



ORIGINAL RESEARCH PAPER

Agricultural Economics

PROFITABILITY OF SERICULTURE VERSUS COMPETING CROPS IN RAMANAGARA, KARNATAKA

KEY WORDS: Sericulture,
Profitability, Net Income,
Competing Crops

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ABSTRACT

This study compares the profitability of sericulture with competing crops in Kanakapura taluk, Ramanagara district, Karnataka, using primary data from 2021–22. Employing a multistage stratified sampling design, the study contrasts an Experimental Group with a Control Group (non-Sericulturists) across four farm-size categories. Results indicate that sericulture generates the highest average net income at Rs. 1,14,062/acre/year, which is 4.04 times higher than paddy and 1.21 times higher than coconut. Despite superior profitability, mulberry acreage is declining due to price competition from imported Chinese silk. Policy interventions addressing import dumping, price stabilization, and extension services are recommended.

INTRODUCTION

During the liberalization regime, there has been a sea change in the agricultural sector. Farmers started cultivating commercial crops as there is a market within the country and also outside the country. Farmers have shifted from normal traditional food crops to the commercial crops as they give more returns. But surprisingly the farmers in Karnataka, Andhra Pradesh, Tamilnadu started uprooting mulberry gardens and they are cultivating some other crops, though they are not lucrative crops (Gopalappa, 1996). The secondary data clearly reveals that there is fluctuation in terms of the area and in the recent years it started declining showing negative growth. This is mainly because of the threat from China. The China silk is cheaper compared to the Indian silk and therefore the weavers have been purchasing the China silk. The China impact has been noticed in the uprooting of mulberry by the sericulturists.

Since China has been dumping the silk through legal and illegal means the Indian silk market is turtled and the Indian sericulturists are the losers. Otherwise sericulture activity pays more compared to the other agricultural crops. Therefore an effort has been made in this research work to study the profitability of sericulture vis-à-vis other agricultural crops in the hard core area of sericulture in Karnataka state i.e., Ramanagara district. Though Kolar and Chikaballapur districts also equally strong in terms of sericulture, in the recent years sericulture has been concentrated in the Ramanagara district. Therefore, Ramanagara District has been selected for the major intensive study.

SERICULTURE PROFILE OF RAMANAGARA DISTRICT:

Table 1 presents talus-wise details of mulberry cultivation and sericulture in Ramanagara district.

Table 1: Taluk-wise Details of Mulberry/Sericulture in Ramanagara District, 2021–22

Name of the Talukas	Area Under Mulberry in ha.	Cocoon Production in tonnes	No. of Villages Engaged in Mulberry	Number of Farmers Engaged in Sericulture Activity Across Various Communities				Value of Silk Produced (Rs. in Lakhs)	Cocoon Markets
				Scheduled Caste	Scheduled Tribe	Other	Total		
Channa patna	4736	3312	215	185	01	5431	5617	14968.74	01
Harohalli	3938	4078	202	277	20	4469	4766	18430.33	00
Kanaka pura	8447	7933	399	1250	102	10696	12048	35402.91	01
Magadi	302	198	201	76	19	975	1070	896.96	04
Rama nagara	3643	2335	267	343	66	4410	4819	15075.24	01
Total	21067	18755	1284	2131	208	25981	28320	84774.18	07

Source:

District at a Glance, Ramanagara District

Ramanagara district has 21,067 ha under mulberry. Kanakapura taluk accounts for the highest area [8,447 ha] and cocoon production (7,933 tonnes). Of the 1,284 sericulture villages in the district, 399 are in Kanakapura, with 12,048 farmers engaged in sericulture.

STUDY AREA AND RESEARCH METHODOLOGY:

The study was conducted in Kanakapura taluk, Ramanagara district, Karnataka during 2021–22. Ramanagara district was selected after comparing six major agricultural districts on agro-climatic and sericulture indicators, where it ranked first in mulberry area, cocoon production, and number of sericulturists (Government of Karnataka, 2022). Within Ramanagara, Kanakapura taluk was selected using the same criteria. For Sampling Design a multistage stratified sampling method was used. The sample comprises an Experimental Group (EG) (301) HHs of sericulturists and a Control Group (CG) (150) HHs of non-sericulturists, stratified by landholding: marginal (152), small (82), medium (48), and large farmers (19) HHs.

RESULTS AND DISCUSSION:

Table 2 shows the average land cultivated for various crops by sample households.

Table 2: Land Cultivated for Various Crops by Sample Households (Acres) Area (in Acres)

Land Particulars	Marginal	Small	Medium	Large
Experimental Group				
Paddy	0.00	0.00	1.00	1.10
Ragi	0.42	1.00	1.60	1.75
Maize	0.52	0.90	2.00	2.00
Coconut	0.00	0.00	0.00	3.00
Mulberry/Sericulture	0.52	0.80	0.80	1.10
Total Land Cultivated Per HH	1.46	2.70	5.40	8.95
Control Group				
Paddy	0.00	0.70	1.25	1.00
Ragi	1.00	1.50	2.50	2.50
Maize	0.38	1.00	2.00	2.25
Coconut	0.00	0.00	0.35	2.80
Horse gram	0.00	0.00	0.00	0.55
Total Land	1.38	3.20	6.10	9.10

Note: Total land excludes fallow; only effective cultivated area shown

Source: Primary Data, Dec 2021 – Feb 2022

In the EG, marginal and small farmers did not cultivate paddy. All categories cultivated ragi, maize, and mulberry. Coconut was cultivated only by large farmers. In the CG, ragi and maize were cultivated by all categories. Paddy was cultivated by small, medium, and large farmers. Coconut was cultivated by medium and large farmers, and horse gram only by large farmers. Irrigation is mainly from borewells/tube-wells, with tanks providing limited support. Total area cultivated by EG

households was 872.37 acres, with an average holding of 2.90 acres and effective cultivated area of 2.90 acres. For the CG, total area was 459.76 acres, average holding 3.07 acres, and effective cultivated area 2.98 acres. Fallow land was higher among medium and large farmers in both groups, but lower in the CG than the EG.

GRAPH-1: EXTENT OF THE LAND CULTIVATED BY VARIOUS CATEGORIES OF FARMERS ACROSS TWO GROUPS

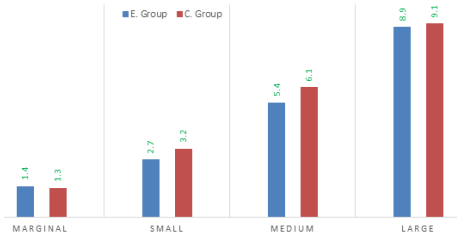


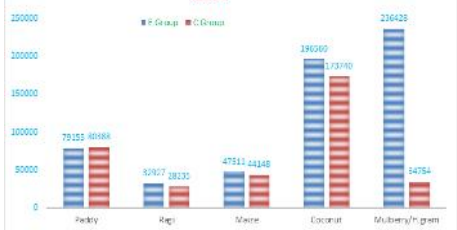
Table-3: Gross Income Realised from all the Crops for Both the Groups of Farmers (Per Year/Per Acre in Rs.)

Crops Cultivated	Marginal	Small	Medium	Large	Average
Experimental Group					
Paddy	0.00	0.00	73995	84314	79155
Ragi	27370	29561	36957	37818	32927
Maize	44352	46367	49028	50295	47511
Coconut	0.00	0.00	0.00	196560	196560
Mulberry/Sericulture	210837	235192	249025	250656	236428
Control Group					
Paddy	0.00	61166	80028	99970	80388
Ragi	24095	27284	30186	31373	28235
Maize	41444	43146	45178	46824	44148
Coconut	0.00	0.00	172040	175440	173740
Horse gram	0.00	0.00	0.00	34441	34754

Notes:

1. Coconut in EG cultivated only by large farmers; average not computed across all categories.
2. Coconut in CG cultivated by medium and large farmers only.
3. Horse gram in CG cultivated only by large farmers

GRAPH-2: PER ACRE GROSS INCOME GENERATED ACROSS VARIOUS CROPS



For the EG, mulberry/sericulture yielded the highest average net income at Rs. 1,14,062/acre/year, ranging from Rs. 99,687 for marginal farmers to Rs. 1,22,075 for medium farmers. Coconut was second at Rs. 93,960/acre, followed by paddy (Rs. 28,205), maize (Rs. 17,643), and ragi (Rs. 14,392). Sericulture generated 4.04 times the net income of its closest competing field crop, paddy. Thus, the hypothesis that “income generation is higher in sericulture compared to competing crops” is accepted.

Table-4: Net Income Realised from all the Crops for Both the Groups of Farmers (Per Year/Per Acre in Rs.)

Crops Cultivated	Marginal	Small	Medium	Large	Average
Experimental Group					
Paddy	0.00	0.00	26295	30114	28205
Ragi	10370	11361	17747	18088	14392
Maize	10452	20887	18578	20655	17643
Coconut	0.00	0.00	0.00	93960	93960
Mulberry/Sericulture	99687	116792	122075	117696	114062
Control Group					
Paddy	0.00	21816	37128	53250	37398
Ragi	3855	6504	9106	8943	7102

Maize	17894	18346	17518	17794	17888
Coconut	0.00	0.00	71590	73180	72385
Horse gram	0.00	0.00	0.00	28179	23174

In case of the Control Group of farmers the income from paddy has been high in case of the agricultural crops compared to other crops like horse gram, maize and ragi. Even the income from paddy has been more when compared to the EG of farmers. When the issue was discussed with the farmers they said the farmers of the EG tries to utilise all the resources efficiently to cultivate mulberry/sericulture specially the irrigation facilities when compared to other agricultural crops in particular the crop paddy. At times when there is less irrigation they try to irrigate mulberry garden but not the paddy therefore the difference in yield and in turn the income. The crop coconut is cultivated by the medium and large farmers only in case of the CG of farmers. All the categories of the farmers in the villages cannot cultivate the crop coconut though the income is the highest when compared to other agricultural crops. This is mainly because the cost of cultivation is very high and moreover the returns will be very late as the gestation period is about seven years to eight and half years to get the returns. Therefore, it is not feasible for the marginal and small farmers even to some extent medium category of farmers also.

It is generally observed from the same Table-4 that all the categories of farmers have been cultivating mulberry/sericulture in case of the experimental group of farmers as the returns are more from the same when compared to other agricultural crops including the horticulture crop i.e., coconut cultivation. The coconut cultivation generates Rs. 93,960 per acre of coconut plantation whereas the sericulture crop gives Rs. 1,14,062, which is 1.21 times more. But the coconut is being cultivated by only the large farm category in case of the EG of farmers. In case of all the crops we find the positive relationship between the size class and returns from all the crops for both the EG and CG of farmers except in case of the medium category of farmers who are getting the highest income from the sericulture. Otherwise as the size class increases the returns from various crops also increases from various crops. The coconut (plantation crop) is being cultivated by only the large farmers in case of the EG of farmers when it comes to CG of farmers the medium and large farmers are cultivating it. In conclusion it can be said that mulberry/sericulture is the most remunerative crop when compared to any other crop in the study area. Towards more clarity few Graphs have been generated and they are presented below.

GRAPH-3: PER ACRE NET INCOME GENERATED ACROSS VARIOUS CROPS

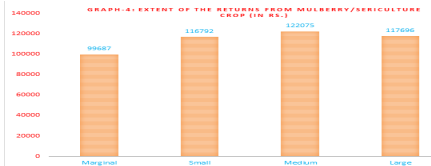


Table-4.A clearly revealed that the difference in the net income between the experimental and control groups. The highest difference is observed for the crop sericulture followed by coconut, paddy and ragi, but for the maize crop the difference is not much. The standard deviation values shows that the highest variance in the net income for coconut crop and it's also observed in the Experimental group with the value of 3379.82731 and for the CG it is 3190.57814. In case of the CG of farmers they are not cultivating the mulberry/sericulture at all.

Table-4.A: Mean Difference in the Net Income Generated Between the EG and CG of Farmers Across Various Crops.

Crops Cultivated	Groups	N	Mean	Std. Deviation	Std. Error Mean
Paddy	EG	67	28205.0746	1704.25881	208.20835
	CG	68	37397.6471	2539.14612	307.91670
Ragi	EG	301	14391.6944	1818.43269	104.81272
	CG	150	7102.0000	923.62504	75.41367
Maize	EG	301	17643.1894	1309.88999	75.50080
	CG	150	17888.2667	1299.98386	106.14324
Coconut	EG	19	93960.0000	3379.57814	731.96883
	CG	30	72385.3333	3190.57814	617.06922
Mulberry /Sericulture	EG	NA	NA	NA	NA
	CG	NA	NA	NA	NA

Source:Primary Data

The Table-4.B contains the results of the t-test and these results clearly show that there is a significant difference in the average net income among the selected groups. Which have been observed in terms of the absolute value that the estimated probability value has been less than 1.00 per cent, hence there is a significant difference in the net income of paddy, ragi, coconut and sericulture crops between the selected groups, the test results showed a significant difference between the Experimental Group and the Control Group. Where the income of the EG has been much more than the CG.

Table-4.B: Result of the Independent Sample T-test for the Net Income Generated Between The EG and CG- Across Various Crops.

Name of Crops	Levene's Test for Equality of Variances	t-test for Equality of Means					
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference Std. Error Difference
Paddy		22.173	.000	-24.661	133	.000	-9192.57243 372.75577
Ragi		41.736	.000	46.199	449	.000	7289.69435 41.736
Maize		.426	.514	-1.877	449	.061	-245.07730 130.58873
Coco nut		.017	.897	22.240	47	.000	21574.66667 970.08228
Sericulture		NA	NA	NA	NA	NA	NA NA

Source:Primary Data

CONCLUSION:

The study establishes that sericulture is the most remunerative farm enterprise in Kanakapura taluk, generating an average net income of Rs. 1,14,062 per acre per year. This is 4.04 times higher than paddy and 1.21 times higher than coconut, the next most profitable crops. The primary constraint is price volatility and competition from cheaper imported Chinese silk, which has destabilized domestic cocoon and raw silk markets. The paradox of declining area under a highly profitable crop indicates market failure and institutional gaps rather than agronomic inefficiency. Given sericulture's potential for rural employment, income generation, and foreign exchange earnings, targeted policy intervention is warranted. Some measures are recommended they are Trade safeguards, Price stabilization, Institutional credit, Technology and extension, Value addition. Promote farmer producer organizations and branding of "Ramanagara Silk" to capture higher value in domestic and export markets. Unless these structural and market constraints are addressed, the comparative advantage

of Indian sericulture will continue to erode despite its farm-level profitability. Revitalizing sericulture is not only rational from a farmer's income perspective but also strategic for rural livelihoods and the national silk economy.

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