

COMPARATIVE STUDY ON ANALYSIS OF INCOME GENERATION THROUGH TRADITIONAL AGRICULTURE CROPS AND SERICULTURE FROM AHMEDNAGAR (M.S.), INDIA

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ABSTRACT

In the present survey it was found that, sericulture was generating maximum income when compared to agricultural crops like Sorghum (Jawar), Chickpea (Chana), *Pennisetum glaucum* (Bajara), Mung bean (Mug) and *Triticum* (Wheat) etc. All the crops are depending on rainfall and they are cultivated once or twice in year, but sericulture activities are performed for whole year. The net income of Sorghum = 13100.00, Chickpea=5300.00 rupees, Bajara=5500.00 rupees, Mung bean=5300.00 rupees, Wheat= 6300.00 rupees. Which is very less than sericulture, as it generate about 50509.00 rupees net incomes from one acre area. Sericulture provides continuous employment to farmer which performs regular traditional agricultural activity and solve problem of lowest agricultural-income, Hence Sericulture is most important for rural area, it creates the gainful employment to the farmers and it is also providing a great opportunity to the poor and small farmers to increase their economic condition. Details of this are discussed in the text.

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KEYWORDS: Agriculture, Ahmednagar, Contribution, Employment, Income, Sericulture.

Introduction

In traditional farming farmers are always suffering with the low price when they harvest their crops. They get very low rates to their produce due to middle man, market policies etc. so the traditional

agriculture is not in profit making but there is no any alternative to famers and they depend on the nature for their crops/production. Due to low income the farmers cannot provide good education, standard living to their family. In recent

years farmers cannot afford agriculture because, changing environment, changing seasonal cycles, market fluctuation of commodity price and increased inflation are responsible for this. Sericulture is a very good agro-base industry they have capacity to provide regular and fill up monthly income compared to traditional agricultural crop. The total populations of Ahmednagar district is 4543159 (2011). Agricultural activities are primary income sources of Ahmednagar district people, largest populations of Ahmednagar depend on agricultural base activities. Sericulture is successfully practiced as viable rural industry because of two reasons, firstly it gives remunerative employment to family labour throughout the year and secondly, it ensures periodic income even to the small and medium land holding farmers. The combined net income from that multiple farming system in a year is Rs. 42,550 (Paddy in summer season, paddy in rainy season and mustard each amounting Rs. $13,330 + 18,580 + 10,640 = \text{Rs. } 42,550$) which is still less than sericulture which generate Rs. 52,900 in one acre of land for irrigated condition¹⁰. The farmers start sericulture in their farm to get other incomes sources compare to the traditional agricultural crop. Employment generation is one of the major potentials of the sericulture & silk industry all over India. In one hectare of sericulture land can

create remunerative employment for 13 persons per year⁷. The farm and nonfarm activity of this sector creates 60 lakhs employments every year mostly in rural India. Sericulture as an integrated enterprise with moriculture generates two times more employment than alternate enterprises⁹. A small farmer with his meager capital base makes Rs. 14000 gross income from an acre of irrigated land. He also reported land can get a net income of Rs. 3000 on an average per year⁵. In Ahmednagar district total 198 farmers are started sericulture as agricultural side business, they have cultivated about 151 acre mulberry gardens for sericulture industry. The statistics Biennial (C. S. B.-1986) report show a jump of employment opportunities in sericulture from 16 lakhs persons in the year 1979-80 to 51.52 persons for 1958-86. In the year 2006-2007, it reached a peak of 6000 lakh person of whom 47 lakh persons were sericulture farmer and rest 13 lakhs were from of farm activities². Rural women of Ahmednagar play a significant role in sericulture; they actively participated in all regular activities. Sericulture suits both marginal and small scale land holders because of its low investments, high assured returns, short gestation period, rich opportunities for enhancement of income and creation of family employment round the year¹. Indian agriculture resulting in

green revolution during 1960 but now scenario is changing. The water level is declining, irrigated area shrinking, inorganic fertilizers are becoming expensive and above all the soil health is deteriorating due to over use of inorganics (fertilizers, pesticides etc.,) for high crop productivity⁹. Rural famers face such problems and decrease the agriculture income. Sericulture is one of such activities which open up the scope of inclusive development through promoting the marginal sections, known as 'women'⁸. Consistently the crop wise per acre net returns for cultivating these crops have been negative result increasing number of suicides¹¹. The present study indicates pure and small farmer are interested in to sericulture, because Ahmednagar farmer are well educated but they are unemployed they want continuous employment and income sources. In Ahmednagar district 198 farmer families are occupied with sericulture activities in 76 villages^{3,4}. The present investigations show the sericulture is best income sources crop comparing with traditional agriculture crops.

Materials and Methods

The samples of 198 sericulture farmers from Ahmednagar district were

Results and Discussion

The total expenditure for Traditional Agriculture Crop and Income

interviewed on the basis of structure questionnaire and collected information and data^{3,4}. The study was conducted during June 2015 to May 2016. The data collection is carried out by interviewing farmers *i.e.* generally by asking question related to sericulture and agriculture crop income, production, cultivations, investments *etc.* The pre-prepared questionnaire contained information on the crop cultivations method, crop types, area used for sericulture and agriculture, cropping pattern, intensity of cropping, production of crop, income generated sericulture and agriculture crops was provided to farmers. Interview was administered to the farmer to ask the question related sericulture income. The data were collected and were analyzed to find out their income. The information was also collected by asking questions related to climatic conditions of surrounding area, temperature, irrigation, and physical properties of soil, *etc.*



FIGURE-1: Study Area: Map of Ahmednagar District

from those Crops are discussed in detail as shown in the tables below. In the present study the research survey was conducted

and the cultivated 5 different traditional agriculture crops in one acre land in irrigated condition were taken in to

consideration. The result shows that, the total net profit obtained from those crops is Rs.35700.00 /year.

TABLE-1: Crop Name: Chickpea (Chana/Harbara)
Expenditure for Chickpea (Chana, Harbara)

| Sr. No | Content | Amount Rs. |
|--------|-------------------|----------------|
| 1 | Seed (20 kg) | 600/- |
| 2 | Pesticides | 600/- |
| 3 | Fertilizer | 1000/- |
| 4 | Farm worker | 2000/- |
| 5 | Land preparation | 2000/- |
| 6 | Other | 3000/- |
| 7 | Total Cost | 12200/- |

Plantation of one acre (Chana/ Harbara) required Rs. 12200.00 as the cost of productions.

TABLE-2: Return from Chickpea (Chana, Harbara)

| Sr. No | Content | Amount Rs. |
|--------|---|------------|
| 1 | Total productions of crop 5 Bag @ 3500Rs. | 17500/- |
| 2 | Other material | - |
| 3 | Gross income | 17500/- |
| 4 | Net income (gross income – total income) | 5300/- |

Total return from one acre land is around Rs. 17500.00 and the net profit is Rs. 5300.00

TABLE-3: Crop Name: Sorghum (Jawar)
Expenditure for Sorghum (Jawar)

| Sr. No | Content | Amount Rs. |
|--------|-------------------|----------------|
| 1 | Seed (05 kg) | 800/- |
| 2 | Pesticides | - |
| 3 | Fertilizer | 5000/- |
| 4 | Farm worker | 3600/- |
| 5 | Land preparation | 3400/- |
| 6 | Other | 3500/- |
| 7 | Total Cost | 18900/- |

Plantation of one acre Jawar Rs. 18900.00 Rs required as the cost of productions.

TABLE-4: Return from Sorghum (Jawar)

| Sr. No | Content | Amount Rs. |
|--------|--|------------|
| 1 | Total productions of crop 15 Bag @ 2000Rs. | 30000/- |
| 2 | Other material | 2000/- |
| 3 | Gross income | 32000/- |
| 4 | Net income (gross income – total income) | 13100/- |

Total return from one acre land is around Rs. 32000.00 and the net profit is Rs 13100.00

TABLE-5: Crop Name: *Pennisetum glaucum* (Bajara)
Expenditure for *Pennisetum glaucum* (Bajara)

| Sr. No | Content | Amount Rs. |
|--------|----------------------|------------|
| 1 | Seed (20 kg) @ 40/kg | 800/- |
| 2 | Pesticides | - |
| 3 | Fertilizer | 2000/- |
| 4 | Farm worker | 3000/- |
| 5 | Land preparation | 3200/- |
| 6 | Other | 2500/- |
| 7 | Total Cost | 11500/- |

Plantation of one acre Bajara Rs.11500.00 required as the cost of productions.

TABLE-6: Return from *Pennisetum glaucum* (Bajara)

| Sr. No | Content | Amount Rs. |
|--------|---|------------|
| 1 | Total productions of crop 14 Bag@ 2000 Rs | 14000/- |
| 2 | Other material | 3000/- |
| 3 | Gross income | 17000/- |
| 4 | Net income (gross income – total income) | 5500/- |

Total return from one acre land is around Rs. 17000.00 And the net profit is Rs. 5500.00

TABLE-7: Crop Name: *Triticum aestivum* (Wheat)
Expenditure for *Triticum* (Wheat)

| Sr. No | Content | Amount Rs |
|--------|----------------------|-----------|
| 1 | Seed (20 kg) @ 40/kg | 2500/- |
| 2 | Pesticides | - |
| 3 | Fertilizer | 5000/- |
| 4 | Farm worker | 4500/- |

| | | |
|---|-------------------|----------------|
| 5 | Land preparation | 4500/- |
| 6 | Other | 5000/- |
| 7 | Total Cost | 26500/- |

Plantation of one acre Wheat Rs. 26500.00Rs required as the cost of productions.

TABLE-8: Return from *Triticum aestivum* (Wheat)

| Sr. No | Content | Amount Rs. |
|--------|--|------------|
| 1 | Total productions of crop 15 Bag @ Rs.2200 | 33000/- |
| 2 | Other material | - |
| 3 | Gross income | 3300/- |
| 4 | Net income (gross income –total income) | 6500/- |

Total return from one acre land is around Rs. 33000.00and the net profit is Rs.6500.00

TABLE-9: Crop Name: Mung bean (Mug)
Expenditure for Mung bean (Mug)

| Sr. No | Content | Amount Rs. |
|--------|----------------------|---------------|
| 1 | Seed (20 kg) @ 40/kg | 700/- |
| 2 | Pesticides | - |
| 3 | Fertilizer | - |
| 4 | Farm worker | 2500/- |
| 5 | Land preparation | 2500/- |
| 6 | Other | 2500/- |
| 7 | Total Cost | 8200/- |

Plantation of one acre: Mug Rs.8200.00 required as the cost of productions.

TABLE-10: Return from Mung bean (Mug)

| Sr. No | Content | Amount Rs. |
|--------|--|------------|
| 1 | Total productions of crop 5 Bag@ 2700.Rs | 13500/- |
| 2 | Other material | - |
| 3 | Gross income | 13500/- |
| 4 | Net Income (Gross Income –Total Income) | 5300/- |

Total return from one acre land is around Rs.13500.00and the net profit is Rs.5300.00

Sericulture crop expenditure and income

In the present survey research it is seen that, the farmers are attempting Five (05) crops in a year from one acre land of mulberry

under irrigated condition and they earn net profit of Rs. 50509.00. They harvest average 400.00 Kg. of cocoon /year by taking 5 crop/year.

TABLE-1: Primary Expenditure for Cultivation 1 acre Mulberry Garden

| Sr. No | Nature of work | Working days / Quantity | Rate/per person | Total Amount |
|--------|--|-------------------------|-----------------|-----------------|
| 1. | Digging and ploughing (By Tractor) | 02 hours | 500/Hours | 1000.00 |
| 2. | Land preparations, Row making (By Tractor) | 05 hours | 500/Hours | 2500.00 |
| 3. | Bio-Manure | 15 Tons | 600/5- Tan | 1800.00 |
| 4. | To lay bio—Manure | 10day | 100Rup./Person | 1000.00 |
| 5. | Mulberry plant branch (Seed) | 1.5 Tons | - | 3000.00 |
| 6. | Plantation of Mulberry | 40 day | 150 Rup./Person | 6000.00 |
| 7. | Other expenditure | - | - | 1000.00 |
| 8. | Total expenditure | - | - | 16300.00 |

Total Expenditure = $16300.00/15 = 1086.00$ per year

The total expenditure is divided by 15 because, next 15 years primary expenditure of mulberry garden are not necessary, so total expenditure are divided by 15. The total expenditure of per/ year is = Rs. 1086.00

TABLE-12: Intercultural Expenditure required for mulberry cultivation in 2nd year

| Sr. No | Structure of work | Working days (5 Time in Year) | Rate per/ person | Total |
|--------|---------------------------------------|---|--|--------------------------|
| 1. | Digging, Maintenance of garden | 30 days (After 65 days) | 30*200 one time =6000.00 5 time X 6000.00 | 30000.00 |
| 2. | Bio- Manure and To lay Bio- Manure | 15 tons (15 Working day) | 1800+1500 =3300.00 | 3300.00 |
| 3. | Irrigation and Electricity | 25 Time in 1 Year 2 Time in Month 1 Person | 200*2=400 per/month 400*12 =4800.00 +2000 Rupees Electricity charges | 6800.00 |
| 4. | Chemical fertilizer | 6 Time In Year after 2 month | Urea 6 bag = 1*300= 1800 Danedar 6 bag= 1*600=3600 1046 6 bag =1*1105=6630 | 1800+3600+6630 =12030.00 |
| 5. | To lay Chemical fertilizer | 6 Time In Year after 2 month one person =200 Rup. | 6*200=1200 | 1200.00 |
| 6. | Harvesting of leaves and leaf cutting | 2 time in one day with two person= 2*30=60 working day in one month | 60*150=90000 | 9000.00 |

| | | | | |
|----|-------------------|---|---|----------|
| 7. | Total expenditure | - | - | 62330.00 |
|----|-------------------|---|---|----------|

One acre irrigated mulberry garden gives yield about 12,000 kilogram leaves or 12,000 kilogram laves production requires 62330.00 rupees, so for one kilogram leaves production cost is =5.19 rupees.

Silk worm Rearing Expenditure

On total 12,000 kg Mulberry leaves farmers are rearing 3000 DFL's silkworms in 5 crops in a year; in one single crop farmer's culture about 600 DFL's. For 100 DFL's of silkworm required for feeding on an average 800 to 900 kg leaves and by assuming 1000 kg leaves farmers culture 600 DFL's in one single crop.

TABLE-13: Rearing Expenditure for 100 Gm (600DFL's) Silkworm eggs

| Sr. No | Details | Required Equipment & cost/item Rs. | Total Price | The period of retirement in Year | Depreciation Per/Year |
|--------|--|--|---------------------|----------------------------------|-----------------------|
| 1. | Rearing house building | 1 | 100000.00 | 50 | 2000.00 |
| 2. | Rearing equipment 1. Rearing Trays 2. Rearing self | 15@550/- 02 (40'X06' size)@20,000/- | 8250.00 40000.00 | 10 10 | 825.00 4000.00 |
| 3. | Leaf container | 6@200/- | 1200.00 | 5 | 240.00 |
| 4. | Plastic Montages | 600@90/- | 54000.00 | 10 | 5400.00 |
| 5. | Leaf Cutting, chopping Machine | 01@32000/- | 32000.00 | 10 | 3200.00 |
| 6. | Spray pump | 1@1500/- | 1500.00 | 10 | 150.00 |
| 7. | Thermometer | 1@1500/- | 1500.00 | 10 | 150.00 |
| 8. | Cleaning brush | 4@200/- | 800.00 | 05 | 160.00 |
| 9. | Plastic Bucket | 5@100/- | 500.00 | 05 | 100.00 |
| 10. | Branch cutting knives | 5@100/- | 500.00 | 05 | 100.00 |
| 11. | Total | - | - | | 16325.00 |

Rearing Expenditure

- Price of Egg-mass
Per 100 gm. Egg-mass = $150 \times 5 =$
750.00 Rupees
- Retail expenses = 500.00
Total Amount = 1250

Wages expenditure

- Chawki stage (Being period)
required 1 Person for 10 days.
Total Amount =
2000.00

2. Let age (Young period) required 2 person in 2 time per/day for 10 days, Total working day is 20 day.

In 250 per/person

Total Amount = 5000.00

3. Collection/Harvesting of cocoons required 9 person per/day for 2 days =18 day.

Total wage/ day are 150 Rup. /person

Total Amount = 2700.00

Total working days=

A+B+C=10+20+18=48 working day

Total Wages expenditure is =
2000.00+5000.00+2700.00=9700.00

5 Crop required total working day =48 x 5=240 working day in per year.

5 Crops wages expenditure is =9700 x 5

Total Amount = 48500.00

12,000 kilogram leaves price @ 5.19per/kg = 62330.00 rupees.

The 500 gm Egg-Mass can produce about 400 kilogram cocoons

So 400 kilogram cocoon divided by 5 crops =400/5 =80 kilogram in single crop.

From 100gm. egg-mass Farmers produces about 80 Kilogram cocoon.

Average rate of cocoon is = 450/per kg.

The average rate is 450/per/kg. $80 \times 450 = 36000.00$

Therefore total income rupees are 36000.00 in single crop.

Farmers are attempting five crops in one year.

So, $36000.00 \times 5 = 1, 80,000.00$ Rupees in per year

Expenditure items

1. Expenditure for cultivation 1 acre mulberry garden = 1086.00
2. Expenditure for rearing house and equipment =16325.00
3. 100 gm Egg-mass price $150 \times 5 = 750.00$ rupees egg-sheet & other =500.00= 1250.00
4. Expenditure for wages = 48500.00
5. 12000 kilogram leaves price rupees /per/kg (5.28) = 62330.00

Total Expenditure =129691.00

Outline of Expenditure & Income

1. Total Production =180000.00
 2. Total Expenditure =129491.00
- $180000.00 - 129491.00 = 50509.00$

Net Income from sericulture= 50509.00 income/year