INNSPUB

Journal of Biodiversity and Environmental Sciences (JBES)
ISSN: 2220-6663 (Print) 2222-3045 (Online)
Vol. 23, No. 5, p. 31-37, 2023
http://www.innspub.net

RESEARCH PAPER OPEN ACCESS

Diversification of Philippine silk products for greater marketability and profitability

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Article published on November 10, 2023

Key words: Saleability, Profitability, Silk products, Clients

Abstract

The production, saleability, profitability, and product preferences must be evaluated in order to serve as benchmark references in developing enhanced and diverse silk products that are tailored to their demands in order to increase profitability. There was a significant volume of production and sales on silk items, notably silk fabric, which remained the top sales earner, followed by sablay rentals and novelty products, earning the highest net revenue of P 306,858.14, P 98,000.00, and P 52,514.00, respectively. Sericulture product profitability demonstrated ROIs of 57.82%, 45.45%, and 30.52% for novelty goods, sablay rentals, and silk fabric, respectively. Silk fabric was loved and purchased by the majority of respondents (77.5%), followed by novelty products (18.33%). These were purchased due to the design and craftsmanship (27.4 5), color (24.17%), and general attractiveness (21.67%) of the products. These sericulture products have the potential to greatly contribute to the industry's growth and development. Factors affecting the customers' product preference and saleability were age, educational attainment, gender and income which indicate that customers' purchasing decisions are influenced by their age and educational level, with mature and educated individuals appreciating craftsmanship, color, and product acceptability. Furthermore, gender significantly impacts the saleability of products hence, marketers should understand gender differences in decision-making styles, as females tend to buy more sericulture products, valuing silk as the "Queen of all Textiles". The respondents' higher income indicates their ability to purchase high-quality silk products, particularly silk fabrics, which are often considered more expensive than other fabrics. The study proposes that sericulture is a profitable and productive industry that can be further developed by SRDI and other small businesses through continuous improvement and product innovation

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Introduction

The country's silk industry is undergoing product development and diversification in response to the demands of the global market and the ASEAN Economic Integration in 2015. The competitive advantage of sericulture compared to other crops is brought about by its environmental sustainability; within the framework of national and regional plans and strategies; its social inclusion and gender development; ideal for smaller farmers and weaker sections of the society; suitability for multiple crops/inter- cropping; and economic potential of silk by-products produced.

Alongside with the conduct of SRDI Research Development and Extension activities, sericulture products such as raw silk, silk fabrics and cut cocoon handicrafts are produced which serve as incidental income of the Institute. However, there is a need to sustainably expand and demonstrate the production of high-quality silk and its viability especially on cocoon/silk processing, product development and diversification, upgrading institutional and client capabilities, increasing silk products diversity and competitiveness in local and global market, while creating employment and income in the rural areas. This is also in support to the Sericulture Entrepreneurs' Association SEA) comprising the cocoon producers, the Silk Weavers Association (SWA) and the Sericulture Handicrafts Producers' Association (SHPA) for the improvement of their silk products. The production, marketability and the product preferences of the customers need to be assessed to serve as benchmark references in coming up with improved products suited to the needs of the customers.

Material and methods

Research design

The study made use of the descriptive-correlational method of research. This is used to describe the nature of a situation as it exists at the time of the study and to explore the causes of particular phenomenon. It is also designed to determine the extent to which different variables are related to each other (Sevilla, 1992).

Population of the study

Data were gathered from walk-in visitors and customers of sericulture products. These include government employees, teachers, fashion designers, and other walk-in customers. For the year 2019, a total of 1,250 visitors came to the Institute. Out of these visitors, 120 respondents were administered with survey questionnaire and interviewed. Purposive sampling was utilized in identifying the respondents. Only visitors who were willing to be interviewed were given the questionnaire.

Data gathering instrument

A survey questionnaire was the major data collection instrument used in data gathering. This was supplemented with in-depth interviews and personal observation with the respondents. Secondary data were collected from the records of the Marketing Unit of the institute.

Data collection procedure

As the first part of this study, a desk review was undertaken by the researcher for the collection of background literature from books, researches, published papers and other related studies. This helped the researcher in the conceptualization and preparation of the questionnaire which was personally administered by the researchers.

The self-administered questionnaire for the respondents was personally conducted by the researcher. Before the interview with the individual respondents, an informed consent was obtained from the respondents. Assurance of confidentiality and the purpose of the interview were informed prior to the conduct of the interview. To ensure successful gathering of data, the interview schedule was translated by the researchers in the national language (Filipino) as it is the common language used in the area. This allowed the respondents to understand better the questionnaire and enhance a speedy gathering of information.

Treatment of data

Data were gathered, tallied, tabulated, and statistically treated, and the choice of statistical tools used was based on the types of variables in the study.

Descriptive statistics such as frequency, percentages, weighted mean and ranking were used in treating data on the levels of involvement of women in sericulture and the socio-economic improvement in sericulture. As to the inferential treatment of data, correlation analysis was utilized in finding the relationships between personal characteristics and the socio-economic improvement in Sericulture.

Data gathered were subjected to cost and return analysis to determine profitability of the sericulture products and were treated statistically using frequency counts, percentages and ranking, and correlation analysis. Correlation Analysis was utilized in finding the factors affecting the reasons of the product preferences and the saleability of the sericulture products. The profile of the respondents such as gender, age, educational attainment and monthly income were considered as the independent variables in this study

Results and discussion

Table 1. Profile of the Respondents

Particulars	F	%	Rank
Gender			
Male	46	36.67	2
Female	76	63.33	1
Total	120	100.00	
Age			
21-30	22	18.33	3
31-40	27	22.50	2
41-50	46	38.33	1
51-60	20	16.67	4
61and above	5	4.17	5
Total	120	100.00	
Educational attainment			
High school graduate	13	22.80	2
College level	2	3.50	6
College graduate	18	31.58	1
Masteral	9	15.79	4
Doctoral	5	7.01	5
Total	120	100.00	
Monthly income			
10,000 and below	2	1.67	6
10,001 – 20,000	3	2.50	5
20,001 – 30,000	28	23.33	2
30,001 – 40,000	43	35.83	1
40,001 – 50,000	25	20.83	3
50,001 and above	19	15.83	4
Total	120	100.00	

Profile of the respondents

Table 1 presents the profile of the respondents. It can be noted that female visitors (63.33%) dominated the males (36.67%). Majority of the respondents belong to age bracket ranging from 41-50 years old (38.33%) and with educational attainment of college graduate (34.17%). As to monthly income, the table further reveals that majority of the respondents belonged to an income bracket of 30,001-40,000 (35.83%).

Volume of production and sales

Table 2 shows the volume of production of the different silk products from 2014 to 2019. For raw silk, production ranged from 62.65 kg to 149 kg. The highest yield was recorded in 2019. This might be due to the simultaneous increase in cocoon production at the farmers' level. Highest fabric production was recorded in 2017 with a total of 1,191.80 meters, but with a negligible decrease in production for 2016 and 2019 respectively. Production of novelty items slightly decreased in 2016 but increased from 2017 to 2019.

Summary of sales

The summary of sales from the various silk products is reflected in Table 3. It could be gleaned from the table that silk fabric was the top grosser when it comes to sales with a total of ₱1,312,230.50 for year 2019. *Sablay* sales and rentals ranked second with total sales amounting to ₱313,600.00. This was followed by thrown silk sold the highest in 2018 amounting to ₱245,490.39. This higher volume of sales was brought about by the supply needs of the Silk Weavers Association (SWA) who buys thrown silk from SRDI for their silk fabric production.

Summary of the monthly sales of sericulture products (CY 2019)

As to the monthly sales of the sericulture products, Table 4 shows that higher volume of sales for silk fabric was found in the months of January, May, October and December. It is during these months when the Institute participates in trade fairs and exhibits and more customers buy for use during occasions like graduation, wedding, and fiesta celebrations. Thrown silk was sold in support to the full operation of the Silk Weavers' Association. Novelty products were sold year-round since these were mostly affordable to many while sablay sales and rental occurred only during Graduation month.

Table 2. Volume of silk production (2014 – 2019)

Products	2014	2015	2016	2017	2018	2019
Raw silk (kg)	108.90	119.70	62.65	79.58	106.34	149.07
Silk yarn (thrown silk) (kg)	103.45	100.00	101.75	50.00	86.57	89.68
Silk Fabric (m)	987.83	912.15	975.54	1,191.80	872.57	957.60
Cocoon novelty items (pc)	3,042	4,548	4,256	5,158	5,348	5,693
Sablay production (pc)	150	130	360	213	234	135

Table 3. Summary of sales (2014-2019, PhP)

Products	2014	2015	2016	2017	2018	2019
Raw silk (kg)	26,155.00	19,300.00	20,700.00	27293.79	50,602.50	22,340.00
Silk yarn /thrown silk (kg)		127,245.50	237,399.41	116,658.19	245,490.39	169,224.75
Silk fabric (m)	832,330.75	567,945.00	891,398.00	960,041.00	1,097,328.50	1,312,230.50
Cocoon novelty items (pcs,)	144,019.00	176,020.00	202,386.00	158,566.00	175,607.00	143,334.00
Sablay rentals (pcs.)	207,200.00	233,600.00	251,100.00	267,780.00	306,840.00	313,600.00

Table 4. Summary on the monthly sales of sericulture products (CY 2019, PhP)

Products	Raw silk	Thrown silk	Silk fabric	Novelty products	Sablay rentals
January	10,000.00	1,497.25	182,346.00	31,700.00	
February	340.00	5,359.00	93,330.50	71,400.00	
March		25.453.00	98,825.00		
April	12,000.00	17,961.75	54,154.00		313,600.00
May		3,722.75	125,051.00		
June		90,690.50	76,805.00	13,400.00	
July		2,430.00	65,470.00		
August		235.00	38,539.00	1,500.00	
September		1,867.50	78,945.00	5,885.00	
October		4,923.00	198,789.00	32,200.00	
November			65,476.00	4,850.00	
December		5,05.00	234,500.00	19,100.00	
Total	22.340.00	169,224.75	1,312,230.50	143,334.00	313,600.00

Profitability of sericulture products

Profitability of sericulture products reveals that the top grosser silk fabric which includes other wearable silk allied products recorded 30.52% ROI, followed by sablay and sablay rental and novelty products with 57.82% and 45.45% ROI respectively. Raw silk and thrown silk have the least ROI of 27.75% and 9.9 % respectively. The results imply that the production, sales and promotion of these sericulture products are highly encouraged for these could contribute significantly to the income growth and development of the industry as well as its stakeholders/ clientele.

Reasons for respondents' product preference

With regards to product preference, Table 5 revealed that among the products liked and bought by most of the respondents were silk fabrics (77.5%), followed by novelty products (18.33%). As to the reasons why the products were preferred, the following first 3 in rank were elicited from them: design and craftmanship (27.5%), color (24.17%), general acceptability (21.67%). However, some of the respondents considered packaging and texture as their reasons for buying the products.

Table 5. Profitability of Sericulture Products (2019)

Products	Units Sold	Selling Price/ Unit (₱)	Gross income (₱)	Production Cost (₱)	Net Income (₱)	Employment (MD)	ROI (%)
Raw silk (kg)	6	4,000.00	22,340.00	17,487.44	4,852.56	42	27.75
Thrown silk (kg)	38	4,500.00	169,224.75	153,950.62	15,274.14	266	9.92
Silk Fabric (m)	1,095	1,200.00	1,312,230.50	1,005,372.36	306,858.14	995	30.52
Cocoon novelty items (pc)	2,867	50.00	143,334.00	90,820.00	52,514.00	135	57.82
Sablay rentals (pc)	3,920	80.00	313,600.00	215,600.00	98,000.00	490	45.45

Table 6. Reasons of the respondents' product preferences

Particulars	F	%	Rank
Product preference:			
Raw silk	2	1.67	4
Thrown silk	0	0.00	0
Dupion silk	3	2.50	3
Silk fabric	93	77.50	1
Novelty products	22	18.33	2
Total	120	100.00	
Reasons for product preference			
Design/craftmanship	33	27.50	1
Color	29	24.17	2
Texture	8	6.67	5
Packaging	24	20.00	4
Price	0	0.00	0
General acceptability	26	21.67	3
Total	120	100.00	

Factors Affecting the Product Preferences and Marketability of Sericulture Products

Correlation Analysis was utilized in finding the factors affecting the reasons of the product preferences and the marketability of the sericulture products. The profile of the respondents such as gender, age, educational attainment and monthly income were considered as the independent variables in this study.

Table 6 shows that age and educational attainment were positively correlated to the product preferences of the respondents. This is manifested by the computed values of r (0.265, 0.341) which were both found to be significant at .01 level. This finding corroborates with Lalitha *et al.* (2008) that among other than employment status, convenience of outlets, and advertisement, educational qualifications and age group are the influencing factors for purchasing the branded Silk Sarees and dhotis by the respondents, 94 percent of the respondents are highly educated and purchased branded ready wears.

This finding implies that the reasons of customers for buying were affected by their age and the highest educational attainment. The more mature and educationally prepared the respondents are, the more they can appreciate craftsmanship, color, and the general acceptability of the sericulture products.

Table 7. Correlation analysis showing the factors affecting the product preferences and saleability of the sericulture products

Variables	Respondents' profile			
	Gender	Age	Educational attainment	Monthly Income
Product preferences		r = 0.265** t = 11.31	r = 0.341** t = 11.55	
Saleability	r = 0.218* t = 11.30			r = 0.390** t = 11.80

Further analysis showed that the marketability of the products is affected by gender with a computed r-value of 0.218 which is found significant at 0.05 level (Table 7). This finding is supported by Jayashree (1998) asserting that gender has been identified in many literatures on consumer shopping behavior as a significant factor in understanding consumer behavior and as a fundamental market segmentation index for companies to meet their customers' needs and wants. Marketers should strive to understand the gender differences in decision-making styles. This finding indicates that more females buy more sericulture products than males. This implies that females are more appreciative of silk being the "Queen of all Textiles".

Likewise, monthly income was found to be significantly correlated with marketability as pointed out with a computed r-value of 0.390 which is significant at 0.01 level. This finding jibes with that of Lalitha *et al.* (2008) claiming that income earning people are willing to spend on branded wears. His study further revealed that, 54 percent of the purchasers are buying branded ready wear due to quality and status symbol. Higher income of the respondents indicates their capacity to buy silk products especially the silk fabrics which is perceived by many to be of quality and more expensive than other fabrics.

Correlation Analysis Showing the Factors affecting the Product Preferences and Marketability of the Sericulture Products

To find out if the correlational values are significant, the T-test of significant difference was used as reflected in Table 7. The results showed that the computed T-values were found significant at .05 levels to wit: t = 11.3 (gender), t = 11.31 (age), t = 11.55 (educational attainment) and t = 11.80 (monthly income).

Conclusion

The study concludes that the production, marketability, and profitability of sericulture products, as well as customer product preferences, must be evaluated in order to develop enhanced and diverse silk products that meet their needs for increased income and viability.

There was a considerable amount of production and sales of silk products, particularly silk fabrics, which remained the biggest sales earner, followed by sablay rental and novelty items. Because of design and craftsmanship (27.5%), color (24.17%), and general attractiveness (21.67%), the majority of respondents favored silk fabrics (77.5%) and novelty products (18.33%). Packaging and texture were also taken into account. The top-grossing silk fabric, comprising wearable silk associated products, had a ROI of 30.52%, followed by sablay rental and novelty products, which had ROIs of 57.82% and 45.45%, respectively. These were bought because of the products' design and craftsmanship (27.4 5), color (24.17 %) and general acceptability (21.67 %). These sericulture products have the potential to greatly contribute to the industry's growth and development. Factors affecting the customers' product preference and maketability were age, educational attainment, gender and income which indicate that customers' purchasing decisions are influenced by their age and educational level, with mature and educated individuals appreciating craftsmanship, color, and product acceptability. Furthermore, gender significantly impacts the marketability of products hence, marketers should understand gender differences in decision-making styles, as females tend to buy more sericulture products, valuing silk as the "Queen of all Textiles. The respondents' higher income indicates their ability to purchase high-quality silk products, particularly silk fabrics, which are often considered more expensive than other fabrics. The findings infer that sericulture is productive and profitable endeavour which can be further explored by SRDI and other small business enterprises through continual improvement and product innovation that meet the demands and preferences of a wide range of clients.

Acknowledgments

This paper is an agency-funded research of the Don Mariano Marcos Memorial State University-Sericulture Research & Development Institute's fund GAA 101. The authors are very grateful to Dr. Lilia A. Ancheta, Chief of the Research and Development Division, for her encouragement and active participation in providing technical support, as well as Ms. Flordeliza L. Gaudia for encoding and documentation.

Declaration of interests

All the authors declare no conflicts of interest in the conduct of this research.

References

Chanotra S. 2019. Sericulture: An opportunity for the Upliftment of Rural Livelihood. Journal of Entomology and Zoology Studies **7(6)**, 1100-1103.

Connor M. 2021. Sustainable rice farming and its impact on rural women in Myanmar. Development in Practice **31(1)**, 49-58.
DOI: 10.1080/09614524.2020.1787350

Doneys P. 2020. Seeing Empowerment as Relational: Lessons From Women Participating in Development Projects in Cambodia. Development in Practice **30(2)**, 268–280.

Gapuz CF, Gapuz Jr. FV. 2012. Sericulture for Sustainable Environment and Income Generation: The Case of the CHED-DMMMSU Sericulture Project. IAMURE International Journal of Business and Management **3(1),**
http://dx.doi.org/10.7718/iamure.ijbm.v3i1.269.

Geetha GS, Indira R. 2017. Women, Income Generation and Political Capital in the Silk Industry in Karnataka. Gender, Technology and Development Journal **14(3)**, 423-440. https://doi.org./10.1177/097185241001400307

Kasi E. 2013. Role of Women in Sericulture and Community Development: A Study from a South Indian Village. SAGE Open **13**, 1-11. http://dx.doi.org/10.2139/ssrn.2861012

Lungelo C. 2021. Empowerment and agricultural mechanization: perceptions and experiences of women tractor operators in Ghana. Development in Practice **31(8)**, 988-1001, DOI: 10.1080/09614524.2021.1937551

Othman M, Oughthon E, Garrud G. 2020. Significance of farming groups for resource access and livelihood improvement of rural smallholder women farmers. Development in Practice **30(4)**, 1-13 DOI:10.1080/09614524.2020.1764502

Pathare P. 2017. Participation of women in Sericulture Activities of Ahmednagar District (M. S) India. IOSR Journal of Humanities and Social Science (IOSR-JHSS) **22(8)**, 90-93.

Philippine Commission on Women. 2009. Republic Act 7192 Women in Development and Nation Building Act. www.pcw.gov.ph

Rani UJ. 2017. Employment Generation to Women in Drought-Prone Areas: A Study with Reference to the Development of Sericulture in Anantapur District of Andhra Pradesh. Journal of Social Sciences **14(3)**, 249-255. DOI:10.1080/09718923.2007.11978356

Roy C. 2015. Inclusive Development in Sericulture through Female Empowerment. A Case Study in Malda District, West Bengal. https://www.researchgate.net/publication/275911128_Inclusive_Development_in_Sericulture_through_Female_Empowerment_A_Case_Study_in_Malda_District_West_Bengal

Sarkar S. 2017. Critical Analysis on Role of Women in Sericulture Industry, Department of Sericulture, Krishnath College, Berhampore, Murshidabad, West Bengal, India. International Journal of Social Science Citation **6(3)**, 211-222.

Sevilla C. 1992. Research Methods. Revised Edition. Manila: Rex Printing Co. Inc.

Sharma K, Kapoor B. 2020. Sericulture as a Profit-Based Industry-A Review. Indian Journal of Pure and Applied Biosciences **8(4)**, 550-562.

Sengupta M, Soma B, Pijush M, Soumen S. 2020. Women Participation In Sericulture Activities Of South 2, Parganas District, West Bengal: An Interim Report Of An Ongoing Study. J. Environ. & Sociobiol. **17(2)**, 53-56.

Soriano I. 2016. The Modern Filipino. https://primer.com.ph/tips-guides/2016/02/06/get-to-know-the-modern-filipino-woman/

UN WOMEN. 2014. Human Rights of Women. https://www.unwomen.org/en/news/in-focus/end-violence-against-women/2014/rights