Lack of proper marketing facilities	51.45	4
5	Labour scarcity	45.25	5
6	Lack of proper transport facilities	35.25	6
7	Problems in land leasing	34.25	7
8	Lack of knowledge in grading and standardization	30.6	8

The results revealed that, the most severe constraint in production faced by most of the group farmers was the attack of crop field by wild animal, which received a garret's score of 72.45, followed by wide price fluctuations (68.75) and incidence of pest and diseases (63). Apart from these the lacks of proper marketing facilities were the major constraints in marketing of the produce (51.45) followed by the lack of proper transport facilities (35.25). The findings of Kaur and Sachan (2016) concede with the present study that lack of facilities to facilitate transport of final product to end consumers, lack of adequate pricing for the products produced by them and

difficulty to take the product to market and ultimate consumers were the major challenges confronting the members of self-help groups.

Sucharita and Bishnoi (2019) also reported that some of the major issues faced by SHG members which included the lack of a separate market or shop for women's SHG products, a lack of information about markets, inability to withstand competition, lack of attractive packaging and necessary advertisement, customer perceptions of their products, and lower demand due to substitute products' availability.

POLICY SUGGESTIONS

The major constraint faced by farmers during the cropping season is the intrusion of wild animals like wild boar, elephant and peacock in the field which caused considerable amount of loss of the crops being cultivated. The entry of wild animal into the field can be prevented by electric fencing. The farmers may find it difficult to afford the electrical fencing. Proper handholding facilities may be provided by the concerned authorities to overcome the financial problem faced by the farmers.

` It was difficult for farmers to find proper marketing facilities and were forced to sell their produce at local market through middlemen which reduced their income significantly. The government should focus on providing a broader platform such as making use of e platforms in association with the Department of Agriculture and in association with the VFPCK so that it fetches more price. This will not only help to curb exploitation by the middle men but also help in improving the profit and uplift the SHGs to a whole new level.

It was observed in the study area that, majority of JLGs practise traditional method of farming. They are reluctant to adopt modern techniques of farming because they are unaware of them or do not get proper training. So effective trainings can be conducted through krishi bhavans for farmers to make them well acquainted with the modern cultivation practices.

Summary

CHAPTER V

SUMMARY AND CONCLUSIONS

The present study entitled “Livelihood generation through agriculture among Self Help Groups- An economic analysis” was carried out in the Malappuram district. The specific objectives of the study were Identification of livelihood generation through agriculture by Self Help Groups (SHGs)/Joint Liability Groups (JLGs), analysis of economic performance of SHGs/JLGs in terms of production and marketing of major crops cultivated and income generation by the members and identification of the constraints faced by members in production and marketing of the crops cultivated.

The study was based on both primary and secondary data. The data for the present study pertained to the agricultural year 2020-21. Malappuram districtwas purposively selected for the study as it is one of the major districts of Kerala having highest number of registered SHGs. Two panchayaths namely Chaliyar and Vazhikkadav of Nilambur block were purposively selected since having maximum area under cultivation by the Joint Liability Groups. 10 SHGs actively participating in crop cultivation will be randomly selected from each of the selected panchayat comprising a total of 20 SHGs. From each of the selected SHGs, five farmers were selected randomly and were interviewed. Thus, a total sample size of 100 farmers will be selected. To collect information about marketing, 10 intermediaries were also selected from each selected block for study. Primary data on variables viz., Socio- economic profile of participants, production and marketing constraint etc. were collected through personal interviews. All the primary data based on personal interviews and meetings with the respondents has been collected using a pre-tested schedule. The data needed were also collected from various secondary sources like NABARD, VFPCK, Kudumbashree publications, journals, official records of ministries concerned, relevant websites etc. Visit to the Kudumbashree State head quarters, District mission offices, Block panchayath offices, Kerala Agricultural University, Agricultural officers etc were conducted in order to get firsthand experience on the working of the mission.

The socio economic characteristics of the sample respondents were analysed. The total respondents' average age was 45.13 years. The average age of the Chaliyar and Vazhikkadavu panchayat respondents was 48.06 and 42.20 years respectively. Out of 100 JLG respondents, 36 were between the ages of 30-45 and 57 were between the ages of 45 and 60, accounting for 36 and 57 per cent of the total respectively. People in their adulthood and middle adulthood make up 93 per cent of the total respondents. This demonstrates the adulthood age group's interest in group farming activities. There is no dominant members above the age group of 60 and below the age of 30 in the study area. This is due to the women in the early 30s age group were pre occupied with child care and other household chores, leaving little time for their groups. The majority of the respondents had completed high school education (54 per cent). Out of the total 100 farmer respondents, 30 per cent had a joint family, which consists of 5-8 members per family. 70 per cent of the respondents, on the other hand, had a nuclear family of less than or four members. The average family size in the entire sample is 4.18 members. It was observed that among the total sample respondents all were female. The caste wise distribution showed that the participation of OBC in the JLG groups is highest (57%) in the Malappuram district. Majority of the respondents (49%) had farming experience of 11-20 years. 34 per cent of the respondents had an experience of less than 10 years. Based on the information gathered from the sample farmers, the occupational status was divided into two categories: agriculture as the primary occupation and agriculture as a secondary component of the occupation. Majority of the respondents (91%) depends agriculture as their primary occupation. The average annual income of the respondents were Rs. 62905.40. Around 17 per cent of all respondents earned more than Rs. 10,0000 per year and 25 per cent were earned income in the range of 50,000 to 10,0000. The majority of the farmers in the sample (95 %) were cultivating on leased land followed by cultivating in both leased and owned land (5 %). The land holdings were on average 2.85 hectares in size.

The average annual cost of banana cultivation for the JLG farmers at cost C_2 came to 4,58,766.39 per hectare. Cost A_1 was 3,34,472.32 per hectare, with the cost of manures and fertilisers accounting for nearly 48 percentage (Rs, 20,5931.45) of cost A_2, followed by the rental value of leased in land at Rs. 1,08,787.88 per hectare (25 percent of cost A_2). Many farmers have worked in the fields with their own farm implements. Plant protection chemical costs accounted for three per cent of total cost A_2. Cost of suckers constitutes nine per cent of total cost A_2. The cost of hired labour, value of soil ameliorants, land revenue, depreciation, and interest on working capital made up 14 per cent of cost A_2, with the rest falling under miscellaneous costs (1%).

The average annual cost of cultivation of bittergourd for the JLG farmers, the total cost of cultivation at cost C_2 came to Rs. 1,64,060.84 per hectare. Cost A_1 was Rs. 1,11,041.09 per hectare. The cost A_2 were Rs. 1,38,329.83 per hectare with the cost manures and fertilisers accounting for nearly 29 per cent of cost A_2 (Rs 33,722.25). The miscellaneous expences including pandaling materials accounts highest percentage of cost A_2 (31 %). As the group farmers uses family labour, the hired labour accounts only three per cent of cost A_2 which is nearly Rs. 3,345.07 per hectare. The cost of seeds, cost of plant protection chemical, value of soil ameliorants, land revenue, depreciation, and interest on working capital made up nine per cent of cost A_2. The rent on leased land varies from 10,000 to 15,000 per acre per year. The costs B_1 and B_2, were Rs. 1,13,550.25 and 1,40,838.98 respectively. The cost C_1 was discovered to be Rs. 1,64,060.84. The total cost of cultivation at cost C_2 for cowpea came to Rs.4,33,198.93 per hectare. Cost A_1 was Rs. 3,48,477.78 . The cost of manures and fertilisers accounting for nearly 61 per cent of cost A_2 (Rs. 2,16,225.29). The cost of seeds, hired labour, plant protection chemicals, value of soil ameliorents, land revenue, depreciaton and interest on working capital together constitutes nearly 13 per cent of total cost A_2.

The rent on leased land vary between 10,000 to 15,000 per acre per year for the vegetable crops in the study area. The cost A_2 was found to be Rs. 3,56,050.53. The costs B_1 and B_2, were Rs. 3,54,008.82 and Rs. 3,61,581.57 respectively. The cost C_1 wasdiscovered to be Rs. 4,25,626.18.

The average cost of production of bittergourd was less when compared to that of banana and cowpea. The average cost of production at cost C_2 for banana, bittergourd and cowpea were Rs.26.44, 28.04 and 33.26 per kilograms respectively. The cost of production for cowpea stood highest among the crops selected for study.

The average price obtained for banana, bittergourd and cowpea were Rs. 27.05, 27.15 and 38.20 per kg. The gross returns obtained from these crops were worked out and net returns at various costs were found out separately. Average yield obtained for banana, bittergourd and cowpea were about 18,000, 7,120 and 14,313 kg/ha respectively. With regards to the gross returns, cowpea stoods highest followed by bittergourd and banana. The net returns at cost A_2 for banana, bittergourd and cowpea were found to be Rs. 41,446.88, 52,233.55 and 1,94,676.9 respectively. The net returns at cost C_2 were found to be Rs. 25,940.65, 26,505.56 and 1,17,528.5 for banana, bittergourd and cowpea respectively.

The farm business income which is the profit at cost A_2 for banana, bittergourd and cowpea were Rs. 1,50,234.75, 1,79,522.29 and 2,02,249.67 respectively. The net income is high for cowpea (Rs.1,17,528.5) shows more profitability of the crop cultivation followed by bittergourd and banana.

The benefit cost ratio at cost C_2 were found to be the highest for cowpea (1.19) followed by bittergourd (1.14) and banana (1.05). These can be due to the higher returns or high value of the product from cowpea. The BC ratio of all crops were found to be more than one indicates all were profitable.

In order to analyse the resource use efficiency of the major crops cultivated by the JLGs, Cobb- Douglas production function was used. The adjusted R^2 was found to be 0.98 for banana which means that 98 per cent of the variation in yield was explained by their independent variables in the production function.

The variables such as area and quantity of manures were found to be positively significant and quantity of plant protection chemical is found to be negatively significant at 10 per
cent level of significance. The quantity of seeds and quantity of family labour were found to be significant at 5 per cent level of significant of which the later is negatively significant. The ∑bi value for banana obtained were found to be 0.75, which means decreasing returns to scale.

The adjusted R^2 was found to be 0.97 for bittergourd cultivation and 0.95 for cowpea cultivation , which means that 97 per cent and 95 per cent of the variation in yield for the crops respectively were explained by their independent variables in the production function. The variables such as area and value of soil ameliorent were found to be positively significant for bittergourd and the quantity of manures were found to be negatively significant for bittergourd. The quantity of manures, plant protection chemical and quantity of family labour were found to be positively significant for cowpea cultivation. The ∑bi value for bittergourd and cowpea obtained were found to be 1.20 and 1.32 respectively, which means increasing returns to scale.

Marginal productivity analysis of banana shows that MVP/MFC ratios for inputs such as seed, fertilizers, hired labour and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of manures, plant protection chemicals and family labour were less than unity indicating the overutilization of the resource.

For bittergourd, the MVP/MFC ratios for inputs such as plant protection chemical and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of all other inputs were less than unity indicating

the overutilization of the resource and for cowpea, the MVP/MFC ratios for inputs such as seed, manures, plant protection chemicals, family labour and soil ameliorant were found to be more than one, which indicated the suboptimal use of these resources. These resources can be used more till the ratio become unity. But MVP/MFC ratio of fertilizers and hired labour were less than unity indicating the overutilization of the resource.

In the study area, three marketing channels were identified for banana and two were identified for cowpea and bittergourd. They were,

Marketing channels for banana;

Channel I: Producer → consumer

Channel II: Producer → wholesaler → retailer → consumer

Channel III: Producer → wholesaler → processer → retailer → consumer

Marketing channels for cowpea and bittergourd;

Channel I : Producer → consumer

Channel II : Producer → wholesaler → retailer → consumer

The price spread in channel I were found to be Rs. 1.5 each for both bittergourd and cowpea and Rs.2 per kilogram for banana. The JLG farmers mainly used the channel II in the absence of fairs of Kudumbasree were the price spread were found to be Rs. 17.29, Rs. 20.67 and Rs.12.26 for banana, cowpea and bittergourd respectively. It was observed that majority of the JLG farmers directly sell their produce to consumer through kudumbasree fairs (80%). If no fairs were conducted most of them go for the second channel for marketing their produce (70%). It was also identified from all the three channels that the producer was getting higher share of consumer rupee in channel 1(>90%) than that of channel II and III. Price spread was also lower when the farmer sell directly to the consumer.

The most severe constraint in production faced by most of the group farmers was the wild animal problem, which received a garret's score of 72.45, followed by wide price fluctuations (68.75) and incidence of pest and diseases (63). Apart from lack of proper marketing facilities were the major constraints in marketing of the produce (51.45) followed by the lack of proper transport facilities (35.25).

References

CHAPTER VI

REFERENCES

Abhinav M. C., Lazarus, T. P., Joseph, B. Ajmal. S., Athulya C.K., Suresh. A and Priyanga V. 2018. A Critical study over the constraints faced by Subicsha Associated SHG Members in Kozhikode District. *Int. J. Res. Appl. Sci. Eng. Tech*.6(4):976-980.

Abraham, D. T. 2019. Lease land Farming by Women Collectives: An Enquiry into Earnings of Kudumbashree Groups. Occassional paper, No. 65. Centre for Women's Development Studies, New Delhi.

Agarwal,B. 2018. Can group farms outperform individual family farms? Empirical insights from India. Available (online). https://doi.org/10.1016/j.worlddev.2018.03.010.

Aji, P. S. 2021. Impact of self-help groups in women empowerment: With special reference to Ernakulam district. *Int. J. Multidisciplinary Res. Growth Evaluation.* 2(1): 13-17.

Anand, S.J. 2002. Self-Help groups in empowering women: A study of selected SHGs and NHGs in Kerala. Discussion paper 38. Kerala Research Programme on Local Level Development Centre for Development Studies, Kerala.

Balappa, S. R. and Hugar, L.B. 2003. An economic evaluation of onion production and its marketing system in Karanataka.Agric.Mkt. 46(2):2-26

Banafar,K. N. S., Gauraha, A. K., Singh, G. N. and Jain, B. C. 2003. Marketing of soyabean in Sehore district of Madhya Pradesh. *Agric. Mkt*. 46(1): 24-26

Baresh, P. and Ghosh, S. 2018. Self Help Group (SHG) movement in Meghalaya: A potential option to improve income and livelihood security of farm household. *J. Community Mobilization Sustain. Dev*. 13(3): 540-547.

Bhardwaj, R. K. and Gebrehiwot, K. 2012. Microfinance and Women Empowerment: An Impact Study of Self Help Groups (SHGs) - An Empirical Study in the Rural India with Special reference to the State of Uttarakhand. Ninth AIMS International Conference on Management, 14, 315-330.

Bhat, Z. A., Khan, M. H., Wani, M. A., Hamid, B. and Nabi, S. 2022. Livelihood improvement and empowerment of rural growers through cut flower and bulb production. *Int. J.chemical studies*. 10(2): 26-29.

Bhosale, R. A., Naik, V . G., Wadakar, S. S. and Talathi, J.M.2006. Price spread in marketing of cucumber in Pen Tahsil of Raigad district district of Maharastra state. *Agric. Mkt.*49(2):12-15.

Birari,K. S., Navadkar, D. S. and Dogre,J T.2004. Marketing efficiency of cole vegetables in western Maharastra. *Agric. Banker* 18(2):27-28.

Brady, N.M. 2017. An Exploratory analysis of Self-help Groups: An alternative mode of public service delivery in high density rural areas in India. MA(Human Geography) thesis, University of Alberta. 109p.

Chandran, R. and Sreedaya, G. S. 2016. Social Capital Formation through Farm Women Groups in Vegetable Production in Kollam District of Kerala. *J. Ext.Edu*. 28(1). 5603-5606.

Chatterjee,s.,Chattopadhyay, A.,Dutta, S., Banerjee, A. and Hazra, P. 2011. Economics of solanecious vegetables in the gangetic alluvial of West Bengal during autumn-winter season. *Agric. Sci. Res. J*.1(9):222-227,

Chidambaram, K. 1998. Constraints for Women Entrepreneurs in Coimbatore District. Third Concept. 15-18.

Chinchu,V.S. 2016. Indicators of sustainable agricultural development: A multivariate analysis among Self-Help Groups of kudumbasree mission in Thiruvananthapuram district. PhD thesis. Kerala Agricultural University, Thrissur, 289p.

Chithra, N. 2011. Impact of Kudumbashree programme on rural women in Kottayam district of Kerala. M.Sc. (Ag.) Thesis. University of Agricultural Sciences, Bangalore, India

Chole, V.M., Talathi, J.M and Naik, V.G.2003. Price spread in marketing of brinjal in Maharastra State . *Agric.Mkt*.46(2):5-8.

Choudhari, H.P.S.,Singh, G. P., Kumar, S. P. and Mishra. 2020. Role of finance in resource use efficiency and constraints in banana cultivation in Uttar Pradesh. *Indian J. Econ. Dev*. 16(2): 224-229.

CSDS, 2014. State of Indian Farmers: A Report, New Delhi: Centre for the Study of DevelopingSocieties.Available(online).http://www.lokniti.org/pdf/Farmers_Report_Final.pdf.

Devi SS, Kumar S, Bera BK. Growth and Performance of Self Help Groups in Punjab. *J.Crop weed.* 2018; 14(1):104-110

Dominic, T. K., Franklin, N. M. and Hamdiya, A. 2019. Technical and resource use efficiency among smallholder rice farmers in Northern Ghana. Congent food and agriculture. 5(1). http;//doi.org/10.1080/23311932.2019.1651473.

Dulal, S. and Kattel, R. R. 2020. Resource Use Efficiency of Banana Production and Impact of Insurance Scheme Adoption on Banana Farming in Chitwan, Nepal *Int. J. Appl. Sci. Biotechnol*. 8(2): 170-178.

Dukpa, P. and Ezung, T. Z. 2020. Analysis of vegetable marketing efficiency in Phek district, Nagaland. *Economic affairs*. 65(3). 427-432.

Franco, D., Singh, R. and Praveen, K. V.2018. Economic feasibility of vegetable production under polyhouse : a case study from Palakkad district of Kerala. *J. Crop Weed*. 14(1): 134-139.

Gadre,A.V.,Talathi, M. and Wadkar, S. S. 2002. Price spread in marketing of white onion Raigad district of Maharastra state. *Agric .mkt*. 45(3);22-26.

Gehlot, A. 2022. Constraints faced by women SHG members during running of SHGs. *Pharma Innovation J*. 11(5): 527-529.

Grover,R.K., Dileep, B.K. and Rai,K.N.2003. Contract farming an economic analysis. *Indian J.of Agric.Econ*.57(2);197-210

Hansa, G. P. and Bariya, M. K. 2021. Constraints faced and their suggestions by SHGs promoted under ambuja cement foundation in gir somanath district of Gujrat.

Jayapalan,M. and Kumari, S.N.P.2001. Constraints in the cultivation of bitter gourd. Available: http://www.jtropag.in/index.php/ojs/article/viewFile/40/35.09/03/2012

Jayasree M.K., Shinogi, K. C., Srivastava, E. V. and Renu, R. 2021. Empowerment of small holder women farmers through self help groups in South West India. *Indian. J. Extn. Edu*. 57(2):31-37.

Jhansirani, R. and Anjugam, M. 2021. Comparative cost and returns of some vegetables grown organically in different agro-climatic zones of Tamil Nadu. *Int. J. Farm Sci.* 11(1): 16-18.

Joshi,P.K., Joshi,L. and Birthal,P.S.2006. Diversification and its impact on smallholders: evidence from a study on vegetable production. *Agric.Econ.Res.Rev*.19:219-236.

Jothi, V.N. 2010. Socio Economic impact of micro financing through Self Help Groups in Kanchipuram town. Int. J. Commerce Business Manag. 3(2): 331-339.

Joy, L., Prema, A. and Krishnan, S. 2008. Determinants of Group Performance of Women-led Agro-processing Self-help Groups in Kerala. Agricultural Economics Research Review (Conference paper). Vol. 21. 355-362.

Kalaiselvi, K.T. and Muruganandam, D. 2011. A study of a Micro-credit programme run by Self-Help Groups in Tamil nadu state. Journal of Finance and Management in Public services, 9(2): 25-38.

Kalra, R. K. Anil,B. Tonts, M. Siddique, K. H. M. 2013. Self-Help Groups in Indian Agriculture: A Case Study of Farmer Groups in Punjab, Northern India, Agroecology and Sustainable Food Systems, 37(5): 509-530.

Kaur, L., Garg, L. and Sharma, P. 2017. Impact of Self-help Groups in Enhancing Farm Women Income. 13(1): 769-774.

Kaur L, Sachan D, Evaluation of Major Problems faced by members of Self Help Groups: A Study of Punjab. International Journal of Innovative Research in Science, Engineering and Technology. 2016; 5(12):20755-20761.

Khan B.A and Basharat,A.2006. Economic variability of vegetable production in Kashmir . Agric.Situ. India 62(10): 677-684.

Khanka, S.S, 2010. Micro Finance in India: Its Growth, Challenges and Prospects, KAIM Journal of Management and Research, 2 (2): 41-48.

Khare, D. K. and Parganiha, O. P. 2021. Income generation of women self help group members under state rural livelihood mission (Bihan) in Rajnandgaon district of Chhattisgarh. The Pharma Innovation Journal, 10(12): 2015-2018.

Khatkar , R.K., Rathee, A.K and Singh,V.K.2005.Marketing of fresh mushrooms in Haryana.Agric. Mkt. 48(1):2-3.

Kotey,M. A., Adams, F., Nimoh, F. and Edwin, C. 2020. Choice of marketing outlets among smallholder cowpea farmers in Ghana. Available (online). https:www.emerald.com/insight/2042-5961.htm.

Kotler, P., Keller, K. L., Koshy, A and Jha, M. 2009. Marketing Management: A South Asian Perspective. Pearson Publications.

Krishnadas, K. 2009. Rice Economy and Kerala Model of Clustering, New Delhi: Serials Publications.

Krishnaveni, V. and Harida, R. 2014. Marketing Issues of Self Help Groups. International Scientific Journal on Science Engineering and Technology. 17(4): 121-126.

Kudumbashree, 2017. Available (online). http://thekudumbashreestory.info/index.php/programmes/economicempowerment/collectivefarming/jlgs. (Accessed on 10 September, 2019).

Kudumbashree district mission. 2021. Data and reports collected from Kudumbashree district mission Malappuram district.

Kudumbashree, 2022. Available (online). http://www.kudumbashree.org./index.php/programmes/economicempowerment/collectivefarming/jlgs. (Accessed on 06 June, 2022).

Kumar, A. and Jasheena, C.J. 2016. Kudumbashree : Promoting the Self-Help Group Model of Empowerment Through Women Entrepreneurship in Kerala - A Study. Indian Journal of Management. 20-34.

Kumar, A. A. and Kalva, K.U. 2014. Women's participation in economic development of India through Self Help Groups (SHGs). *J. Int. acad. Res. Multidisciplinary*. 2(5):72-81.

Kumar, A., Rohila, A.K., and Pal, V.K. 2018. Profitability and resource use efficiency in vegetable cultivation in Haryana: Application of Cobb-Douglas production model. Indian Journal of Agricultural Sciences 88 (7): 1137–1141.

Kumar,P., Kumar, P. and Mittal, S.2004.Vegetable demand and production in India : long term prospective . (Eds. Sant Kumar, P.K joshi, Suresh pal).Proceedings 13. Impact of vegetable research in India. National Centre for Agricultural Economics and Policy Research, ICAR , New Delhi,pp.161-177.

Kumar, P. and Golait, R. 2009. Bank penetration and SHG-Bank linkage programme: A critique. Reserve Bank of India Occasional Papers 29(3): 120-138.

Kumar,P., Singh, J.P., Yadav, J.N., and Mishra, J.P.2005. Study of storage-losse and marketing of onion in district Jaunpur of Eastern UP.Agric.Mkt.47(4):23-25.

Kumar, S. and Tegar, A. 2021. An economic analysis of production and marketing of banana in Bilaspur district of Chhattisgarh state. The Pharma Innovation Journal .10(10): 466-468

Kumaramkandath, R. and Verghese, B. P. 2016. Sustainable Livelihood and Sustainable Development: The Experience of Collective Farming by Kudumbasree in Keralam, India. Indonesian J. Int'l L., 14, 94.

Landge VV, Pawar BR, Deshmukh DS and Yeware PP (2010) Resource Productivity and Resource Use Efficiency in Drip Irrigated Banana Production. Agriculture Update 5(1/2): 203-205.

Lakshmi, R. and Vadivalagan, G. (2011).Impact of Self Help Groups on empowerment of women: a study in Dharmapuri district, Tamilnadu. Available at http://jms.nonolympictimes.org/Articles/5.pdf.

Lokesh,G.B., Harishilpa, G.R and Chandrakanth,M.G.2005. An economic analysis of tomato production, marketing and processing in Karnataka . Agric. Mkt.47(4):15-21.

Mary, K.J. 2009. Role of tank irrigation system in sustaining the livelihood status of the SHG's: A case study. M. Sc. (Ag.) Thesis. AC & RI, TNAU, Coimbatore.

Meena, B.S. 2010. Socio-economic characteristics and technology use pattern of farmers. Agricultural Extension Review. 22 (2): 18-20.

Meenagour and Indira, B. 2010. Communication behaviour of women vegetable growers. *J.Communication Studies*. 28 (1): 29-33.

Meenakshi. V. 2011. Participation and empowerment of rural women in Self-Help Groups - An analysis. M. Sc. (Ag.) Thesis. AC & RI, TNAU, Coimbatore.

Meher, M., Modak, S., Panda, S. and panigrahi, S. P. 2021. Understanding pattern of socio-economics of SHG members engaged in horticulture enterprises in Sonepur district of Odisha. The Pharma Innovation Journal . 10(7): 84-88.

Meher, M., Panigrahi, S. P. and Nayak, D. 2021. Constraints faced by women SHGs in adoption of horticulture enterprises. *Indian J. Extn. Educ*. 57(1):226-229.

Moar, A.G. and Kharge, A. P. 2021. Participation of Self Help Group (SHG) members in agriculture and allied activities. The Pharma Innovation Journal 10(1): 155-158.

Mridula, N. 2018. Collective Farming Groups in Kerala-Aspirations and Challenges. Journal of Community Mobilization and Sustainable Development . 13(2), 259-262.

Magnan, N., Spielman, D. J., Gulati, K., & Lybbert, T. J. (2015a). Information networks among women and men and the demand for an agricultural technology in India. IFPRI Discussion Paper Number 01411. Washington,DC: *Int. Food Policy Res. Institute* (IFPRI).

Murthy,D. S., Sudha, M., Hegde, M.R. and Dakshinamoorthy,V .2009nTechnical efficiency and its determinants in tomato production in Karnataka, India: Data Envelopment Analysis (DEA) approach. Agric. Econ. Res. Ev. 22:215-224.

Navadkar , D.S., Dorge, J. T. Dorge and Yadav, D. B. 2003. Effect of growing seasons on productivity and profitability of tomato in western Maharastra. J. Agric. Mktg. 17(2):111-115.

NABARD (National Bank for Agriculture and Rural Development) 2019. *Status of Microfinance in India Annual report 2018-2019.* National Bank for Agriculture and Rural Development, 282p.

NABARD (National Bank for Agriculture and Rural Development) 2021. *Status of Microfinance in India Annual report 2018-2019.* National Bank for Agriculture and Rural Development, 264p.

Naik, R. P. and Helen, S. 2018. Constraints Faced by Agripreneurs in Adopting KAU (Kerala Agricultural University) Technology. *J. Ext. Edu*. 30(2):6073-6078.

Palanisamy, A. and Mahesh, R. 2014. A Socio economic analysis of agricultural landless labourers in Kunnathure Block, Tirupur District. *Int. Res. J. Agric. Rural Dev.* 3(1):162-173.

Pal, S.2015. Role of Self Help Groups (SHGs) among the Rural Farm Women in Relation to Labour Days and Income of the Seasonal Crops. *J. Econ. Sustain. Dev.*6(5):181-188.

Pammi, R.K. and Kadasiddappa, M. M. 2014. Joint farm ing through neigh bor hood groups (nhg's) in kerala : a case of kudumbashree. Society for Scientific Development in Agric. and Tech. Progressive Research 9 (Conf. Spl.) : 1010-1013.

Patil, G.A., Shukla, K.S. and Chapalgaonkar. (2007).Collective marketing by tribal communities. Leisa India. Available at http://www.agriculturesnetwork.org/magazines/india/1-farmers-comingtogether/collective-marketing-by-tribalcommunities/at_download/article_pdf

Pragathy bhati, M.S. 2015. A Comparative study on technology and innovation among SHG womens of selected villages of Jodhpur. *Scholarly R. J. interdisciplinary studies.* 4(29): 4403-4410.

Pramanik , R. and Prakash , G. 2010. Marketable surplus and marketable efficiency of vegetables in Indore district : a micro level study .IUP *J. Agric. Econ*.7(3): 84-93.

Priscilla, L. and Singh, S. P. 2015. Economics of vegetable production in Manipur. *Indian J. Econ Dev*. 11(4): 933-938.

Raghunathan K, Kannan S and Quisumbing A.R. 2019. Can women's self-help groups improve access to information, decision-making, and agricultural practices? The international journal of Agricultural Economics. 50:567–580.

Rajendran, K. and Raya, R.P. (2011). Micro- finance: Problems and Constraints in Vellore District, Tamil Nadu, India. Journal of Economics, 2(2): 109- 114.

Raj, N.K. 2020. Effect of salinity on paddy production in Alappuzha district of Kerala- An economic analysis. MSc.(Ag) thesis, Kerala Agricultural University, Thrissur, 138p.

Rajput, A. S., Sharma, L., Jangid, M. K. and Sharma, R. C. 2017. Resource use efficiency in bitter gourd for the contract vis-à-vis non contract farms in the Jaipur district of Rajasthan. *J. Agric. Dev. Policy*. 27 (1 and 2): 23-28.

Rathod, S. R. and Gawali. A. V. 2021. Economic analysis of banana production from Western Maharashtra. The Pharma Innovation Journal. 10(8): 379-384.

Reji, D. R . 2013. Economic Empowerment of women through Self Help Groups in Kerala. *Int. J. Marketing, Financial Services Manag. Res*. 2(3): 97-113.

Rupnawar, V. D. and Kharat, R. S. 2014. A Role of Joint Liability Group (JLG) in Rural Area: A Case Study of Southern Region of India. Euro-Asian Journal of Economics and Finance, 13-20.

Saha, D., Akand, A.H and Hai, A. 2010. Livestock farmer's knowledge about rearing practices in Ganderbal District of Jammu and Kashmir. *Indian Res. J. Ext. Educ.*. 10 (2): 15-19.

Sajesh, V. K. and Ramasundaram, P. 2013. Effectiveness of Collective Farming Under Kudumbasree programme of Kerala. Journal of Community Mobilization and Sustainable Development Vol, 8(2), 276-281

Sandhu, K. 2015. Women Empowerment through Self Help Groups. *Indian Res. J. Ext. Edu*. 15 (4): 29-34.

Sarania, R., 2014. "Employment and Agro-based Industries: A Study on Women Self Help Groups (SHGs) in Baksa District of Assam" in Dinesh Das (ed.) Propsects and Problems of Agro-Based Industries in Assam, First Edition, N. L. Punlications, Assam, India, 85-100.

Saranya, R. 2015. Impact of Self-Help Groups on Economic Empowerment of Women in Assam. International Research Journal of Interdisciplinary & Multidisciplinary Studies. Vol,1(1). 148-159.

Sayooj, V. 2013. Performance analysis of vegetable and fruit promotion council of keralam (VFPCK). M.Sc.(Ag) thesis. Kerala Agricultural University, Thrissur, 132p.

Sharma, G. and Singh, S. P. 2011. Economic analysis of post harvest losses in marketing of vegetables in Uttarakhand. *Agric.Econ. Rev*. 24: 309-315.

Rajeev, M., Vani, B. P., and Veerashekharappa. 2018. Economic and Social benefit of SHG-Bank linkage programme in Karnataka. The Institute for Social and Economic Change, Bangalore. (working paper 415):25p.

Srinivas, T. and Ramanathan, S. 2005. A study on economic analysis of Elephant foot yam production in India.*Agric. Econ. Res. Rev*. 18 : 241-252

Sharma, M., Dhakal, S. C., Adhikari, R.K. and Tiwari, U. 2021. Profitability, productivity and resource use efficiency of banana production in Hetauda- Dumkibas road corridor, Nepal. Cogent Food & Agriculture. 16p.

Singh, A. K., Nayak, T., Hashim, M. and Singh, S.K. 2021. To Study the Socio-economic Profile of SHG Members in Tentulikhunti Block of Nabarangpur District (Odisha). *Int.J.Curr.Microbiol.App.Sci* . 10(03): 1196-1200.

Singh,R., Bishnoi, D. K . and Singh, A. 2010. Cost benefit analysis and marketing of mushroom in Haryana. *Agric. Econ. Res. Rev.* 23: 165-171.

Singh S. 2012. An Evaulation Study on Women Self Help Groups of Punjab, Munich, GRIN Verlag.

Singh,S . and Toor, M.S. 2003. Income and employment generation through summer vegetables v/s paddy cultivation in Punjab. *J. Agric. Dev. Policy* 15(2) : 91-97.

Singh, T. and Mittal, P. 2016. Socio Economic impact of micro Financing throughSelf Help Groups in Mewat district: An Econometric Analysis. *Indian J. Commerce*. 69(4):4-15.

Singh, U. 2006. Multi-dimensional impact of women dairy cooperative societies on beneficiaries in Hariyana. PhD Thesis, National Dairy Research Institute, Karnal, Hariyana, India.320p.

Single, R., Chahal,S .S. and Kataria, P. 2006. Economics of production of green peas(Pisum sativum L.) in Punjab . *Agric. Econ. Res. Rev*. 19 : 237-250.

Soman, K. S. 2012. A Comparative performance appraisal of VFPCK and kudumbasree beneficiaries in Thiruvananthapuram district. M.Sc.(Ag) thesis. Kerala Agricultural University, Thrissur,156p.

Sreedaya, G. S., Sushama, N. P., and Nehru, S. M. 2001. Perception of officials about Self Help Groups involved in vegetable cultivation. *J. Trop. Agri*. 87-88.

State Planning Board, 2012. Government of Kerala. Evaluation study on Kudumbashree - A report. Evaluation Division

Subhadra, M.R., Suresh, K.A. and George, P.R. (2009). Constraint analysis of farmers operating Mixed farming in Kerala. Agriculture Science Digest, 29(1): 48-50.

Subhasis, M., Tripathi AK, Verma M. R., Suchitra, M. and Sampru, E. 2014. Production and Marketing of Selected high Value Crops through Self Help Groups in Meghalaya- A Case Study, In Agri-busines potential in India – Experiences from Hill States, Ed(s). Ram Singh, Dibalkar Naik and S M Feroze, , 119-130.

Sucharita,S. and Bishnoi, I. 2019. A study on marketing strategy of the SHGs in Ranapur block of Odisha. *Indian J.Social Res*., 60(3): 431-438.

Sundaran, S. R. and Sreedaya, G. S. 2016. Performance analysis of Self Help Groups on farm entrepreneurship in Thiruvananthapuram district of Kerala. *J. ext. educ.* 28(1). 5598-5602.

Suresh, A., Jayashree, S.and Amritkiran, M. 2018. A Study on Kudumbashree in Kerala. *Int. J. Pure Appl. Math.*118(20). 4195-4201.

Suresh, A. and Praveen, K. V. 2015. Performance and sustainability of Kudumbashree neighbourhood groups in Kerala: an empirical analysis. *Ind. J. Agri. Econ*. 70(3).1-9

Tejaswini, M. and Panigrahi, R. S. Socio-Economic Profile of Self Help Group (SHG) members - A Study in Anantapur District of Andhra Pradesh. *Ind. J. Pure App. Biosci.* 9(1):495-500.

Tejaswini, N., Singh, A. K., Hashim, M. and Singh, K.S. 2021. To Study the Socio-economic Profile of SHG Members in Tentulikhunti Block of Nabarangpur District (Odisha). *Int.J.Curr.Microbiol.App.Sci* .10(03): 1196-1200.

Thakur, D. S., Thakur, D. R., Sharma, K.D and Sanjaya.1994. Vegetable revolution and economicd in Himachal Pradesh. Bihar *J. Mktg*. 2(2) :145-151.

Thakur RJ (2016) Impact of Agricultural Credit on Banana Production in Chitwan District, Nepal. Rampur: Agriculture and Forestry University

Thanh, N.C. and Singh, B. (2006). Constraints faced by the farmers in rice production and export. Omonrice, 14: 97-110.

Verma, A.R. and Rajput, A. M. 2000. Costs, and returns and marketing of potato in Indore dist. Of Madhya Pradesh. *Ind J. Agric* . *Mkt*. 14(1) : 23-31.

Vijayan,D. 2018. Effects of kudumbasree jlg farming on women empowerment: a study in Ernakulum district. *Int. J. Creative Res. Thoughts*. 6(2): 1517-1527.

Vijitha,V.N. 2008. SHG-Bank linkage programme- A study in Thrissur district. M.Sc.(Ag) thesis. College of Co-Operation Banking And Management, Vellanikkara. Kerala Agricultural University, Thrissur, 163p.

Appendices

APPENDIX- I
KERALA AGRICULTURAL UNIVERSITY
COLLEGE OF AGRICULTURE
DEPARTMENT OF AGRICULTURAL ECONOMICS
Vellayani , Thiruvananthapuram- 695522

SURVEY SCHEDULE FOR PRIMARY DATA (2020-21)

PART-I

I. Socio economic profile of farmers

District : Block : Panchayat:

1. Name of the respondent -: Mr. / Ms ----------
2. Address:

3. Age (Years) : ----------
4. Sex---------- (M/F)
5. Religion and caste : :
6. Experience in farming :

II. Family details

S No	Name	Gender (M/F)	Age	Education	**Occupation		Annual income	
					Primary	Secondary	Primary	Secondary
1								
2								
3								
4								
5								
6								

**1-Agriculture, 2-Public sector, 3-Private sector, 4-Self employed

7. Marital status :
8. House hold size :

III.A Details of land holdings

Total Area Owned (ha) :

Area Leased in (ha) : Lease in Price per year (Rs/ha) :

Area Leased out (ha) : Lease out Price per Year (Rs/ha) :

Total Area Cultivated (ha) :

Area not cultivated (ha) : Specify Reason*

III. B Details of fixed assets (except land)

Sl No.	Particulars	No.	Year of construction	Present value (Rs)
1	Farm house			
2	Store house			
3	Cattle shed			
4	Pump			
5	Others (specify)			

III.C Machineries/ Implements

Sl No.	Particulars	No.	Year of purchase	Purchase price (Rs)	Expected life (Years)
1					
2					
3					
4					
5					

IV. Crop particulars:

Cropping pattern:

1. **Sole cropping**
2. **Mixed cropping**
3. **Relay cropping**

Crop rotation:

Crop name	Total area (ha)	Varieties grown and product marketed			
		Name	Area (ha)	Yield kg/ha	Income (Rs)

V. Cost of cultivation

Crop :

Variety:

Area :

Duration :

Wage rate (Rs/day) M: F:

V. A. Input and Operation – wise expenses

Variable inputs	Quantity	Rate/unit	Total Cost (Rs)
Seed(Kg/ ha)			
FYM (Kg/ha)			
Urea (Kg/ha)			
Rajphose/factomphose) (Kg/ha)			
MOP (Kg/ha)			
Other fertilizers (Kg/ha)			
1.			
2.			
3.			
Plant protection chemicals (unit)			
1.			
2.			
Soil ameliorants (Kg)			
1.			
2.			
Total input cost(Rs)			

V. B. Input and Operation – wise expenses

Operations	**Machine labour**		**Human labour (No.)**		**Total labour cost**	**Total cost (Machine + Human)**
	Hours	**Cost**	**M**	**F**		
Land preparation						
Liming material						
Sowing						
Fertilizer and organic manure application						
Pandaling works						
Weeding						
Plant protection operation						
Intercultural operation						
Harvesting						

VI. Method of sale

Sl.no	**Method of sale**	**Quantity (Kg)**	**Price (Rs/Kg)**
1	Village merchant		
2	Direct sale		
3	Sale in wholesale market		
4	VFPCK		
5	other		

VII. Level of constraints

Sl. No.	Constraints	Rank
1	Attack of wild animals	
2	Incidence of Pest and diseases	
3	Wide price fluctuations and price fall	
4	Labour scarcity	
5	Lack of proper marketing facilities	
6	Lack of proper transport facilities	
7	Lack of knowledge in grading and standardization	
8	Problems in land leasing	

PART-II
MARKETING OF CROPS

General information
Name of Market
Distance (km)
Experience

2. Marketing channels

a. Channel 1 –

b. Channel 2 –

c. Channel 3 –

d. Specify other channels if any?

3. Do you know through which channel your produce will reach to ultimate consumer?

e. Channel 1 –

f. Channel 2 –

g. Channel 3 –

h. Specify other channels if any?

i. Reasons for sales to the local trader/ wholesaler/ consumer/commission agents/agencies

4. Marketing cost incurred in available channels from producer to ultimate consumer

a. Channel 1 –

b. Channel 2 –

c. Channel 3 –

5. What is the sale price of producer in different channels?

6. What is the purchase price by ultimate consumer in different marketing channels?

7. Cost of marketing incurred by producer

Sl.no	Item of cost	Channel-l	Channel-II	Channel-III
1	Packing material			
2	Loading charges			
3	Transport charges			
4	Unloading charges			
5	Storage charges			
6	Prophylactic measures			
7	Commission charges			
8	Market fees			
	Sub total			

APPENDIX-II

SCHEDULE FOR MARKETING INTERMEDIARIES

1. Name and address :
2. Name of Market :
3. Experience :
4. Type of vegetables/crops handled :

5. Price received and paid by the intermediary

From whom produce purchased	Quanti ty	Price/kg paid (Rs)	To whom sold	Price/kg Received (Rs)

6. Cost incurred

Sl. No	Items of cost	Amount (Rs/q)
1	Labor charges	
2	Commission charges	
3	Transportation charges	
4	Weighing charges	
	Sub total	

APPENDIX-III

GARRETT RANKING CONVERSION TABLE

The conversion of orders of merits into units of amount of 'scores'

Percent	Score	Percent	Score	Percent	Score
0.09	99	22.32	65	83.31	31
0.20	98	23.88	64	84.56	30
0.32	97	25.48	63	85.75	29
0.45	96	27.15	62	86.89	28
0.61	95	28.86	61	87.96	27
0.78	94	30.61	60	88.97	26
0.97	93	32.42	59	89.94	25
1.18	92	34.25	58	90.83	24
1.42	91	36.15	57	91.67	23
1.68	90	38.06	56	92.45	22
1.96	89	40.01	55	93.19	21
2.28	88	41.97	54	93.86	20
2.69	87	43.97	53	94.49	19
3.01	86	45.97	52	95.08	18
3.43	85	47.98	51	95.62	17
3.89	84	50.00	50	96.11	16
4.38	83	52.02	49	96.57	15
4.92	82	54.03	48	96.99	14
5.51	81	56.03	47	97.37	13
6.14	80	58.03	46	97.72	12
6.81	79	59.99	45	98.04	11
7.55	78	61.94	44	98.32	10
8.33	77	63.85	43	98.58	9
9.17	76	65.75	42	98.82	8
10.06	75	67.48	41	99.03	7
11.03	74	69.39	40	99.22	6
12.04	73	71.14	39	99.39	5
13.11	72	72.85	38	99.55	4
14.25	71	74.52	37	99.68	3
15.44	70	76.12	36	99.80	2
16.69	69	77.68	35	99.91	1
18.01	68	79.17	34	100	0
19.39	67	80.61	33		
20.93	66	81.99	32		

LIVELIHOOD GENERATION THROUGH AGRICULTURE AMONG SELF HELP GROUPS- AN ECONOMIC ANALYSIS

By

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ABSTRACT

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ABSTRACT

The present study entitled “Livelihood generation through agriculture among Self Help Groups - An economic analysis” was carried out in the Department of Agricultural Economics, College of Agriculture, Vellayani during the period 2019-22 to study the agricultural livelihood of SHGs and income generation by them through production and marketing of the crops cultivated. The economics of different crops cultivated by the group farmers were analyzed in the study. The socio-economic characteristics of farmers were also studied during the time period. An attempt was also made to identify the constraints faced by farmers in the study area.

The socio-economic characteristics of the farmers were studied based on age, gender, education, family size, farming experience, caste, occupation, land holding size and tenancy status. The analysis showed that majority of the respondents fell under the age group 45-60 years(57%). The analysis of educational status of the farmers revealed that majority of the respondent farmers had completed their high school. The average family size was found to be 4.18. Majority of the respondents were having 11-20 years of experience. The percentage of sample farmers who chose agriculture as their main occupation was higher nearly 90% and depends agriculture as their primary source of income. Majority of the sample farmers (95%) were cultivating in leased land. Most of members belong to OBC category(57%) followed by general category(35%).

The economics of cultivation of respondents for three crops namely banana, bittergourd and cowpea were analyzed. The per hectare cost of cultivation of all the crops at cost C2 was found to ₹ 458766.39, ₹ 164060.84 and ₹ 433198.93 for banana, bitter gourd and cowpea respectively. The income measures were also estimated for the group. Net returns from banana, bittergourd and cowpea were estimated to be ₹ 25940.65, ₹ 26505.56 and ₹ 117528.5 respectively.

The resource use efficiency of banana cultivation revealed that area, seed, manures, plant protection chemicals and family labour were significantly contributing to the yield of group farmers for banana and shows decreasing returns to scale. The resource use efficiency of bitter gourd cultivation shows that area and soil ameleorent had a positive significant impact on yield and manures are negatively significant. Similarly the resource use efficiency of cowpea cultivation revealed that manures plant protection chemical and quantity of family labour had a positive significant impact on yield. The ∑bi values of banana shows decreasing returns to scale. But for bitter gourd and cowpea there are increasing returns to scale. The marginal productivity analysis of banana shows that majority of the resources were under utilized. For bitter gourd most of the resources were over utilized showing increasing returns to scale. For cowpea fertilizers and family labour were over utilized.

Three marketing channels were identified for banana and two for vegetables in the study area. Most of the farming groups preferred to sell their produce directly to the consumers through the fairs (80%). The farmers share in consumer rupee were found to be about 60 per cent for both banana and cow pea and nearly 70 per cent for bitter gourd in channel 2 (Producer-wholesaler-retailer-consumer). Price spread was more in channel 3(Producer-wholesaler—processor-retailer-consumer) for banana and less in channel 1(producer-consumer) for all the crops. The marketing efficiency was also high in channel 1 for all the three crops. The most severe constraints faced by most of the JLGs in the study area were attack of wild animals followed by price fluctuation with a garrets score of 72.45 followed by wide price fluctuations(68.75).

The entry of wild animal into the field can be prevented by electric fencing. The farmers may find difficult to afford the electrical fencing. Proper handholding facilities should be provided by the concerned authorities to overcome the financial problem faced by the farmers. It is difficult for farmers to find proper marketing facilities and are forced to sell their produce at local market via middleman which reduces their income significantly. The government should focus on providing marketing facilities and branding of products so that it fetches more prices. Effective trainings can also be conducted through krishi bhavans or Kudumbasree for farmers to make them well acquainted with the modern cultivation practices.