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A study on the knowledge and adoption level of improved sericulture technologies by the farmers of Kothar area of Anantnag district of Kashmir

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Abstract

In the present study, 120 sample respondents were selected randomly from 8 sericulture beats of Kothar zone in district Anantnag. The independent variables such as age, area under mulberry, experience in sericulture and scientific orientation had significant correlation with knowledge however independent variables such as age, family size, occupation, area under mulberry, extension contact, land holding, experience in sericulture and scientific orientation exhibited positive and significant correlation with extent of adoption about improved sericulture technologies. The major findings revealed that (55.83%) of silkworm rearers had low level of knowledge, (43.34%) percent had medium level of knowledge and only (0.83%) percent had high level of knowledge about sericulture technologies while as (50.00%) of the respondents belonged to medium adoption level category, (40.00%) percent had low and (10.00%) percent of the respondents had high adoption level of improved sericulture technologies.

Keywords: Knowledge, adoption level, variables, improved technologies, respondents

Introduction

Sericulture is an agro-based activity that covers agriculture and industrial activity. India is the second largest producer of silk in the world. The total raw silk production in the country increased by 10.52% (35261 MT) during 2018-19 over the previous year 2017-18 (31,906 MT).Jammu and Kashmir has the distinction of being the only natural bi-voltine silk producing belt in India. The cocoon production during the year 1911 had registered all time high *viz.*, 1500 MT, after which a steady decline was noticed till now. The contribution of Jammu & Kashmir in the raw silk production has shown a decrease of 10.60% during 2018-19 and was recorded as (118 MT) as against (132 MT) during 2017-18 (Anonyms[1] 2019) [1].

In Kashmir division sericulture is practiced in ten districts among which Anantnag is considered to be famous and traditional district of sericulture with the well-organized base and emotional attachment of the people with sericulture where 152 villages are even now involved in sericulture having more than 1375 sericulture families producing 55271 kgs of cocoons and earning Rs. 1,33,62,951.00. In this district Kothar area has been a major contributor in eighties producing 41088.00 kgs of cocoons. In this area out of 106 villages, 330 families are even now producing 13696 kgs of cocoons worth Rs. 33,13,951.00 (Anonymous[2] 2017) [2].

The area has been a major contributor of cocoon production in the state since the times immemorial. Though with the development of new technologies in silkworm rearing, yet no significant impact of such technologies has been perceived in the target area which is a matter of concern.

The present study was thus taken up with an objective of understanding the knowledge and adoption levels of different sericultural technologies by the farmers of Kothar zone district Anantnag in order to draw the appropriate strategies for improving the productivity situation of the area.

Materials and Methods

The study was conducted in sericulture zone Kothar of district Anantnag of south Kashmir during the year 2018-19. This area consists of 106 villages. Among these villages mulberry cultivation and silkworm rearing is conducted in 45 villages. These villages are divided into 8 sericulture beats.

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All the 8 beats namely Dethu, Brisnu, Brimmar, Bariangan, Pushru, Nowgam, Rampora and Sheikhpora were selected for the study and a sample of 120 Silkworm rearers were selected for the study by Proportionate Allocation Method. Ex-post facto design was employed for conducting the study. Data was collected by using a detailed interview schedule employing personal interview method. Statistical tools like percentage, mean, standard deviation and correlation coefficient were used to analyze the data.

Results and Discussion

Table 1: Distribution of the respondents according to their overall level of knowledge about sericulture technology

S. No.	Category	Frequency	Percentage
1	Low	67	55.83
2	Medium	52	43.34
3	High	01	0.83
	Total	120	100.00
Mean = 60.88 Standard Deviation = 06.80			

Regarding knowledge level of farmers, a majority of the silkworm rearers (55.83%) had low level of knowledge about sericulture technologies whereas, 43.34 per cent were in medium category. It was discouraging to note that only 0.83 per cent of the rearers had high level of knowledge about production technologies in sericulture. The probable reason might be illiteracy of the respondents and were not exposed to different information sources. Also, it might be due to their ignorance tendency towards different information sources. The results of the study are supported by the findings of Lakashmanan and Geethadevi (2007) [10], Pradeep Kumar *et al.* (2012) [14] and Hadimani *et al.* (2017) [6].

Table 2: Statement wise distributions of the respondents according to their knowledge towards sericulture technology

S. No.	Sericulture technology	Full Knowledge		Partial Knowledge		No Knowledge	
		Freq	%	Freq	%	Freq	%
1	Mulberry Varieties	04	03.33	116	96.66	00	00.00
2	Spacing	07	05.83	112	93.33	01	00.83
3	Irrigated/Rain fed	23	19.16	98	80.83	00	00.00
4	Manure Applied	01	00.83	118	98.33	01	00.83
5	Fertilizer Application	02	01.66	117	97.50	01	00.83
6	Irrigation management	03	02.50	116	96.66	01	00.83
7	Rearing House	62	51.66	58	48.33	00	00.00
8	Disinfection	93	77.50	27	22.50	00	00.00
9	Hygiene	85	70.83	35	29.16	00	00.00
10	Floor/Tray/shoot Rearing	68	56.66	52	43.33	00	00.00
11	Bed Spacing	02	01.66	118	98.33	00	00.00
12	Temperature/humidity	08	06.66	112	93.33	00	00.00
13	Mountages	04	03.30	116	96.66	00	00.00
14	IPM	00	00.00	120	100.00	00	00.00

As regards to knowledge towards Seri cultural production technologies presented in table 2 revealed, that cent percent were having partial knowledge about IPM, 98.33 percent were having partial knowledge about manure application and bed spacing, 97.50 percent were having partial knowledge about fertilizer application, 96.66 percent had partial knowledge about mulberry varieties, irrigation management and mount ages, 93.33 percent were having partial knowledge about spacing between mulberry plants. This might be due low extension contacts with the research institutions and lack of awareness about different mulberry cultivation methods or due to less availability of land.

With regards technologies involved in silkworm rearing it was observed that 77.50% of the rearers had full knowledge about disinfection of rearing house, followed by 70.83% of the rearers had full knowledge about hygiene, 56.66% of the rearers had full knowledge about floor, tray and shoot rearing, 51.66% of the respondents had full knowledge about silkworm rearing house. It was discouraging to note, that only 6.66% of the respondents were having full knowledge about temperature and humidity maintenance, only 05.83% had full knowledge about spacing. Also observed 98.33% had partial knowledge about maintenance of temperature and humidity inside rearing rooms during rearing, 48.33 percent had partial knowledge about silkworm rearing house, 43.33 percent had partial knowledge about floor, tray and shoot rearing, 29.16 percent had partial knowledge about maintenance of hygiene and 22.50 percent had partial knowledge about disinfection. This may be due to the fact that the respondents belonging to far flung areas having least access towards the improved production technologies.

The results of present investigation regarding disinfection of rearing house are supported by Hadimani *et al.* (2017) [6], who reported, that 58 percent respondents had knowledge about disinfection of rearing house, the data regarding manure application, separate rearing house, shoot rearing, bed spacing and use of mount ages are supported by Kushwaha and Singhvi (2013) [9]. However the results regarding mulberry varieties and spacing are contradictory with Khalache and Gaikwad (2011) [8].

Table 3: Relationship of independent variables of respondents with their knowledge towards sericulture technology

S. No	Variable	Correlation coefficients ('r' Value)	'p' Value
1	Age	0.465*	0.000
2	Education	-0.227*	0.012
3	Family size	0.010NS	0.916
4	Occupation	0.002NS	0.983
5	Area under mulberry	0.222*	0.014
6	Sources of information	0.020NS	0.825
7	Extension Contact	0.030NS	0.746
8	Annual income	0.053NS	0.560
9	Land Holding	0.133NS	0.146
10	Experience in Sericulture	0.439*	0.000
11	Scientific Orientation	0.360*	0.000

* 'p' value < 0.05 and 0.01 implies that correlation is significant. NS- Non-significant

The results regarding relationship between independent variables such as age was found positively significant with the knowledge level and was in consistency with the findings of Dhere (2012) [4], area under mulberry, experience in sericulture and scientific orientation were positively significant with the knowledge level of the respondents. These findings are in line with the findings of Hadimani *et al.* (2017) [6]. That means these variables play a vital role in acquiring knowledge about the new production practices. Only education exhibited negatively significant correlation with knowledge of the respondents. That means the variables i.e education of the respondents not contributed for increase in their level of knowledge of different Seri cultural activities for better production. Whereas, the other variables such as family size, occupation, sources of information, extension contact had no significant correlation with knowledge level and are in consistency with the results of Pradeep Kumar *et al.* (2012) [14], annual income and land holding had no significant correlation with knowledge level of the respondents supported by Hadimani *et al.* (2017) [6].

Table 4: Distribution of the respondents according to their overall extent of adoption of sericulture technologies

S. No.	Category	Frequency	Percentage
1	Low	48	40.00
2	Medium	60	50.00
3	High	12	10.00
	Total	120	100.00
Mean = 48.68;			
Standard Deviation = 12.18			

The results presented in the table 4 revealed that (50%) of the respondents had medium level of adoption followed by 40.00% and 10.00% of the respondents had low and high adoption level respectively. As the respondents of the study area had low land availability on which they mostly cultivate agriculture crops and less availability of mulberry leaf might be the reason. The results are in conformity with the findings of Khalache and Gaikwad (2011) [8].

Table 5: Technology wise distribution of the respondents according to their adoption level of sericulture technology

S. No.	Sericulture technology	Complete Adoption		Partial Adoption		No Adoption	
		Freq	%	Freq	%	Freq	%
1	Mulberry Varieties	12	10.00	77	64.16	31	25.83
2	Spacing	12	10.00	77	64.16	31	25.83
3	Manure Application	00	00.00	90	75.00	30	25.00
4	Fertilizer Application	01	00.83	52	43.33	67	55.83
5	Irrigation management	00	00.00	00	00.00	120	100.00
6	Rearing House	60	50.00	60	50.00	00	00.00
7	Disinfection	90	75.00	29	25.00	00	00.00
8	Hygiene	83	69.16	36	30.00	01	00.83
9	Floor/Tray/shoot Rearing	75	62.50	45	37.50	00	00.00
10	Bed Spacing	06	05.00	114	95.00	00	00.00
11	Temperature/humidity	10	08.33	110	91.66	00	00.00
12	Mountages	04	03.33	116	96.66	00	00.00

The adoption of selected technologies by sericulture farmers are presented in the Table 5 it was observed that an equal percentage (64.16%) of the respondents had partial adoption of recommended mulberry varieties and spacing, nutrient management (manure application) 75.00% had partial adoption, 43.33% had partial fertilizer application to mulberry trees, 50% of the rearers had separate rearing house, The disinfection is the foremost requirement and it was encouraging to note that 75.00% of the rearers were practising disinfection fully as disinfectants are provided by the Sericulture Development department free of cost, 69.16% of rearers were fully maintaining hygiene, 62.50% of the rearers had complete adoption of floor/tray/shoot rearing, 95% of the

rearers had partially maintained bed spacing of silkworms In case of temperature and humidity maintenance, 91.66% had maintained partially, 96.66% of the respondents had partial adoption of mountages using locally available material.

The results of the above findings are in conformity with the findings of Sivaranjani and Murugesh (2019) [15], Mir *et al.* (2018) [12] and Kushwaha and Singhvi (2013) [9]. However some of the results are contradictory with Khalache and Gaikwad (2011) [8] who reported that majority of the respondent Seri culturists fully adopted mulberry cultivation practices like, recommended mulberry varieties (94.40%), spacing (98.90%), application of FYM (80.00%), inter-cultivation (97.8%), time of harvesting leaf (83.30%).

Table 6: Relationship of Independent variables of respondents with their adoption of sericulture technology

S. No.	Variable	Correlation coefficients ('r' Value)	'p' Value
1	Age	0.352*	0.000
2	Education	-0.189*	0.037
3	Family size	0.262*	0.004
4	Occupation	0.224*	0.013
5	Area under mulberry	0.649*	0.000
6	Sources of information	0.043NS	0.642
7	Extension Contact	0.230*	0.011
8	Annual income	0.092NS	0.314
9	Land Holding	0.280*	0.002
10	Experience in Sericulture	0.322*	0.000
11	Scientific Orientation	0.251*	0.000

* 'p' value < 0.05 and 0.01 implies that correlation is significant. NS- Non-significant

It was observed from Table 6, that independent variables such as age, family size, occupation, area under mulberry, extension contact, land holding, experience in sericulture and scientific orientation had positive and significant correlation with extent of adoption i.e. improvement in these variables will increase the level of adoption while education exhibited negatively significant correlation with extent of adoption of sericulture technology. The variables sources information and annual income exhibited non-significant correlation with extant of adoption.

The variables such as scientific orientation and extension agency contact are supported by Jiragal *et al.* (2019) [7], occupation, family size and area under mulberry are also supported by Geetha *et al.* (2001) [5] and Meenal and Rajan (2007) [11] respectively, age and education are in line with the findings of Munikrishnappa *et al.* (2002) [13].

Conclusion

It is concluded that the respondents had low level of knowledge but still medium level of adoption of improved sericulture technologies the motivating factors to farmers for silkworm rearing were it being a profitable crop, gives income in a shortest period of 30-40 days and attractive prices of cocoons. The socio-economic variables like age, area under mulberry, experience in sericulture and scientific orientation have a significant association with the knowledge level. While the variables like age, family size, occupation, area under mulberry, extension contact, land holding, experience in sericulture and scientific orientation had positive and significant correlation with extent of adoption of the respondents about sericulture technologies as these socio-economic factors of farmers were found important in deciding about adoption of recommended sericulture technologies. Therefore, the experts must take these factors in to consideration for creating more awareness about the improved technologies among the traditional farmers to increase the adoption and ultimately the production of quality cocoon crop.

References
1. Anonymous, Functioning Of Central Silk Board & Performance of Indian Silk Industry Central Silk Board (Ministry of Textiles, Govt. of India) Bangalore 2019, 0-23.
2. Anonymous, Annual report, Office of the Deputy Director, Sericulture Development Department Anantnag 2017.
3. Dar SA, Akhter R, Geelani NS. Impact of sericulture industry on Jammu and Kashmir Economy: (With Special reference to District Baramulla) International Journal of Multidisciplinary Education and Research 2017;2(2):60-64. ISSN: 2455-4588; www.educationjournal.in.
4. Dhere RV. Knowledge and attitudes of farmers towards farm mechanization in agriculture. M.Sc. (Agri.) Thesis, DR. PDKV, Akola 2012.
5. Geetha GS, Srinivasa G, Jayaram H, Iyengar MNS, Vijayaprakash NB. Socio-economic determinants of farmer oriented technology packages for sericulture – A field study. Indian Journal of Sericulture 2001;40(1):96-99.
6. Hadimani DK, Moulasab J, Ashoka, Manjunath. A Impact Study on Sericulture Production Technology by the Farmers of Bidar District in Karnataka, India. Int. J of Current Microbiology and Applied Sci 2017;6(11):2368-2374.
7. Imrankhan Jiragal MV, Srinivasa Reddy, Mahinsharif, Mohankumar, Naik RG. Adoption Level of Bi-voltine Silkworm Rearing Practices among Farmers of Chitradurga District. Int. J Curr. Microbiol. App. Sc. 2019;8(02):2481-2488.
doi: https://doi.org/10.20546/ijcmas.2019.802.288
8. Khalache PG, Gaikwad JH. Knowledge and adoption of sericulturists regarding recommended sericulture management practices in Karnataka State. Agriculture Update 2011;6(1):85-87.
9. Kushwaha RV, Singhvi NR. Extent of adoption of improved sericultural practices by the sericulturists of Buldhana district of Maharashtra. Agriculture update 2013;8(3):469-471.
10. Lakshmanan S, Geetha Devi RG. Knowledge and adoption levels of farmers of biveltine and cross breed sericultural technologies. Indian Journal of Sericulture 2007;46(1):72-75.
11. Meenal R, Rajan RK. Impact of socio-economic characters of sericulturists on knowledge adoption and cocoon production in Tamil Nadu. Indian Journal of Sericulture 2007;46(1):49-51.
12. Mir MA, Baqual MF, Hussan F. Study on Technology Adoption by Silkworm Rearers in Kashmir, Int. J. Pure & App. Biosci 2018;6(1):313-317.
doi: http://dx.doi.org/10.18782/2320-7051.6068
13. Munikrishnappa HM, Jagadisha K, Srinivasa G. Association of socio-economic characters with knowledge and adoption of improved sericulture

practices by sericulturists in Mysore district. Indian Journal of Sericulture 2002;41(1):89-91.

14. Pradeep Kumar C, Ramkrishna Naika VL, Madhu Prasad RN, Bhasskar B, Narayanswamy. Knowledge of sericulturists on organic farming practices in Chickballpur District. IOSR J. of Agr.and Veterinary Sci 2012; 1(3):0104. (IOSRJAVS) ISSN: 2319-2380, ISBN: 2319-2372.

15. Sivaranjani B, Murugesh KA. Adoption of Recommended Technologies by Sericulture Farmers in Krishnagiri District. Int. J Curr. Microbiol. App. Sci 2019;8(02):2784-2788.
doi: https://doi.org/10.20546/ijcmas.2019.802.326