CULTIVATION AND MARKETING OF LAC IN NAMKUM AND ANGARA BLOCKS OF RANCHI DISTRICT IN JHARKHAND

Project Report

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIERMENTS FOR THE DEGREE OF

MASTER

OF

AGRIBUSINESS MANAGEMENT

Major advisor

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Submitted By

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CENTER FOR AGRIBUSINESS MANAGEMENT

FACULTY OF AGRICULTURE

BIRSA AGRICULTURAL UNIVERSITY KANKE

RANCHI-834006

(JHARKHAND)

Regd. No. – MBA/BAU/5140/2017

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BIRSA AGRICULTURAL UNIVERSITY

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CERTIFICATE

This is to certify that the thesis entitled, ***"CULTIVATION AND MARKETING OF LAC IN NAMKUM AND ANGARA BLOCKS OF RANCHI DISTRICT IN JHARKHAND"*** *submitted in partial fulfillment of the requirements for the degree of* **MASTER OF BUSINESS ADMINISTRATION IN AGRIBUSINESS** *of the Faculty of Post- Graduate Studies, Birsa Agricultural University, Kanke, Ranchi, Jharkhand is faithful record of bonafide project work carried out by* ***Ms. Rani Kumari Dangi*** *under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.*

It is further certified that the assistance and such help received by her during the course of investigation have been duly acknowledge.

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(*Certificate of Approval by the Advisory Committee*)

We, the under signed members of the Advisory Committee of ***Ms. Rani Kumari Dangi****, a candidate for the degree* of **MASTER OF BUSINESS ADMINISTRATION IN AGRIBUSINESS** *have gone through the manuscript of the project and agree that the project entitled* ***"CULTIVATION AND MARKETING OF LAC IN NAMKUM AND ANGARA BLOCKS OF RANCHI DISTRICT IN JHARKHAND"*** *may be submitted by* ***Ms. Rani Kumari Dangi*** *in partial fulfillment of the requirements for the Degree.*

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CHAPTER- 1

INTRODUCTION

The issue of forest people and potential of non-wood forest products are often forgotten while addressing rural development. It is well recognized that forest-people are poor, vulnerable and insecure. The harnessing, and tapping of forest resources, particularly non wood forest products like natural resins, gums and exudates, leaves (tendu) turpentine from pines, and perfumery oils from roots, stumps and fruits of various tree species helps in fighting against poverty for enhancing the livelihood of forest dwellers and lac is an important non wood forest products for generating income and employment in India.

Lac is a natural resin secreted by an insect *Kerria lacca* (Kerr.) which thrives on the tender twigs of specific host tree. The most common host trees for commercial lac cultivation are palas (*Butea monosperma*), ber (*Ziziphus mauritiana*) and kusum (*Schleichera oleosa*). It is a very remunerative crop, paying high economic returns to the farmers and also foreign exchange for the country through its export. India is the leader in production and export of lac in the world. The export earnings from lac and lac products during the year 2010-11 were around Rs. 211 crores. Lac is exported to more than 50 different contries, but the major markets are Indonesia, Germany, U.S.A., Spain, Bangladesh, Italy and Switzerland.

Lac has been known in India from immemorial. The term lac seems to have been derived from the Sanskrit word *"Laksha*" meaning hundred thousand and is suggestive of the large number of insects involved in its production. The description of the of insect and its host plant is recorded in the Atharva Veda. Lac is also mentioned in the Mahabharata in the form of "*laksha griha"* and the use of lac was known to ancient Greek and Romans also. The increasing demand of lac products after world war-II has received attention in the past century. In order to increase the production of lac by scientific methods, an association named Indian Lac Association (I.I.A) was formed in 1921, Lac Research Institute (L.R.I) was established at Namkum, Ranchi in 1924, with a view to have greater participation of Government. In 1930, the Indian Lac Cess Committee (I.L.C.C) was formed and the committee took over the Indian Lac Research Institute (I.L.R.I) in 1957.

Lac is used in manufacture of glazed paper, printing and water proofing inks, bangles, dry mounting tissue paper, dental plates and optical frames. It is also used as a coat for metal ware to prevent tarnishing and for finishing various products such as playing cards, oil cloth

and linoleum and for preserving archaeological and zoological specimen. In electrical industry, lac is used as coating of insulator, coating of spark plugs, cement of sockets of electrical lamp, ant tracking insulating etc. In pharmaceutical industry, lac is used in coating of tablets, micro-encapsulation of vitamins and coating of medicines.

India, Thailand and china are major lac- producing countries in the world. About 70 to 80 per cent of the total world production is contributed by India. The important lac producing state in India is Jharkhand, Chhattisgarh, West Bengal and Madhya Pradesh. Jharkhand state ranks 1st followed by Chhattisgarh, West Bengal, Madhya Pradesh, Maharashtra and Orissa. These five states contributed around 93 per cent of the national lac production. Contribution of Jharkhand in national lac production was 50.8 per cent, followed by Chhattisgarh (14.6%), Madhya Pradesh (14.4%), Maharashtra (9%) and Orissa (4.21%).

In India, the host plants are mainly used for growing lac cultivation in forest of Himalaya Tarai, Hilly regions of Jharkhand, West Bengal, Orissa, Chhattisgarh, Madhya Pradesh, some part of Rajasthan, Gujarat and Assam, the forests comprise tree mainly of Ber, Palas, Kusum and bushy host plant. In India about 90% of lac is produced on the three conventional lac host trees i.e. Kusum, Ber and palash. Out of entire lac produced in the country, 80-85% is from rangeeni strain which is contributed mainly by palash followed by ber, the most widely spread host in India. However the best quality of resin produced by kusumi strain is obtained from kusum in India followed by ber in recent scenario. The contribution in total production is about 15-20% only due to limited distribution for rangeeni, lac production from palash ranks first (60-65%) and ber stands second in place (20-25%).

THE CONVENTIONAL METHOD OF LAC CULTIVATION

Pruning of trees

This is an essential operation to ensure availability of large number of succulent shoots at the time of infestation. This operation is carried out six months before infestation for raising summer crop in the month of April and for rainy season crop in February. In April, the most suitable stage of pruning is judged by appearance of pod, after shedding of flowers. The trees should not be pruned once sprouting for new leaves and shoots begin.

Infestation of host tree

Spreading of lac insect on succulent shoot is called infestation. In scientific method the brood lac stick of approximately 6 inch length are cut and 4-5 sticks are bundled and tied at several places over host tree. Tree should be infested in such ways that on most of the succulent shoots, lac insect are inoculated uniformly. For raising combined crop of summer and rainy season (Oct./ Nov. to Oct/ Nov.), estimate the requirement @ 10 gm good quality selected brood lac per meter of succulent shoots or around 400-500g per average size tree.

Removing used-up brood lac sticks

The used-up brood lac stick should be removed from infested tree as soon as emergence of lac larvae is over. Normally this period is 15- 20 days after tying of bundles on trees. This period should not exceed beyond 21 days in any case.

Crop harvesting

The crop is harvested either as an immature summer crop (Resin value) or mature crop as brood lac (Lac insect value). If crop harvesting is carried out for brood lac purpose, the date of hatching should be kept in mind. Immature summer lac is cut at any time when encrustation becomes relatively thicker. Normally brood lac is harvested in October/November when crop mature. If during this period the atmosphere is relatively colder then harvest crop only when emergence of crawlers is initiated. But if it is little bit warmer, crop can be harvested 4-5 days prior to the expected date of emergence. Harvest the crop completely from trees meant for producing immature summer crop and simultaneously prunes the trees so that it can be re-infested after six months in October. If any trees have excess brood lac in June/July, harvest such lac at the time of maturity and it either to re-infest other trees or sell in the market.

BROOD LAC

The scientific method for lac cultivation practices given below in Table 1

Table1: Practices in scientific method of lac cultivation

SL.No.	Activity	Improved technique
1.	Pruning of the Lac host plant/trees	
	Palash	In the month of March and April
	Kusum	In the month of January – February or June – July
	Ber	In the month of February
2.	Selection of brood lac	• Brood should not be insect infested or disease infected • Brood should be fully matured • Brood should not be old harvested
3.	Inoculation of brood lac	• Brood lac must be inoculated at proper time of insect emergence. • Brood should be inoculated in proper amount • Brood must be proper distributed in the branches
4.	Phunki Removal	After 3 – 4 weeks of brood lac inoculation it should be removed from the branches
5.	Application of insecticides & Pesticides	There should be application of insecticides /pesticides 21, 40 and 60 days interval or as per need at least 2-3 times.
6.	Harvesting	Transfer of the advance/ready lac at the appropriate time
7.	Coupe system	To secure the brood for next, we should follow the coupe system

METHODS OF GROWING HOST TREE FOR LAC CROP GEOMETRY

The space recommended for the major host plants has been as 3.6 x 3.6 m² for Palash, 6 x 6 m² for Kusum and 4.5 x 4.5 m² for ber, Khair and Ghont. Equilateral triangular system of planting has also been recommended for plantation raising of these lac hosts to promote sufficient light and air for better growth of the lac insects. Spacing requirement of various lac host is given in Table 2

Table 2: Spacing requirement of various lac hosts

Host plant	Spacing(m^2)	Stick Lac Yield Tree	
		kg/plant	Q/ ha Yrs
Palash	3.6 x 3.6	1.25	4.8
Kusum	6 x 6	30.00	20.8
Ber	4.5 x 4.5	5.00	12.35

(Source: Singh, BP. 2007)

Composition of Lac

Major constituent of lac is resin ((68%) and the other components include dye (1-2%), wax (6%), sugar, protein, soluble salts, sand, woody matter, insect body debris etc. lac dye is a mixture of anthroquinoid derivatives and contains erythro-laccin and laccaic acid. It is soluble in alcohol and weak alkalis but insoluble in water and it melt at 80°C.

LAC CULTIVATION FOR BIO-DIVERSITY MANAGEMENT

Biodiversity has direct consumptive value in food, agriculture, medicine and industry. Forest and tree cover plays a vital role in ecological balance, environmental stability, bio-diversity conservation, food security and sustainable development. Lac host plant also contributes significantly to this cause. India has about 200 million lac host trees of which only about one third are exploited. Promotion of scientific lac cultivation is an assured ecological approach for economic development. A careful selection of suitable conventional, regional and promising lac host plants is important for a particular area, to be practiced in association with various types of forestry *viz.*, agro forestry, social forestry, farm forestry, joint forest management, wasteland management, timber plantation, minor forest produce etc. lac plantations could be established with compatible intercrops, medicinal and aromatic plants etc., for developing lac based diversified farming system for increased productivity and profitability. Soil erosion and management, environmental and socio economic upliftment is possible with lac cultivation.

ORGANIZATIONAL PROFILE

JHARKHAND STATE LIVELIHOOD PROMOTION SOCIETY (JSLPS)

The Rural Development Department of Government of Jharkhand has established a separate and autonomous society named as "JSLPS" which works as a nodal agency for effective implementation of livelihood promotion in the state. JSLPS also is a nodal agency for implementation of National Rural Livelihood Mission (NRLM) project in state of Jharkhand. NRLM was launched by Ministry of Rural Development, Gov. of India in June 2011. NRLM has an ambitious mandate conceivably, the largest poverty reduction programme for poor in the world, the NRLM aims at reaching nearly 70 million rural households of India, it aims to reach out all rural poor families and link them to sustainable livelihoods opportunities. It will nurture them till they come out of poverty and enjoy a decent of life.

ABOUT JOHAR

Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) is World Bank assisted livelihood project. The project is launched in whole Jharkhand in the year 2016. The development objective of the JOHAR is to enhance and diversify household income in selected farm and non-farm sectors for targeted beneficiaries in project areas of Jharkhand.

Over 2, 00,000 rural households and some 3,500 farmer producer groups are expected to benefit from the project with women as principle actors in production, processing and marketing. Women SHG (Self Help Group) members, including from scheduled castes and tribes, and smallholder and landless households from 17 districts and 68 blocks of rural Jharkhand are expected to benefit. The JOHAR will help the state develop climate-resilient agriculture by focusing on year-round cultivation of vegetables and diversifying into new high-yielding varieties of pulses and oilseeds. The project will also demonstrate resilient technologies for improving productivity and reducing climate risk in paddy promote community-based micro-irrigation and support the producer groups to move into value added sectors like livestock, fisheries and non-timber forest produce.

The project comprises of three components

1. The first component is to diversified and resilient production and value addition of the products to support the small producers.

2. The second component will involve support for promoting market access and private sector participation, fostering skill development relevant to the focus value chain and facilitating the development of pro-poor agricultural finance system.

3. The third component is to establish effective project management and facilitate strong knowledge management.

OBJECTIVES OF THE STUDY

1. To study the cultivation and marketing of lac in Namkum and Angara Blocks of Ranchi District.
2. To study the impact of lac production in livelihood of farmers.
3. To give the suggestive measure to increase the income of lac farmers.

CHAPTER-2

REVIEW OF LITERATURE

This chapter presents a review of the past studies undertaken by various economists, research workers and organizations relating to the current research topic for enhancing better understanding of the study. A review of past research helps in identifying the conceptual and methodological issues relevant to the study. This will enable the researcher to identify the gaps, collect relevant data and subject them to sound reasoning and meaningful interpretation. Keeping in view the available literature has been carefully examined and meticulously summarized and have been presented under the following heads for the sake of simplicity.

1. Studies on lac cultivation and its impact
2. Studies on marketing of lac and lac based products
3. Studies on problems and constraints faced by the lac farmers and marketing agencies.

1. STUDIES ON LAC PRODUCTION AND ITS IMPACT

Jaiswal *et. al.* (2006) in their study on importance of lac in the socio economic life of tribals in Ranchi district (Jharkhand) found that maximum income per annum is generated from paddy crop (₹11,347) followed by lac (₹ 7,289), wheat (₹ 2,489), vegetable (₹ 1,605) and black gram (₹ 726). The percentage share of income from these crops was 43.9 per cent, 28.2 per cent, 9.6 per cent, 6.2 per cent and 2.8 per cent respectively. They showed that income from lac exceeds ₹ 10,000 per family per annum in Kantadih and Kocho village of Ranchi district while in Modidih and Sundil villages the average income per family per annum was ₹ 3,500 and ₹ 3,800 respectively.

Sharma *et.al.* (2006) studied about the role of lac culture in biodiversity conservation: issues at stake and conservation strategy estimated that average net profit from one tree is ₹ 109 for palas, ₹ 202 to ₹ 1,060 for ber and ₹ 1,320 for kusum per crop cycle. Therefore lac provides sustained high economic returns, generates employment opportunities as about one million man days are generated in existing lac processing factories.

Pal (2009b) in his study on resource use efficiency and level of technology adoption in lac cultivation among trained and untrained lac growers in Jharkhand, found that net returns in lac cultivation for 10 host trees by untrained lac growers was ₹ 977, ₹ 1,954 and ₹ 16,281 for palas, ber and kusum, respectively while it was ₹ 1,634, ₹ 4,183 and ₹ 33,129 for 10 host trees by trained lac growers for palas, ber and kusum, respectively.

Pal *et. al.* (2009) studied about lac cultivation as a risk-coping strategy for agriculture in Jharkhand and analyzed that contribution of lac in total income and farm income was 24.0 per cent and 32.0 per cent. Cost of cultivation and net returns per host on palas (*Butea monosperma*) and ber (*Zizyphus mauritiana*) worked out to ₹ 70.70, ₹ 163.40 and ₹ 159.20, ₹ 418.30 respectively.

Kumar and Das (2012) in their study on new technology and chances of lac culture found that the net profit per tree was ₹ 3,602.91 and ₹ 2,488.40 in case of kusumi lac, and ₹ 1,518.37 and ₹ 1,041.08 in case of rangeeni lac.

Bhatia *et. al.* (2013) in their study on forest insect industry in collaborative forest management: an overview found that mean lac productivity varies from 1-10 kg per tree depending on the host tree species and climatic conditions. Average net profit from one *Butea monospermatree* is ₹ 109, in case of *Zizyphus mauritiana* the net profit was ₹ 202 to ₹ 1,060. In case of *Schleichera oleosa* per crop cycle net profit was ₹ 1,320.

Mandal *et. al.* (2014) in their study on cost of lac cultivation and its profitability in Purulia district of West Bengal revealed that total cost of production of rangeeni and kusumi lac crop incurred by all farm size groups was ₹ 20,52,005.40 and ₹ 11,14,332.50 while the total net returns earned by all farm size groups from rangeeni and kusumi lac crop was ₹ 22, 75,194 and ₹ 9, 35,267.80 respectively.

2.2 STUDIES ON MARKETING OF LAC AND LAC BASED PRODUCTS

Surayya (2000) in her study about the dependence of forest dwellers on fuel wood and non- wood products for their survival and pertinent marketing issues reported that mean annual income generated by forest dwellers from NTFPs (None timber forest products) collection and sale was ₹ 2,337, mean income from collection and sale of firewood and livestock sale are accounted to be ₹ 2,500, whereas income from agricultural source and borrowing from others was highest about ₹ 4,846 and ₹ 3,388 respectively.

Sinha *et. al.* (2007) studied about the exploitation of tribes in factor and product markets in Tripura. In this study an attempt was made to assess how far and to what extent the tribes in Tripura were exploited in the factor and product markets in comparison to their non-tribal counterparts. The study revealed that there was discrepancy in the wage rate paid to the tribal and non-tribal laborers in the different goan sabhas and the inability of the tribal sellers in realizing better market price

Pal *et. al.* (2009) in their study on an analysis of price spread in marketing of lac in Madhya Pradesh found that price received by lac growers was ₹ 66 per kilogram in marketing of lac, constituting about 77 per cent of consumer's price. The primary purchaser gained a net margin of ₹ 212 per quintal by selling the produce to the wholesaler after incurring a cost of ₹ 88 per quintal. The wholesaler in turn to sell the produce to lac manufacturers incurred a marketing cost of ₹ 1,506 per quintal which constitutes 17.55 per cent of consumer's price. The wholesaler earns net margin of ₹ 174 per quintal.

Pal *et. al.* (2013) in their study on an economic analysis of lac in Kanker district of Chhattisgarh found that the lac grower received ₹ 75 per kilogram. The primary purchaser's margin was ₹ 260 per quintal and incurred ₹ 63 per quintal on marketing cost. The marketing margin was ₹ 140 per quintal.

Sircar *et. al.*(2013) in their study on lac cultivation in India,lac prices at grower's level revealed that total production varies from a high of 15,430 metric tonnes during 2003-04 to low of 6,942 metric tonnes during 2008-09 with a mean of 10,908.29 metric tonnes and co-efficient of variation of 27.44 per cent. The net realized price at international

market varies from ₹ 167.6 per kg during 2007-08 to ₹ 222.43 per kg during 2006-07 with a mean price of ₹ 190.92 per kg and co-efficient of variation 12.28 indicating narrow fluctuation in international market.

Sharma *et. al.* (2014) in their study on supply chain of guar products in India: challenges and options found that the issues related to marketing and supply chain of guar seed and products includes lack of containers and transport facilities for processed products from processing point to the port of export, lack of storage facilities, poor linkage of buyers to farmers etc

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2.4 STUDIES ON PROBLEMS AND CONSTRAINTS FACED BY THE LAC FARMERS AND MARKETING AGENCIES.

Pal (2013) in his study on lac production and processing in Chhattisgarh status and prospects found that the major constraints in lac production in Chhattisgarh state were shortage of funds for purchase of inputs used in cultivation, scattered lac host plants and distant places from the home, theft of lac, uncertainty in lac production, problem in marketing of brood lac, problem in cultivation operation due to the host height, long distance of market for sale and lack of knowledge of current price of lac, and unavailability of improved inputs in nearest market.

Das *et. al.* (2014) in their study on munda and their lac culture: a case study of Gulllu area of Murhu block in Khunti district found that 57 per cent of the farmers faced the problem of shortage of broodlac, 39 per cent faces the problem of lac insect death and about 4 per cent lac growers faced the problem of scattered host trees.

Yadav *et. al.* (2014) in their study on an empirical appraisal of production, export potentialities and policy reform for lac cultivation in India found that the major constraints in lac production was non – availability of brood lac, dearth of cash money, adverse climatic conditions and lack of credit facilities.

Gupta *et. al.* (2015) in their study on problems faced by tribes in collection and marketing of non timber forest products in Chhattisgarh, India found that the major problems faced by the respondents in collection and marketing of NTFPs was that 95.56 per cent of the respondents were facing the problem of low and fluctuated market prices of NTFPs followed by existence of bad weather and lack of developed market infrastructure for NTFPs (94.07 per cent), deforestation (82.96 per cent), over collection of NTFPs by outsiders (74.07 per cent), lack of transport facilities (48.89 per cent), processing and marketing of NTFPs (44.44 per cent), lack of subsidy (39.26 per cent), lack of availability of timely market information about NTFPs (33.33 per cent), lack of low cost storage facilities (25.93 per cent).

Shah *et. al*. (2015a) in their study on lac production, constraints and management found that the lac production continues to be constrained by a variety of biotic factors like neuropteran predator like Chrysoperla zastrowi Arabica, E. Ambabilis, P. Pulvere and parasitoids like Tachardia ephagus tacharadiae, Aprostocetus purpureus and several abiotic factors like drought, salinity, heat, cold and nutritional stress.

Shukla *et. al.* (2015b) in their study on performance and measurement of marketing of forest produce in Chhattisgarh state found that 87 per cent of the respondent cited the problem of lack of training in cultivating lac through modern methods followed by 76 per cent of the lac growers who didn't have the access to adequate brood lac for lac production and other growers faced the problem of death of brood lac due to extreme temperature(more than 42° c) and also theft of brood lac.

Mohammad *et. al*. (2015a) in their study on constraints of production and marketing of lac in Korba district of Chhattisgarh found that the major constraints pertaining to cultivation of lac were problem of shortage of brood lac was reported as the hazardous problem by growers similarly, high temperature during summer season, intensity with continuous rainfall, and insect pest etc., lack of demonstration, lack of labour and regulated marketing system was reported as most important constraint faced by the farmers during marketing of Lac.

CHAPTER-3

METHODOLOGY

This chapter deals with the methodology adopted for the present study. The sampling design, nature and sources of data and analytical techniques used in the study are described in details under following heads:

1. Sampling procedure
2. Nature and sources of data
3. Analytical techniques

1. Sampling Procedure

A multistage sampling technique was used in the selection of district, blocks, villages and lac cultivators which were described as:

- **Selection of Study Area**

The study was conducted in Ranchi district which was purposively selected because accessibility and availability of respondents as training have been provided by JSLPS to Lac cultivators under JOHAR project.

- **Selection of Blocks and villages**

Two blocks of Ranchi districts namely Namkum and Angara were selected purposively as maximum numbers of artisans involved in Lac cultivation. One village from each block was purposely selected.

Block	Village
Namkum	Garsul
Angara	Narayan soso

- **Selection of Artisans**- 20 artisans were selected from each village. Thus, total 40 artisans were finally selected from two villages.

- **Selection of variables**- The variables like age, gender, qualification and income status were selected as variables.

2. Data collection: Under the study both primary and secondary data were collected.

Primary data were collected through field visit and interactions with farmers. The data information was consisted of:

- ✓ Process of Lac cultivation
- ✓ Market analysis of Lac
- ✓ Impact on livelihood
- ✓ Problem related to Lac cultivation

Secondary data were collected through block project manager of JOHAR and various published report of different organizations and institutions.

3. Data analysis:

All collected data from various sources were processed and analyzed by using frequency, Percentage and other relevant statistical methods.

CHAPTER-4

RESULTS AND DISCUSSION

The filled up questionnaire were arranged in MS excel as per the methodology adopted for the study. Accordingly two month trip of Garsul viilage of Namkum block and Narayan Soso of Angara block of Ranchi district were undertaken to get reponse of the lac cultivator in form of framed questionnaire.

Results of the study have been presented taking into consideration the objective of the study and have been categorized into following section:

4.1 General information *viz:* Age group, gender, education, types of host plant used, no. of host plant used.

4.2 Cultivation and Marketing of lac- Type of lac varieties practiced cost of cultivation, annual lac production, type of market, problems in production and problems in marketing.

4.3 Impact of lac production in livelihood of farmers- living standard before and after lac cultivation (transportation material, communication media), family income.

4.4 Given suggestive measures to increase the income of lac farmers.

4.1 GENERAL INFORMATIONS

It included the age group, gender, education, types of host plant used, no. of host plant used in Namkum and Angara blocks of Ranchi district.

4.1.1 Age group of the lac cultivator

Table 1: Distribution of respondent according to age group

(N=40)

S. No.	Age category (year)	Frequency	Percentage (%)
1	20-30	9	22.5
2	30-40	24	60
3	40-50	3	7.5
4	Above 50	4	10
	Total	**40**	**100**

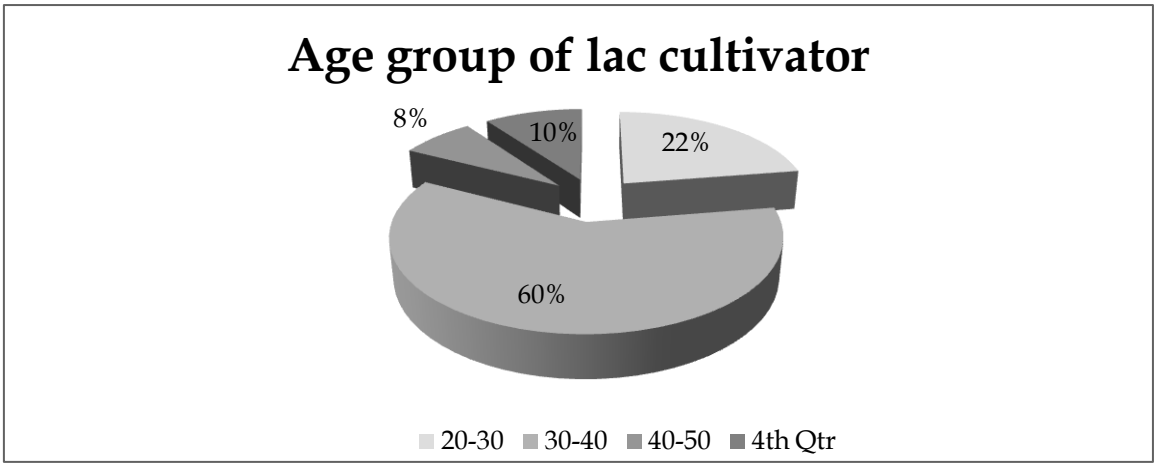

Fig. 1 Pie chart showing the distribution of respondents according to their age

The age group of the lac cultivator Namkum and Angara block under the study were presented in Table 1.1. The table revealed that maximum numbers of lac cultivator were from age group of 30-40 years (60%) followed by young age group 20-30 years (22%), old age group 40-50 years (8%) and more than 50 years (10%). The pooled data also reveled that middle age groups of respondent 30-40 years old were mostly involved in lac cultivation.

4.1.2 Number of Males and Females involved in lac cultivation

Table 2: Frequency distribution of the respondent according to gender

(N=40)

S. No	Gender	Frequency	Percentage (%)
1	Male	5	12.5
2	Female	35	87.5
	Total	**40**	**100**

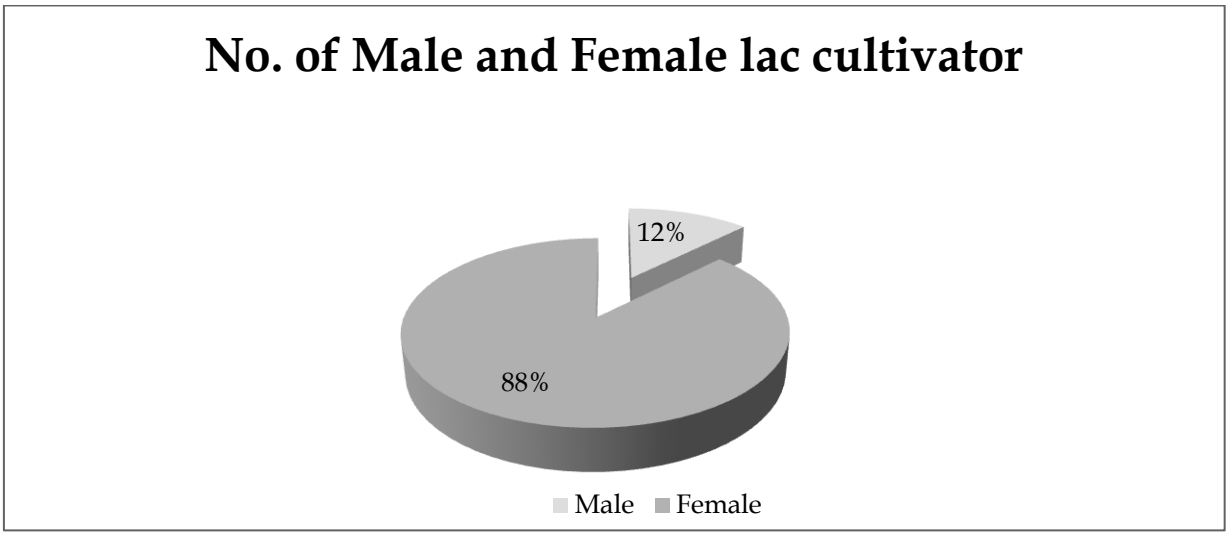

Fig. 2 Pie chart showing the distribution of respondent according to gender

The above table revealed that in lac cultivation mostly female cultivators were involved (87.5%) and involvement of male cultivators are only 12%. The pooled data also revealed that in both Garsul and Narayan Soso village of Namkum and Angara block respectively, mostly female cultivator were working as a principle actors in cultivation and marketing of lac.

4.1.3 Education levels of the lac cultivators

Table 3: Distribution of respondent according to education level

(N=40)

S. No	Education level	Frequency	Percentage (%)
1	Illiterate	14	35
2	Can read and write	4	10
3	Primary school	4	10
4	High school	11	27.5
5	Intermediate	6	15
6	Under graduate	1	2.5
7	Post graduate	0	0
	Total	**40**	**100**

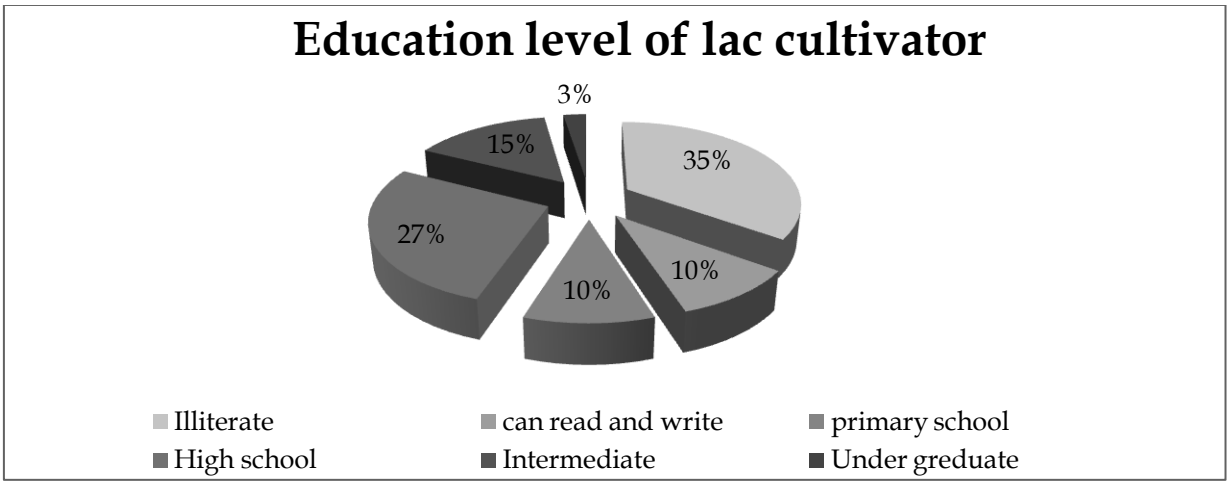

Fig 3 pie chart showing the distribution of respondent according to education level

The table indicate that 35% respondent were illiterate where as 65% respondent were literate. Further, the education levels of literate farmers in descending order were: High school (27%), intermediate 15%), can read and write (10%), primary school (10%) and under graduate (3%). The reason for high illiteracy might be attributed to poor education facilities in rural areas, restrictions in the families for females, get married in teen age or absence or school in the village.

4.1.4 Types of host plant used in lac cultivation

Table 4: Distribution of respondent according to their use of different plant in lac cultivation

(N=40)

S.N.	Name of plant	Frequency	Percentage (%)
1	Only kusum	0	0
2	Only ber	0	0
3	Only palas	0	0
4	kusum & ber	29	72.5
5	Kusum, ber & palas	11	27.5
	Total	**40**	**100**

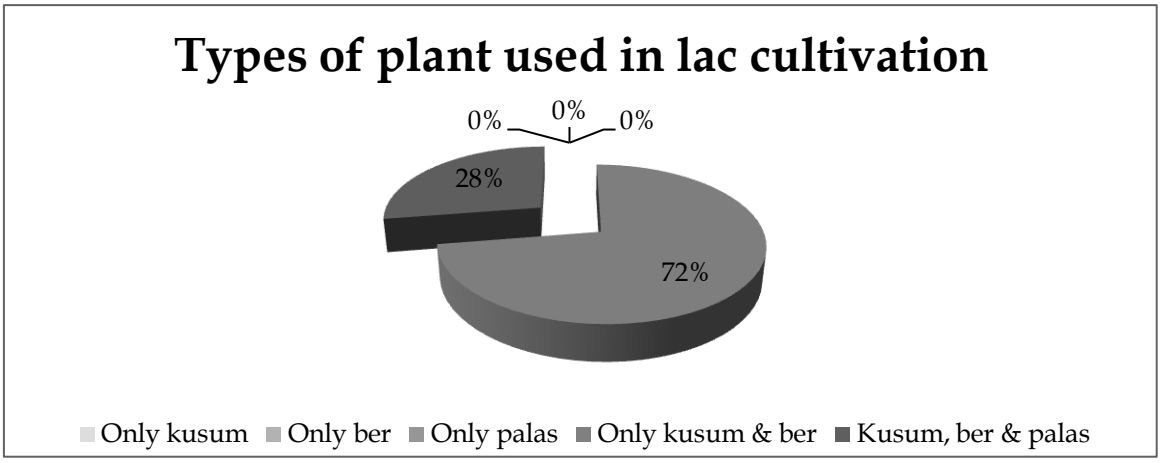

Fig.4 pie chart showing the distribution of respondent according to use of different types of plant in lac cultivation

The above table showed that kusum and ber was most common (72%) host plant for lac cultivation followed by all kusum, ber and palas (28%) and non of the respondent used only kusum, ber and palas as lac host plant. The reason for high use of both kusum and ber plant might be due to easy availability of large number of kusum and ber plant.

4.1.5 Number of plant used in lac cultivation

Table 5: Distribution of the respondent according to number of plant used in lac cultivation

(N=40)

S.N.	Number of plant	Frequency	Percentage (%)
1	Less than 10	14	35
2	11-20	12	30
3	21-30	8	20
4	Above 30	6	15
	Total	**40**	**100**

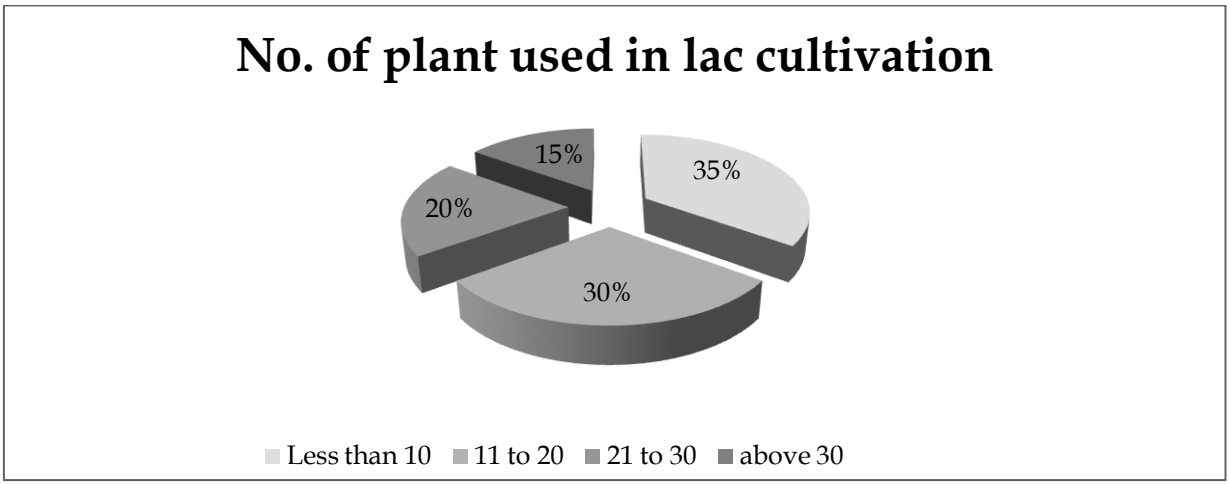

Fig.5 pie chart showing the distribution of respondent according to number of plant used in lac cultivation

The above table showed that 35% of respondent used less than 10 trees, 30% respondent used 11-20 trees, 20% respondent used 21-30 trees and only 15% respondent used more than 30 trees for lac cultivation. The reason for most of respondent have less than 10 trees might be due to decreasing number of trees as division of families lead to division of trees and the reason might be due to decreasing interest in lac cultivation.

4.2 Cultivation and Marketing

This results included type of lac varieties practiced, technology used in lac cultivation, cost of cultivation, annual lac production, type of market, problems in production, problems in marketing.

4.2.1 Type of lac varieties practiced by respondent

Table 6: Distribution of the respondent according to their type of lac varieties practiced in lac cultivation

(N= 40)

S.N.	Type of lac practice	Frequency	Percentage (%)
1	Rangeeni	0	0
2	Kusumi	33	82.5
3	Rangeeni + Kusumi	7	17.5
	Total	**40**	**100**

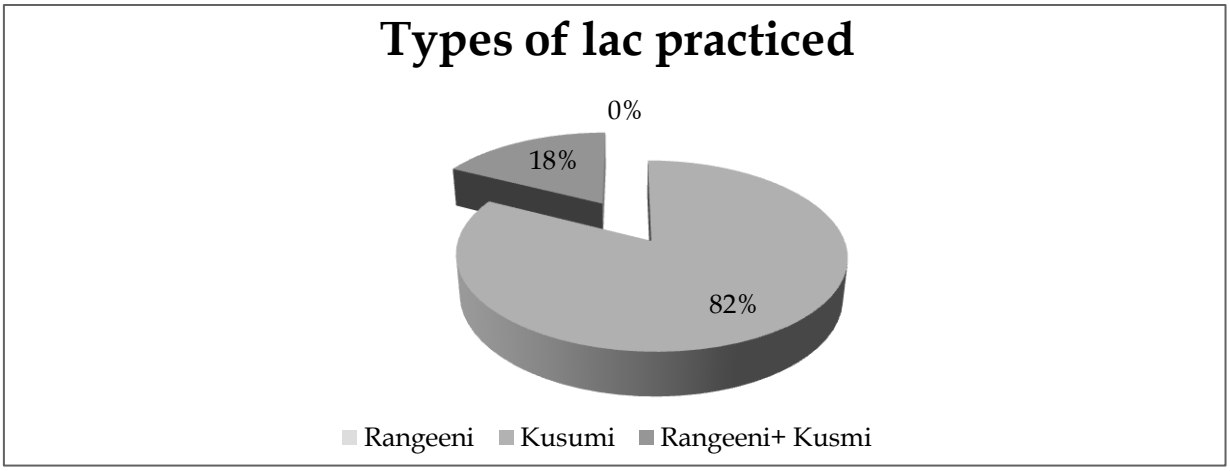

Fig. 6 pie chart showing the distribution of type of lac practices in lac cultivation

The above table showed that kusumi was the most important variety used by respondent (82.3%) and no respondent used rangeeni variety instead rangeeni was used with kusumi by 17.5% of respondent. The reason of selection of kusumi variety might be due to high yield and pest resistant nature of the variety. The rangeeni variety was not used because of unavailability of the variety.

4.2.2 Technology used in lac cultivation

Table 7: Distribution of respondent according to their use of technology in lac cultivation

(N=40)

S.N.	Techniques	No. of Respondent	Percentage (%)
1	Adoption for coupe system	0	0
2	Pruning	40	100
3	Selection of quality brood lac	33	82.5
4	Bundling of brood lac and tagging on plant	40	100
5	Phunki removal	40	100
6	Insecticide spraying	37	92.7
7	Use of synthetic net	0	0

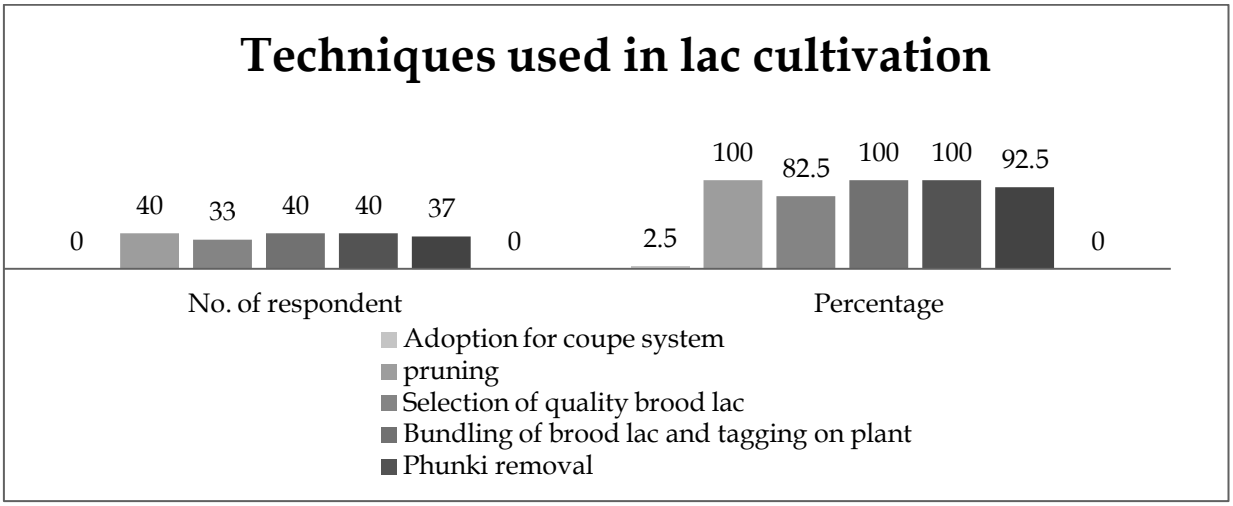

Fig. 7 Bar graph showing percentage share of use of technology

The tabular and graphical representation showed that 100% of respondent used pruning of lac host, bundling of brood lac and tagging on plant and phunki removal technologies, 92.7% of respondent used insecticide, 82.5% of respondent used good and quality brood lac .The reason for using these technologies might be due to basic nature of the technologies which were used from past many years. The low use of insecticide and synthetic net was due to high cost and lack of awareness in lac cultivation.

4.2.3 Annual lac production by the respondent

Table 8: Ddistribution of the respondent according to their annual lac production

(N=40)

S.N.	Quantity (q)	Frequency	Percentage (%)
1	< 1	31	77.5
2	1-1.5	3	7.5
3	1.6-2.5	5	12.5
4	2.6-5	1	2.5
5	> 5	0	0
	Total	**40**	**100**

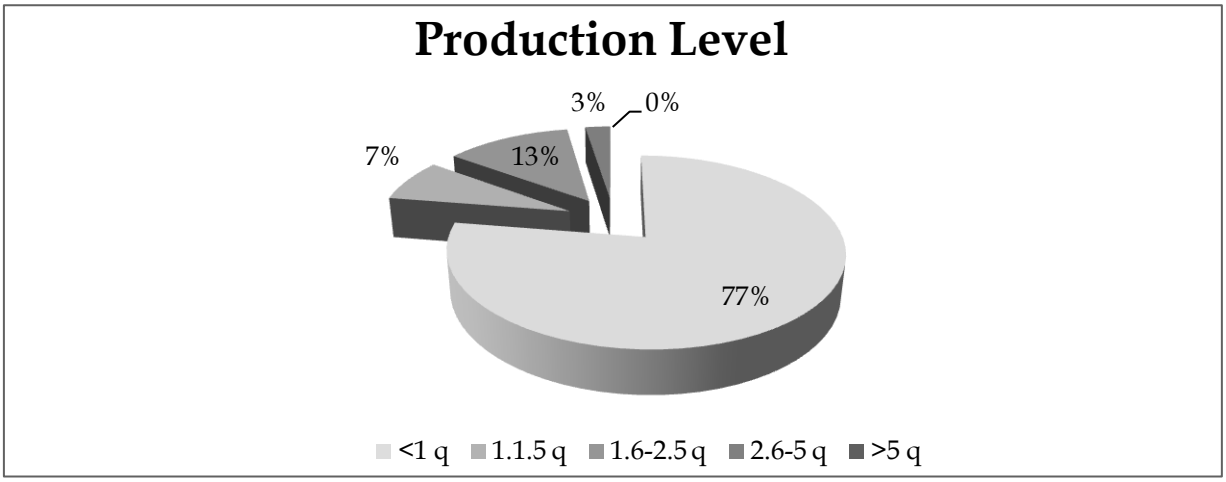

Fig. 8 pie chart showing percentage share of production level in Garsul and Naran Soso village

The tabular representation shows that 77.5% of respondent had production of less than 1 q followed by 12.5% respondent had production with 1.6-2.5 q, 7.5% respondent had production with 1-1.5 q, 2.5% respondent had production with 2.6-5 q and 0% respondent had more than 5 q of production. Reason of low production might be due to adoption of traditional technique of lac cultivation, quality of brood lac, increase in pest attack, decreasing in interest of lac cultivation and due to bad weather condition. The farmer should be provided more information about lac cultivation, pest control, provide training facilities and introduction of modern techniques.

4.2.4 Market type

Table 9: Distribution of the respondent according to selling of lac in different types of market

(N=40)

S.N.	Particulars	Frequency	Percentage (%)
1	Own village	6	15
2	Local market	25	62.5
3	Own village + local market	9	22.5
4	Transport to other market	0	0
5	Online marketing	0	0
	Total	**40**	**100**

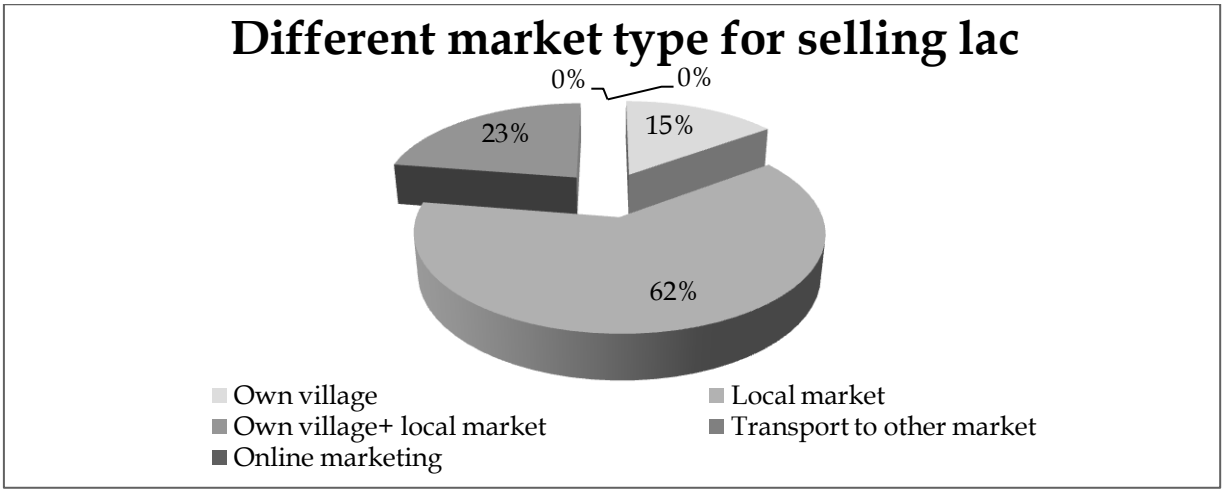

Fig. 9 pie chart showing the distribution of different market type for selling of lac

The table showed that 62.5% respondent sell their produced lac in local market, 22.5% respondent sell their lac in both own village and local market, only 15% respondent sell in their own village only and none of the respondent sell their produced in other market or through online marketing. Mostly farmers sell their produced lac in own village or local market and not transport to other market was might be due to lac of transportation facilities, lack of awareness of other markets and about online marketing and large number of traders or middle man. The farmers should be provided transportation facilities, more information about marketing to avoid the traders and middle man.

4.2.5 Cost Benefit analysis

Table 10: Cost and benefit ratio of 40 artisans of Narayan Soso and Garsul village of Angara and Namkum blocks of Ranchi districts.

Name	Cost of brood Lac per kg (Rs)	Cost of pesticide (Rs)	Labor charge	Total cost	Total production (kg)	Selling price (per kg)	Total earning	Benefits
Meri kacchap	6,000	165	900	7,060	120	250	30,000	22,940
Balmani Devi	900	0	0	900	30	250	7,500	6,600
Bacchai Lakra	2,500	165	600	3665	50	250	12,500	8,835
Chinta Devi	12,000	330	1,350	13680	250	250	62,500	48,820
Anita Devi	7,500	165	1,000	8665	150	250	37,500	28,835
Sabita Devi	750	0	0	750	15	250	3,750	3,000
Radhika Devi	900	0	0	900	20	250	5,000	4,100
Mohri Devi	1000	165	300	1,765	35	250	8,750	6,985
Nirola Devi	1,500	165	600	2,266	40	250	10,000	7,734
Sangita Kacchap	900	0	0	900	15	250	3,750	2,850
Parmila Terki	2000	165	450	2,615	55	250	13,750	11,135
Filman Horo	1,500	165	450	1,665	50	250	12,500	10,835
Usha Nag	750	165	0	1915	25	250	6,250	5,335
Reshma Khoya	10,500	165	1,200	11,865	250	250	62,500	50,635
Turiya Tirki	750	165	0	915	20	250	5,000	4,085
Binit Tirki	900	0	0	900	25	250	6,250	5,350
Sugeya Devi	750	165	300	1,215	35	250	8,750	7,535

Name	Cost of brood Lac per kg (Rs)	Cost of pesticide (Rs)	Labor charge	Total cost	Total production (kg)	Selling price (per kg)	Total earning	Benefits
Sipriya Horo	2500	165	600	3,265	80	250	20,000	16,735
Meena Devi	2000	165	600	2,765	70	250	17,500	14,735
Tushi Munda	1,500	0	600	2,100	70	250	17,500	15,400
Priyanka Toppo	3,000	165	450	3,615	80	250	20.000	16,385
Sushana Linda	900	165	0	1,065	20	250	5,000	3,935
Parvati Bando	2,500	165	300	2,965	55	250	13,750	10,785
Sunita Tigga	2000	0	600	2,600	80	250	20,000	17,400
Sohan Gope	12,000	330	1,800	14,130	500	250	125,000	110,870
Merkha Linda	6,000	165	600	6,765	150	250	73,500	66,735
Somari Horo	1,500	0	300	1,800	35	250	8,750	6,950
Bahalean Lakra	2,500	165	300	2,965	55	250	13,750	10,785
Duman Devi	750	0	150	900	25	250	6,500	5,600
Sukarmani Devi	900	0	0	900	20	250	5,000	4,100
Rejhan Devi	7,500	165	1,200	8,865	200	250	50,000	41,135
Jhubari Devi	6,000	165	600	6,765	170	250	42,500	35,735
Sugan Devi	1,500	165	300	1,965	35	250	8,750	6,785
Rakhi Devi	750	0	150	900	20	250	5,000	4,100
Sheela Devi	900	0	150	1,050	20	250	5,000	3,950
Phulo Devi	1,500	110	300	1,910	35	250	8,750	6,840
Manju Devi	1,500	165	150	1,815	30	250	7,500	5,685

Name	Cost of brood Lac per kg (Rs)	Cost of pesticide (Rs)	Labor charge	Total cost	Total production (kg)	Selling price (per kg)	Total earning	Benefits
Chaitee Devi	2,250	165	450	2,865	45	250	11,250	8,385
Bhulwasi Devi	2,000	110	300	2,410	40	250	10,000	7,590
Phulmani Devi	9,000	165	450	9,615	180	250	45,000	35,385

Average total cost = 3,616 ₹

Average total earning = 20,906 ₹

Profit = Total earning – Total cost

= 20,906 – 3,616

= 17,290 ₹

4.2.6 Challenges and problems faced by farmer in production of lac

Table 11: Distribution of the respondent according to challenges and problems faced by farmers in production of lac

(N=40)

S.N.	Problems	Yes		No	
		No.	frequency	No.	frequency
1	Lack of awareness or knowledge of lac cultivation	8	20	32	80
2	Lack of quality brood lac	27	67	13	32
3	Lack of Training	9	22.5	31	77.5
4	Pest attack	38	95	2	5
5	Crop being stolen	8	20	32	80
6	Inadequate weather condition	40	100	0	0

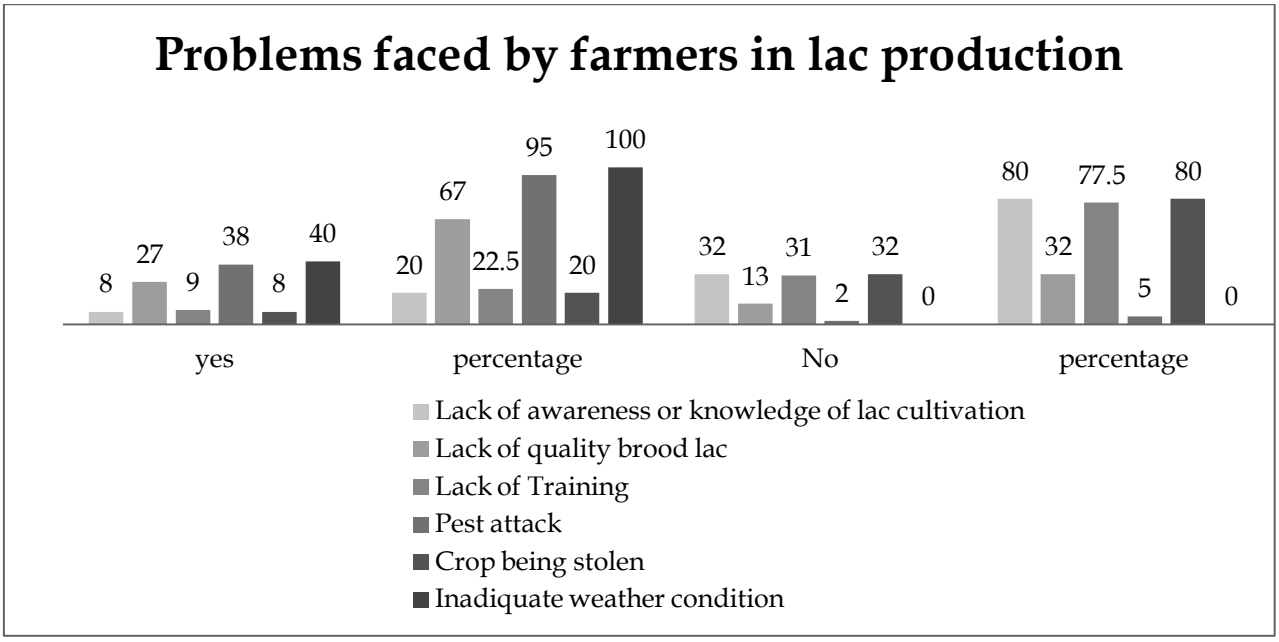

Fig. 11 Bar graph showing the percentage share of different problems faced by farmers in production of lac in Garsul and Narayan Soso village

The tabular and graphical representation showed that 100% respondent facing problem by inadequate condition of weather, 95% respondent consider pest attack and 67% respondent

consider of lack of quality brood lac. The inadequate weather condition might be due to increasing temperature, increasing deforestation which has disturbed the natural phenomenon of the earth resulting in high irregularity of weather conditions. The information about pest and their effects might be reason for 95% of respondent consider it as a major problem.

4.2.7 Problems faced by farmer in marketing of lac

Table 12: Distribution of the respondent according to challenges and problems faced by farmers in marketing of lac

(N=40)

S.N.	Problems	Yes		No	
		No.	Frequency	No.	Frequency
1	Lack of organized market	40	100	0	0
2	Inadequate storage facilities	40	100	0	0
3	Non availability of market information	40	100	0	0
4	Inadequate transportation facilities	40	100	0	0
5	Lac of knowledge about value addition	40	100	0	0
6	Less price of raw lac	40	100	0	0

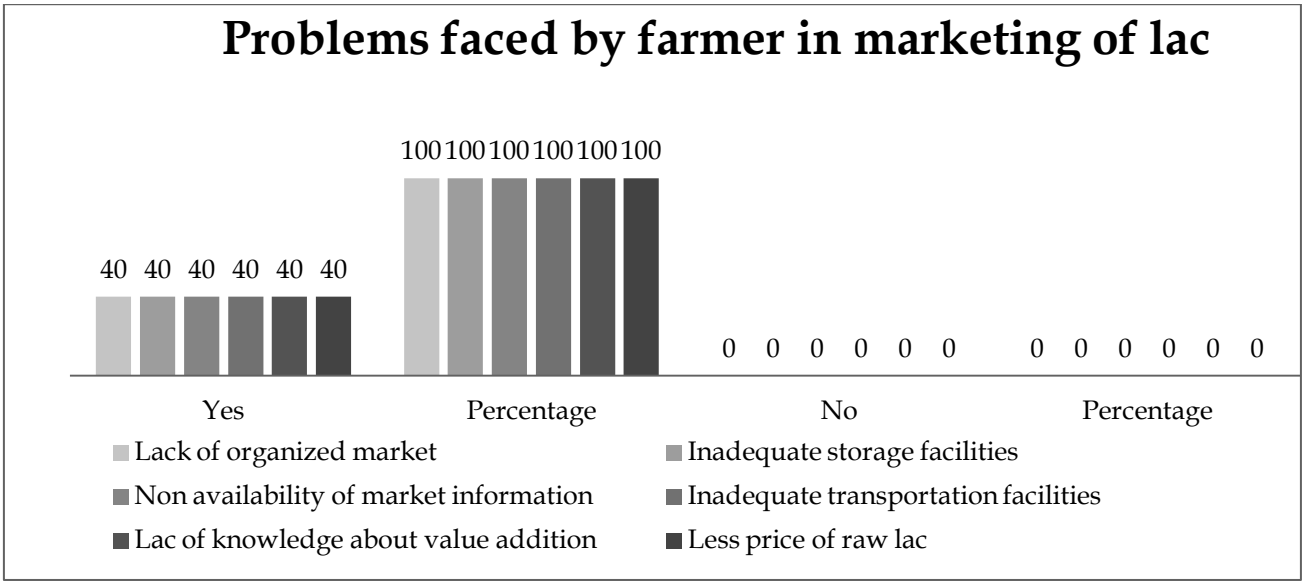

Fig. 12 Bar graph showing the percentage share of different problems faced by farmers in marketing of lac in Garsul and Narayan Soso village

4.3 Impact of lac cultivation in livelihood of farmers

This result included living standard changes after lac cultivation (transportation material, communication media, and family income).

4.3.1 Living standard of farmers after adoption of lac cultivation

Table 13: Distribution of the respondent according to their changes in living standard after lac cultivation

(N=40)

S.N.	Status	Frequency	Percentage (%)
1	Housing	7	17.5
2	Education	32	80
3	Communication media	26	65
4	Transportation media	29	72.5

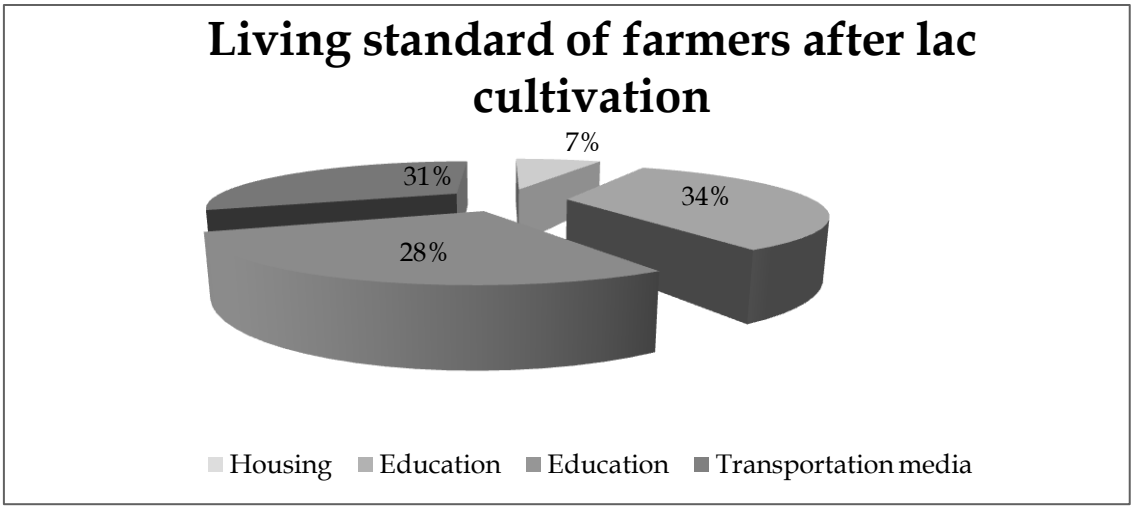

Fig. 13 pie *chart showing the distribution for status of living standard of the farmers*

The table and graph showed that 80% respondent increased in education standard, 72.5% respondent increased in transportation media, 65% respondent increased in communication media and only 17.5% respondent increased standard for housing. The reason for increase in education, transportation and communication media might be due they are the basic necessary requirement of life.

4.3.2 Annual family income

Frequency distribution of the respondent according to their family income before and after lac cultivation in Garsul and Narayan Soso village of Namkum and Angara block respectively

Table 14: Dstribution of the respondent according to their annual income of the farmer before lac cultivation

(N=40)

S.N.	Income level annual (₹)	No. of respondent	Percentage (%)
1	10,000-20,000	1	2.5
2	21,000-30,000	16	40
3	31,000-40,000	19	47
4	41,000-50,000	3	7.5
5	51,000-60,000	1	2.5
6	60,000-70,000	0	0
7	71,000-80,000	0	0
8	81,000-90,000	0	0
9	91,000-1,00,000	0	0
10	>1,00,000	0	0

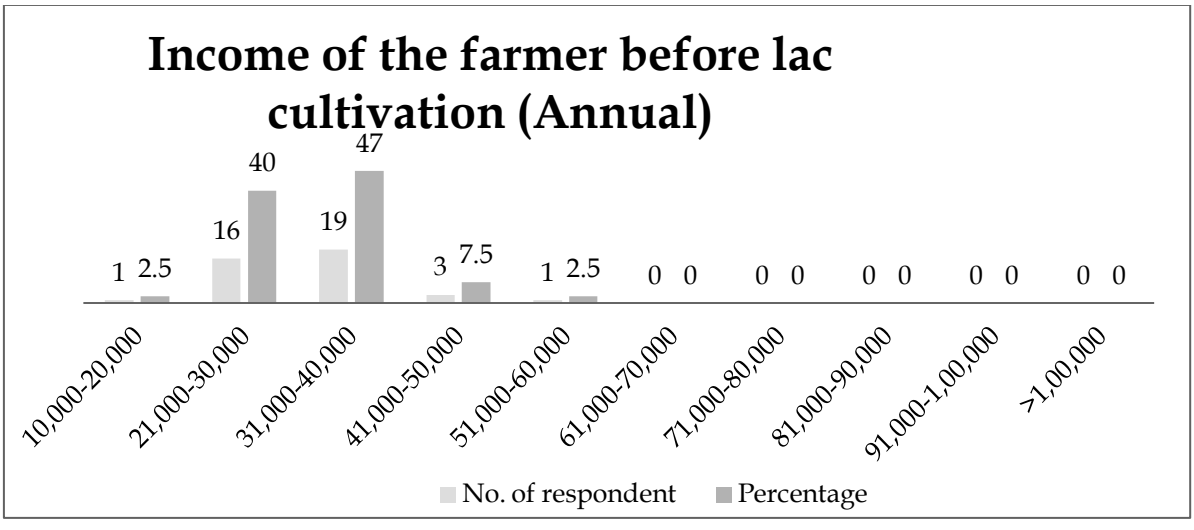

Fig.14 Bar graph showing the percentage share of annual income of the farmer before lac cultivations in marketing of lac in Garsul and Narayan Soso village

The table and graph showed that before lac cultivation the annual income of the farmers are not high. 47% of the respondent had the annual income between (31,000-40,000), 40% of the respondent had income between (21,000-30,000) and only 2.5% of the respondent had annual income between (51,000-60,000) and none of the respondent had annual more than 60,000.

Table 15: Dstribution of the respondent according to their annual income of the farmer after lac cultivation

(N=40)

S.N.	Income level annual (₹)	No. of respondent	Percentage (%)
1	10,000-20,000	0	0
2	21,000-30,000	0	0
3	31,000-40,000	4	10
4	41,000-50,000	9	22.5
5	51,000-60,000	12	30
6	61,000-70,000	4	10
7	71,000-80,000	6	15
8	81,000-90,000	2	5
9	91,000-1,00,000	2	5
10	>1,00,000	1	2.5

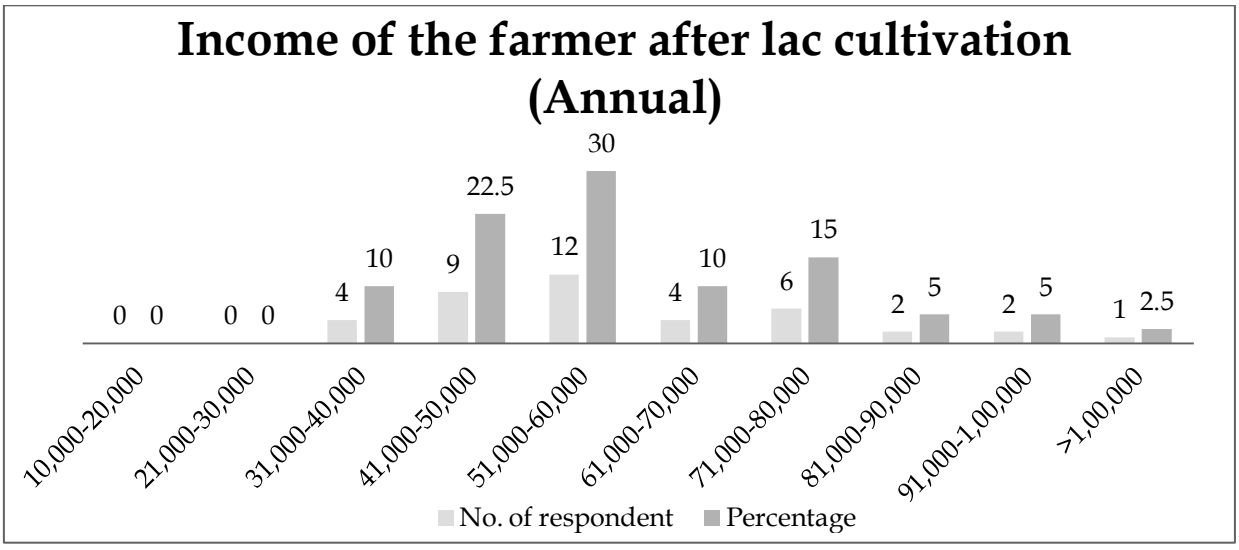

Fig.15 Bar graph showing the percentage share of annual income of the farmer after lac cultivations in marketing of lac in Garsul and Narayan Soso village

The table and graph showed that after adoption of lac cultivation the annual income of the lac farmers increased. 30% of the respondent has annual income between (51,000-60,000), 15% of the respondent has income between (71,000-80,000) and 2.5% of the respondent annual income increased more than 1, 00,000. This increase in annual income of the farmers might be due to less investment and high production of lac and getting good selling price.

4.4 Suggestive measures to increase the income of lac farmers

- The government should provide training facilities and also run awareness programme about advantages of lac cultivation.
- The training should also include awareness about value addition of the raw lac because processed lac gets more price and high demands.
- The government should provide loan facilities to the lac cultivator to meet their requirement which is necessary for lac cultivation like purchasing of good quality of brood lac, harvesting equipments, pesticides, hired labour etc.
- For solving the poor pricing and increase the income government should providing facilities like:
    - Price fixation
    - Organized market
    - Storage facilities
    - Transportation facilities and
    - Development of processing unit in accessible distance

So that due to lack of these facilities the farmers should not forced to sale their product at low price.

CONCLUSION

- In the study area, most of the farmer (60%) belongs to the age group of 30-40.
- The maximum numbers of farmers (65%) were literate and 35% farmers were illiterate.
- In the study area mostly female (80%) were involved in lac cultivation.
- Living standard of the farmers improved in terms of education, transportation facilities and communication media after introduction of lac cultivation.
- Before lac cultivation only 2.5% farmers had annual family income more than 41,000-50,000 but after adoption of lac cultivation about 30% of the farmers annual income increased.
- Mostly Kusum and ber used as lac host plant.
- About 65% farmers used more than 10 plants for lac cultivation.
- Kusmi verity (82.5%) was used by most of the farmers for cultivation.
- About 77.5% farmers had less than one quintal of annual lac production.
- On the study area mostly farmers used local market (62.5%) to sell their produced lac.
- The biggest problems faced by farmers were an uncertain weather condition, pest attack and marketing.

PHOTOGRAPHS

Interaction with lac producer in Garsul village of Namkum block.

Interaction with farmers in Narayan Soso village of Angara block.

REFERENCES

Jaiswal, A.K. and Saha, S.K. 1993. Estimation of crop yield on the basis of correlation and regression analysis in lac (*Kerrialacca*). *Indian Journal of agriculture Science,* **63**(6): 379-381.

Kumar, A. and Das, R. 2012. New technology and chances of lac culture. *Indian council of Forestry Research and Education, Dehradun*. 5-7

Mishra, Y.D, Sushil, S.N, Bhattacharya A, Kumar S, Mallick, A and Sharma, K.K. 1999. Intra specific variation in host – plants affecting productivity of Indian lac insect, Kerrialacca (Kerr). *J. Non Timer Forest Product* **6**(3/4):114-116.

Prasad, N, Kumar, K.K and Jaiswal, A.K. 2004. Energy Requirement in lac Production. *Agricultural Mechanization in Asia, Africa and Latin America* **35**(1)

Pal, G, Jaiswal, A. K. and Bhattacharya, A. 2009. An analysis of price spread in marketing of lac in Madhya Pradesh. *Indian Journal of Forestry* **32**(4): 581-584.

Pal, G. 2009a. Impact of scientific lac cultivation training on lac economy – A study in Jharkhand. *Agriculture Economics Research Review* **22**(1): 139-143.

Pal, G. 2009. An analysis of constraints in production and marketing of lac in Jharkhand. *Journal of Rural and Agriculture Research* **9**(1):19-21.

Pal, G and Patel, B. 2013. An economic analysis of lac marketing in Kanker district of Chhattisgarh. *Indian Forester* **139**(3): 256-259.

Sharma, K.K, Jaiswal A.K and Kumar K.K.2006. Role of lac culture in biodiversity conservation: issues at stake and conservation strategy. *Current Science* **91**(7).

Surayya, T. 2000. Dependence of forest dwellers on fuel – wood and Non-wood products for their survival and pertinent marketing issues. Proceeding of International workshop on agro-forest products, Aizwal, Mizoram, India.

Srivastava, S. C. 2011. Lac host plant- current status and distribution. Indian industry Indian institute of natural resin and gums, Namkum, Ranchi. 73-81

Sircar, S., Saha, A. K, Veerendra, H. C. S and Kujur, R. S. 2013. Lac cultivation in India: II, lac prices at growers level. *Indian Forester* **139**(9):821-825.

QUESTIONNAIRE (FOR LAC CULTIVATOR)

1. Name of the Respondent/Producer: …….

2. Address: Vill. ……. Post…….

Block…… Dist……..

3. Age: 20-30 ( ) 30-40 ( ) 40-50 ( ) 50 and above ( )

4. Gender: Male ( ) Female ( )

5. Qualification:

Illiterate	Can read & write	Primary School	High School	Intermediate	Under graduate	Post graduate

6. Are you growing Lac? Yes ( ) No ( )

- If no, what are the reasons?

Brood Lac ( ) Climate ( ) Market ( ) Other ( )

7. If yes, information related to Brood Lac -

a) Are you preparing Brood Lac or purchasing?
……..

- b) If you are preparing the brood then how?
……..

- c) If you are purchasing Brood Lac then from where?
……..

- d) At what price you are purchasing?
……

8. Which type of Lac you are growing?

Rangeeni ( ) Kusumi ( ) Both ( )

9. Information regarding Lac – host tree

Name of host tree	No. of trees
Ber	…….
Palas	…….
Kusum	…….
Other	…….

10. Which technology you adopt for lac cultivation?

Techniques	YES	NO
a) Pruning		
b) Inoculation		
c) Phunki removal		
d) Insecticide spraying		
e) Harvesting		
f) Scrapping		

11. How many labour required? …….

12. Are you using any pesticides? Yes ( ) No ( )

- If yes, what type of pesticides using?
  ……
  ……
- What is the time duration of using pesticides?
  ……
  ……

13. Previous year Production (in kg) ……..

14. Current year production (in kg) …….

15. How do you market or sale your product?

Retail ( ) Bulk ( )

16. Type of market where produced lac are sold –

Village ( ) Local market ( ) Transport to other ( ) Online marketing ( )

17. What is the selling price of Lac?

S.No.	Lac	Selling price
1.	Brood Lac	
2.	Stick Lac	
3.	Scraped Lac	

18. What is the profit margin?

19. Adopted modern techniques? Yes ( ) No ( )

20. Government helps? Yes ( ) No ( )

If yes, maintain the nature of help-

- Provide training ( )
- Brood Lac supplying ( )
- Equipment supplying ( )
- Fund provide ( )
- Others ( )

Impact on livelihood

1. Due to Lac cultivation, is there any changes in your life style?

S.No	status	Increased	Decreased	No change
1.	Housing			
2.	Education			
3.	Communication			
4.	Transportation			

2. Income:

- Family income before adoption of Lac culture
  …….
- Family income after adoption of Lac culture
  ……

3. Are you satisfied with Lac Cultivation?

- If yes, then how?
  ……
  ……
  ……
- If no, then why?
  ……
  ……
  ……

Problems

[A] Production Problems

S.No	Problems	Yes/No
1.	Lack of knowledge about lac cultivation	
2.	Lack of quality brood lac	
3.	Inadequate weather condition	
4.	Lack of training	
5.	Pest attack	
6.	Crop being stolen	

[B] Marketing problem

S.No	Statement	Yes/No
1.	Lac of organized market	
2.	Inadequate storage facilities	
3.	Non availability of market information	
4.	Inadequate transportation facilities	
5.	Lac of knowledge about value addition of lac	
6.	Less price of raw lac	

Suggestion

1. Suggestions offered by lac cultivators to enhance the income through lac processing or value addition:

Lac processing or value addition activities	Why you suggest this	How it increase the income	Risk/Challanges

DEDICATED

TO

MY FAMILY

" This project work is dedicated to my father Mr. Rajeshwar Dangi, my mother Mrs. Rupa Devi and my brother Mr. Lolesh Kumar"

.....RANI KUMARI DANGI

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Date

Place *Rani Kumari Dangi*

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ABSTRACT

The study entitled cultivation and marketing of lac in Namkum and Angara blocks of Ranchi districts in Jharkhand was carried out at the center for agribusiness management, Birsa agricultural university Kanke Ranchi during the year 2019. The present study was conducted under 40 lac producers from 2 villages Narayan soso and Garsul from Angara and Namkum blocks respectively. Most of the farmers (60%) were belongs to age group of 30-40 years, about (60%) farmers were litirate and 35% were illiterate, mostly females (80%) were involved in lac cultivation. The living standard of the lac growers improved in terms of education, transportation facilities and communication media after introduction of lac cultivation. Mostly kusum and ber used as lac host plant and mostly kusumi verity (82.5%) was used by lac growers. The annual income of the lac grower (30%) was increased after adoption of lac practices. While the constraints of lac farming were an uncertain weather condition, pest attack and lac of organized market. To increase the income and to solve the problems of lac farmers the government should provide training, loan facility, organized market, storage facilities, and transportation facilities, so that farmers should not forced to sale their product at low price due to lack of these facilities.