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# Business performance of lac growers SHG's: A case study of Korba district of Chhattisgarh

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**Abstract**
The present study was conducted on Business performance of lac growers SHGs – A case study of Korba district of Chhattisgarh, during 2022-23. The study revealed that the cost and return of lac production for Kusumi and Rangeeni Lac. The total cost of lac production of Palas for per kg was found to be Rs. 111.07. The gross return obtained from lac of per kg of Palas trees cultivation was found to be Rs. 275. The net return was found to be Rs. 163.93. The per kg of input-output ratio was 1:2.4 and benefit-cost ratio was 1:1.4. The total cost of lac production of Kusum for per kg was found to be Rs. 87.75. The gross return obtained from lac of per kg of Kusum trees cultivation was found to be Rs. 340. The net return was found to be Rs. 252.25. The per kg of input-output ratio was 1:3.8 and benefit-cost ratio was 1:2.8. The total cost of lac production for different host species for per tree was Rs. 1786.34. The gross return obtained from different host species per tree cultivation was found to be Rs. 6066.47. The net return was found to be Rs. 4280.13. The per tree of input-output ratio was 1:3.40 and benefit-cost ratio was 1:2.40. There were three marketing channels for the marketing of Lac *i.e.* channel I producer, wholesaler, retailer and primary processor, channel II producer, wholesaler, and primary processor and channel III producer and primary processor. It was observed that 51.02 percent, 32.15 percent and 16.82 percent of produced has been marketed in I, II. and III respectively. Major constraints pertaining to cultivation and marketing of Lac were problem of Shortage of Broodlac (92.72 percent) similarly, high temperature during summer season, intensity with continuous rainfall, and insect pest attack, Lack of demonstration, Lack of labour and regulated marketing system.

**Keywords:** Lac, Kusumi, rangeeni, marketing, brood lac and palas

## Introduction
India is the world leader in production of lac and quality of lac is also unmatchable. In India lac is mainly produced by two strains of lac insect, *Kerria lacca* (Kerr). These are "*rangeeni*" and "*kusmi*". The *rangeeni* lac is mainly produced on trees of Palas (*Butea monosperma*), the flame of forest and Ber (*Ziziphus mauritiana*). The *kusmi* lac is mainly produced on Kusum (*Schleichera oleosa*), the lac tree and to some extent on plum tree also. There are two crops by each strain of lac. The *rangeeni* lac has summer and rainy season crop, commonly called *baisakhi* and *katki*, each of 8- and 4-months duration respectively. The *kusmi* lac has also two crops, the summer and winter commonly called *jethwi* and *aghani*, each of around six months duration. (Jaiswal *et al.*, 1993) [5]. The main commercial crop of *rangeeni* is summer crop, commonly called "Baisakhiari" and for "*kusmi*", the commercial crop is winter season crop commonly called Aghani. The production of commercial summer crop of *rangeeni* lac largely depend on preceding rainy season crop as the rainy season crop act as a broodlac for commercial summer crop, raised in October-November. Similarly, production of "*kusmi*" winter crop (Aghani) which is main commercial crop largely depends on preceding summer season crop which act as a Brood lac (Jaiswal *et al.*, 1993) [5]. On the basis of survey in the local weekly markets of different lac producing districts, the estimated national production of Sticklac during 2019-20 was approximately 18,944 tons as compared with Rangeeni (6050 tons) and Kusmi (12894 tons) stick lac. Among the lac growing states, Jharkhand state ranks 1st (54.60%) followed by Chhattisgarh (18.37%). Madhya Pradesh (13.03%), West Bengal (5.57%), Maharashtra (4.50%) and Odisha (3.55%). These six states contributed more than 99% of the total lac production in India. Among the different cropping seasons, Aghani crop was ranked 1" with the contribution of 36.48% followed by Jethwi (31.58%), Baisakhi (17.58%) and Katki (14.36%) in total lac production.

(Source: - Lac, Plant Resins and Gums Statistics 2020: At a Glance). Lac consists of resin, wax and dye, thus has a wide range of applications in food, pharmaceuticals, cosmetics, perfumes, varnishes, paints, polishes, adhesives, jewelry and textile dyes, since ancient times. Lac is a cash crop of commercial importance providing an importance source of livelihood to millions of resource poor grower inhabiting tribal dominated forests and sub-forests regions of the country (Wang *et al*., 2013) [8].

## Materials and Methods

### Sampling Framework

Chhattisgarh comprises 33 districts out of that Korba district was selected purposively. Korba district is comprised of 5 blocks *viz;* Katghora, Pali, Poundi Uproda, Kartala and Korba. Among them Katghora and Pali blocks have been undertaken on the basis of the maximum area and production of Lac.

### Collection of Data

Primary data from farmers was collected through personal interview method with the help of schedule and questionnaire prepared for detailed inquiry as per the objectives of study. The secondary data was collected from Directorate of Forest, Government of Chhattisgarh, Chhattisgarh minor forest product, Directorate of Land Record and Directorate of Economics and Statistics, the annual area, production and productivity of Lac in Korba district were recorded collected from Deputy Directorate of Forest Korba, Chhattisgarh.

### Analytical tools

After looking at the quality and quantity of data required, suitable statistical tools was used and data was collected from different sources. The primary data were classified and tabulated in the light of stated objectives of the study and analyzed as per the suitable statistical method and economic tools.

## Results and Discussion

### Cost of lac production for Palas tree

The average cost of cultivation per tree for palas tree was estimated to be Rs. 925.63, which is presented on table 1. The major cost was incurred on brood lac (63.58%), followed by fungicide and pesticide (13.90%), harvesting (4.91%), plant protection (4.43%), pruning/training (4.82%), miscellaneous (4.64%), brood lac inoculation (2.56%) and Transportation (1.18%), respectively. The entire cost of Brood lac of lac growers of SHG's found to be Rs. 550 lac growers. Overall, growers of SHGs spent Rs.120 on fungicide and pesticide application. Various cost was observed *viz.* Harvesting cost Rs.42.51, Training and pruning Rs 41.74, Miscellaneous cost Rs. 40, Plant protection Rs 38.34, brood lac inoculation cost Rs. 22.13, and Transportation Rs. 10.21, respectively.

### Return of lac production from Palas tree

The average production per tree of lac from Palas tree cames to 7.79 kilogram of the sampled farms, according to table 2, which also includes the value of output per tree and the cost of production per kilogram for Palas trees. On an average, the cost of production per kilogram came out to Rs. 111.07 for every lac tree. The average amount of yield from each tree was Rs. 2141.49.

### Net return from Palas tree

The table 2 consist of net income per tree and the input-output ratio of lac production the farmer who grows lac. The table clearly shows that the average amount of income per tree of lac growers of SHGs was Rs. 1215.86. The average input-output ratio came to 1:2.48 and benefit cost ratio of lac production 1:1.48.

### Cost of lac production for Kusum tree

The average cost of cultivation per tree of Kusum lac came to Rs. 5464.30. Major expenditure incurred in Brood lac (80.32%) followed by fungicide and pesticide application (7.5%), harvesting (4.75%), plant protection (2.23%), inoculation of brood lac (1.83%), Training and pruning (1.4%), miscellaneous (1.3%) and transportation (0.6%), respectively, which is presented on table 3. The cost incurred on brood lac production was found to be Rs. 4389.09.

### Return of lac production from Kusum tree

The value of output per tree and cost of production per kilogram of lac from Kusum tree have been worked out and presented in table 4 it indicates that the average yield per tree of lac came to 45.67 kilogram. The average cost of production per kilogram was worked out to Rs. 87.75 for Kusum lac. The average value of output per tree came to Rs.15526.67.

### Net return from Kusum tree

The Value of net return per tree. Input-output ratio of lac production have been worked out it is presented in table 4. Table 5 clearly indicated that on average the value of net return per tree came to Rs. 11519.51. The average input-output ratio came to 1:2.84 and Benefit cost ratio of lac production was 1:2.11.

### Marketing Channel

After harvesting of stick lac by the member of SHGs group sell in the village personally by themself itself or bring it to the nearest lac processing unit, wholesale market or village instead of that members of SHGs were also sell the stick lac to paikars/kochiyas/primary punchers and also sell as a brood lac to the other lac growers. It has also been seen that lac producers also sold the produce to different categories of buyers, which is presented on table 5 There were three marketing channels prevailed to marketing of lac in selected blocks i.e., Pali and Lafa, which is given below:

**Channel-I:** Producer –Wholesaler-Retailer – Primary processor.

**Channel-II:** Producer – Wholesaler - Primary processor.

**Channel-III:** Producer – Primary processor.

**Table 1:** Cost and returns of Lac production (Palas Tree)

| Cost of lac production for Palas tree | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S. No** | **Work/Activities** | **SHGs I** | **Cost/kg** | **SHGs II** | **Cost/kg** | **SHGs III** | **Cost/kg** | **SHGs IV** | **Cost/kg** | **Total** | **Avg. cost/Tree** | **Overall cost/kg** |
| | Number of Plants | 140 | 1 | 115 | 1 | 80 | 1 | 135 | 1 | 470 | | |
| 1 | **Labor used** | | | | | | | | | | | |
| | Inoculation of brood lac | 3200 | 3.27 | 2400 | 2.98 | 1600 | 2.42 | 3200 | 2.63 | 10400 | 22.13 (2.56%) | 2.84 (2.56%) |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Training/Pruning | 6480 | 6.61 | 4500 | 5.59 | 3240 | 4.91 | 5400 | 4.44 | 19620 | 41.74 (4.82%) | 5.36 (4.82%) |
| | Plant Protection | 6120 | 6.24 | 4250 | 5.28 | 3400 | 5.15 | 4250 | 3.50 | 18020 | 38.34 (4.43%) | 4.92 (4.43%) |
| | Harvesting | 7680 | 7.84 | 3600 | 4.47 | 2400 | 3.64 | 6300 | 5.19 | 19980 | 42.51 (4.91%) | 5.46 (4.91%) |
| 2 | **Material used** | | | | | | | | | | | |
| | Fungicide/Pesticide | 16800 | 17.14 | 13800 | 17.14 | 9600 | 14.55 | 16200 | 13.33 | 56400 | 120 (13.90%) | 15.41 (13.90%) |
| | Brood lac | 77000 | 78.57 | 63250 | 78.57 | 44000 | 66.67 | 74250 | 61.11 | 258500 | 550 (63.58%) | 70.63 (63.59) |
| 3 | Transportation | 1500 | 1.53 | 1000 | 1.24 | 800 | 1.21 | 1500 | 1.23 | 4800 | 10.21 (1.18%) | 1.31 (1.18%) |
| 4 | Miscellaneous (Equipment. Irrigation) | 7000 | 7.14 | 4500 | 5.59 | 2500 | 3.79 | 4800 | 3.95 | 18800 | 40 (4.64%) | 5.14 (4.62%) |
| | Total | 125780 | 128.35 | 97300 | 120.87 | 67540 | 102.33 | 115900 | 95.39 | 406520 | 864.94 (100%) | 111.07 (100%) |

**Table 2:** Return from lac production (Palas tree)

| | Particular | SHGs I | SHGs II | SHGs III | SHGs IV | Total | Avg. Production/ per Tree (Rs.) | Return Per Kg |
|---|---|---|---|---|---|---|---|---|
| 1 | No of Tree | 140 | 115 | 80 | 135 | 470 | | |
| 2 | Production(kg) | 980 | 805 | 660 | 1215 | 3660 | 7.79 | 1 |
| 3 | Price of lac (Rs/kg) | 275 | 275 | 275 | 275 | 275 | 275 | 275 |
| 4 | Gross Return | 269500 | 221375 | 181500 | 344125 | 1006500 | 2142.25 | 275 |
| 5 | Net Return | 143720 | 124075 | 113960 | 218225 | 599980 | 1277.31 | 163.93 |
| 6 | Cost/kg | 128.35 | 120.87 | 102.33 | 95.39 | 111.07 | 111.07 | 111.07 |
| 7 | Return per kg | 146.65 | 154.13 | 172.67 | 179.60 | 163.92 | 163.96 | 163.93 |
| 8 | Input-Output ratio | 1:2.14 | 1:2.28 | 1:2.69 | 1:2.88 | 1:2.48 | 1:2.48 | 1:2.4 |
| 9 | Benefit-cost ratio | 1:1.14 | 1:1.28 | 1:1.69 | 1:1.88 | 1:1.48 | 1:1.48 | 1:1.4 |

**Table 3:** Cost and returns from lac Production (Kusum Tree)

| Cost of lac production (Kusum tree) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **S. No** | **Work/Activities** | **SHGs I** | **Cost/kg** | **SHGs II** | **Cost/kg** | **SHGs III** | **Cost/kg** | **SHGs IV** | **Cost/kg** | **Total** | **Avg. cost/Tree** | **Overall cost/kg** |
| | **Number of Plants** | 48 | 1 | 60 | 1 | 35 | 1 | 52 | | 195 | | |
| 1 | **Labor used** | | | | | | | | | | | |
| | Inoculation of brood lac | 3300 | 1.53 | 4400 | 1.53 | 2750 | 1.54 | 3850 | 1.85 | 14300 | 73.33 (1.83%) | 1.61 |
| | Training/Pruning | 2200 | 1.02 | 3450 | 1.20 | 2640 | 1.48 | 2640 | 1.27 | 10930 | 56.05 (1.40%) | 1.23 |
| | Plant Protection | 3500 | 1.62 | 5250 | 1.82 | 3500 | 1.96 | 5250 | 2.52 | 17500 | 89.74 (2.24%) | 1.97 |
| | Harvesting | 5500 | 2.55 | 12375 | 4.30 | 8250 | 4.62 | 11000 | 5.29 | 37125 | 190.38 (4.75%) | 4.17 |
| **2** | **Material used** | | | | | | | | | | | |
| | Fungicide/Pesticide | 14400 | 6.67 | 18000 | 6.25 | 10500 | 5.88 | 15600 | 7.50 | 58500 | 300 (7.49%) | 6.57 |
| | Brood lac | 163200 | 75.56 | 204000 | 70.83 | 119000 | 66.67 | 141440 | 68.00 | 627640 | 3218.67 (80.32%) | 70.48 |
| | Transportation | 1500 | 0.69 | 1500 | 0.52 | 800 | 0.45 | 1000 | 0.48 | 4800 | 24.62 (0.61%) | 0.54 |
| | Miscellaneous (Equipment. Irrigation) | 2500 | 1.16 | 2800 | 0.97 | 2500 | 5.21 | 2800 | 1.35 | 10600 | 34.36 (1.36%) | 1.19 |
| | Total | 196100 | 90.79 | 251775 | 87.42 | 149940 | 84 | 183580 | 88.26 | 781395 | 4007.15 | 87.76 |

**Table 4:** Return from lac production (Kusum Tree)

| Return from lac production (Kusum Tree) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **S. No.** | **Particular** | **SHGs I** | **SHGs II** | **SHGs III** | **SHGs IV** | **Total** | **Avg. Tree (Rs.)** |
| 1 | No of Tree | 48 | 60 | 35 | 52 | 195 | 1 |
| 2 | Production (kg) | 2160 | 2880 | 1785 | 2080 | 8905 | 45.67 |
| 3 | Price of lac (Rs/kg) | 340 | 340 | 340 | 340 | 340 | 340 |
| 4 | Gross Return | 734400 | 979200 | 606900 | 707200 | 3027700 | 15526.67 |
| 5 | Net Return | 538300 | 727425 | 456960 | 523620 | 2246305 | 11519.51 |
| 6 | Cost/kg | 90.79 | 87.42 | 84 | 88.26 | 87.75 | 87.75 |
| 7 | Return/kg | 249.21 | 252.58 | 256 | 251.74 | 252.25 | 252.233 |
| 8 | Input-Output ratio | 1:3.75 | 1:3.89 | 1:4.05 | 1:3.85 | 1:3.87 | 1:2.84 |
| 9 | Benefit-cost ratio | 1:2.75 | 1:2.89 | 1:3.05 | 1:2.85 | 1:2.87 | 1:2.11 |

**Table 5:** Disposable Pattern of lac

| S. no. | Name of SHGs | Production (quintals) | Total Quantity sold | Channel I | Channel II | Channel III |
|---|---|---|---|---|---|---|
| 1 | SHGs-1 | 31.40 | 31.40 | 15.12 (48.15%) | 11.15 (35.50%) | 5.13 (16.33%) |
| 2 | SHGs-2 | 36.85 | 36.85 | 17.32 46.97% | 12.23 33.18% | 7.30 19.81% |
| 3 | SHGs-3 | 24.45 | 24.45 | 13.56 (55.46%) | 7.46 (30.51%) | 3.43 (14.02%) |
| 4 | SHGs-4 | 32.95 | 32.95 | 18.11 (54.96%) | 9.56 (29.01%) | 5.28 (16.02%) |
| Total | | 125.65 | 125.65 | 64.11 (51.02%) | 40.40 (32.15%) | 21.14 (16.82%) |

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