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Adoption level of advanced cocoon production techniques in Aizawl, district of Mizoram

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Abstract

The present study was conducted to understand the adoption level of advanced cocoon production technique in Aizawl district of Mizoram. The Darlawn Block and Tlangnuam Block of Aizawl district of Mizoram was selected purposively for the present study, descriptive research designed was applied. The primary data was collected from 120 respondents by personal interview which were selected randomly by using pre-structure interview schedule. Adoption of the farmers was measured by asking 15 questions in respect of advanced cocoon production technique. Finding showed that majority i.e. 48.33 percent of the respondents had medium adoption level, 27.53 percent of the respondents had high level of adoption and 24.17 percent of respondent had low adoption level. The relation between profile of the respondents and their adoption level about improved advanced cocoon production technique was revealed that independent variable like age, education, occupation, land holding, annual income, farming experience and scientific orientation are positively and significantly associated with adoption level.

Keywords: Advanced cocoon production technique, adoption level, Aizawl and Mizoram

Introduction

India has been ranked as the second major and largest raw silk producer in the world as it contributes about 18% to the total world raw silk production, with an annual silk production of around 20,000 Metric Tons. Sericulture is an agro-based labour-intensive industry. In India, it is a village-based industry practiced in about 53,814 villages and provides employment to about 6 million people moreover it is capable of providing continuous income to farmers. Sericulture is divided in two sectors namely farm and industry. Sericulture broadly comprises inter-linked activities such as food plant cultivation, maintenance to feed the silkworms, silkworm rearing to produce the silk cocoons, reeling the cocoons for unwinding the silk filament, yarn making, weaving and processing of fabric. India is the only country in the world to produce all the four varieties of silk namely Mulberry, Eri, Tasar and Muga are produced in the country. Mulberry is the largest practiced sericulture industry in India. Mulberry silk production contributes almost 80 percent for entire silk production in the country. There are 10 million silkworm reared and 0.5 million related industrial workers in the world. Asia is the top producer of silk in the world contributing 95% of the total global output. Sericulture plays very effective role in the utilization of the natural resources in a most effective manner for socio-economic upliftment with livelihood,

employment and income generation.

Based on the success of sericulture practices in the state, both Central Government (Central Silk Board) and State Government (Directorate of Sericulture, Government of Mizoram) are taking lot of initiatives with various schemes and programmes. Financial support for mulberry cultivation, construction of rearing houses, and purchase of rearing appliances besides providing appropriate technologies is also extended to the farmers in order to promote sericulture in the entire state involving maximum number of farmers for livelihood security of Mizo community.

Research Methodology

Descriptive research design was followed for this study as it describes the characteristics or phenomenon that is being studied. The study was conducted at Darlawn and Tlangnuam Block of Aizawl District, under Mizoram state. Which were selected purposively. Three villages were selected randomly from each Block.

Objectives

1. To find the Adoption level of the respondents regarding advanced cocoon production techniques.
2. To establish the relationship between the selected independent variables with adoption.

Results and Discussion

Socio-economic characteristics of the respondents

Table 1: Socio-economic characteristics of the respondents N = 120

Sl.no	Attributes	Characteristics	Frequency	Percentage
1	Age	Young (24 to 39 years)	39	32.5
		Middle Age (40 to 55 years)	59	49.17
		Old Age (Above 55 years)	22	18.33
2	Caste	General	11	9.67
		ST	104	86.67
		SC	0	0
		OBC	5	4.16
3	Education	Graduation & Above	16	13.33
		Intermediate	21	17.5
		High school	35	29.67
		Primary School	28	23.33
		Can't read and write	13	10.83
		Illiterate	7	5.83
4	Occupation	Agriculture	61	10.00
		Agriculture + Labour	25	18.33
		Agriculture +xBusiness	22	20.83
		Agriculture +Service	12	50.83
5	Annual Income	2 to 3 lakhs	38	31.67
		3 to 4 lakhs	51	42.5
		Above 4 lakhs	31	25.83
6	Family Type	Joint family	35	29.67
		Nuclear Family	85	70.83
7	Land Holding	Marginal (Below 1 acre)	39	32.5
		Small (1-2 acre)	67	55.83
		Medium (Above 2 acre)	14	11.67
8	Farming Experience	Below 5 years	17	14.67
		6 to 10 years	24	20.00
		11 to 15 years	33	27.5
		Above 15 years	46	38.33
9	Source of Agriculture Information	low	17	14.17
		medium	55	45.83
		high	48	40.00
10	Scientific Orientation	Low	41	34.17
		Medium	53	44.17
		High	26	21.66

The data presented in Table 1 revealed that 18.33 percent of the respondents are old age (above 55 years) followed by 49.17 middle age (40-55 years) and 32.5 percent of the respondents are of young age (below 40 years). It also indicated that 4.16 percent of the respondent were Other backward class (OBC) and there was no Scheduled Caste (SC) which is at 0 percent and followed by majority of the caste which is 86.67 percent Scheduled Tribe (ST) and 9.67 percent of General caste. It also indicated that 17.5 percent of the respondents were educated up-to Intermediate level of education, 5.83 percent of illiterate, 10.83 percent who cant read and write, 23.33 percent of Primary school respondent, 29.67 percent of High school and 13.33 percent were Graduated and above. It was revealed that 10.0 percent of the respondents were engaged in Agriculture + Service, 18.33 percent were engaged in Agriculture + Business and 20.83 percent were engaged in Agriculture + Labour. It was found that 25.83 percent of the respondents had an annual income above 4 lakhs, 42.5 percent (3-4 lakhs) and 31.67

percent of the respondents (2-3 lakhs). It also indicated that 70.83 percent of the respondent have Nuclear family while 29.67 percent had Joint family. It was found that 11.67 percent of the respondents had Large land holdings (above 2 acre), 55.83 percent had Medium (1-2 acre) and 32.5 percent had Marginal (below 1 acre). It was revealed that 38.33 percent of the respondents had Farming experience of 15 years and above, 27.5 percent had 11-15 years of farming experience, 20.00 percent had 6-10 years of experience and 14.67 percent below 5 years of experience. It was found that (40.00%) of the respondents have High level Agriculture Information, (14.17%) of the respondents have low Agriculture Information followed by (45.83%) of the respondents having medium level of Agriculture Information. It was revealed that 44.17 percent of the respondent have medium level of scientific orientation followed by 34.17 percent of the respondents having low level of scientific orientation and 21.66 percent having high level of scientific orientation.

Table 2: Adopts improved varieties of mulberry

Sl. no	Statements	Adoption		
		Fully adopted F %	Partially adopted F %	Not adopted F %
1	Adopt improved varieties of Mulberry.	88(73.33)	14(11.67)	14(11.67)
2	Adopt improved cross breed of Mulberry silkworm.	84(70.00)	17(14.67)	19(15.83)
3	Proper field layout before planting of Mulberry	78(65.00)	16(13.33)	26(21.67)
4	Used FYM	112(93.33)	6(5.00)	2(1.67)
5	Pruning of Mulberry plantation.	94(78.33)	11(9.16)	15(12.5)
6	Intercropping in Mulberry fields	28(23.34)	31(25.83)	61(50.83)
7	Younger leaves for young age silkworms	97(80.83)	18(15.00)	5(4.17)
8	Rearing house for proper aeration	105(87.5)	7(5.83)	8(6.67)
9	Disinfecting of rearing room	109(90.83)	8(6.67)	3(2.5)
10	Paraffin paper to regulate temperature and humidity	69(57.5)	30(25.00)	21(17.5)
11	Handling Silkworm	114(95.00)	4(3.33)	2(1.67)
12	Moulting care	102(85.00)	15(12.5)	3(2.5)
13	Application of lime powder	75(62.5)	32(26.67)	13(10.83)
14	Proper Spacing	82(68.33)	30(25.00)	8(6.67)
15	Preventing disease breakout	53(44.17)	32(26.67)	35(29.16)
16	Avoiding Overcrowding	73(60.83)	23(19.17)	24(20.00)
17	Delayed harvesting of ripened worms	93(77.5)	22(18.33)	5(4.17)
18	Sorting of cocoons by quality	113(94.17)	4(3.33)	3(2.5)
19	Transportation of cocoons	42(35.00)	54(45.00)	24(20.00)
20	Avoiding cramming of cocoons	91(75.83)	15(12.5)	14(11.67)

The above table 2 reveals that majority (73.33%) of the respondents fully adopts improved varieties of mulberry, 15.00% of the respondents does not adopts and 11.67% partially adopt improved varieties of mulberry. It was revealed that majority (70.00%) of the respondents fully adopts the improved cross breed of mulberry silkworm, 15.83% of the respondents does not adopts and 14.67% of the respondents partially adopt the improved cross breed of mulberry silkworm. It revealed that majority (65.00%) of the respondents fully adopt the proper field layout before planting of mulberry cuttings for preventing diseases breakout, 21.67% of the respondents does not adopt followed by 13.33% of the respondents partially adopt the proper field layout before planting of mulberry cuttings for preventing diseases breakout.

It stated that majority (93.33%) of the respondents fully adopt the used of FYM to increase the yield of mulberry, 5.00% of the respondents partially adopt and 1.67% of the respondents does not adopt the used of FYM to increase the yield of mulberry. It revealed that (78.33%) of the respondents fully adopt the regular practice of pruning of mulberry plantation, 12.5% of the respondents does not adopt and 9.16% of the respondents partially adopt the regular practice of pruning of mulberry plantation. It was observed that (50.83%) of the respondents does not adopt the intercropping in mulberry fields, 25.83% of the respondents partially adopt and 23.34% of the respondents fully adopt the intercropping in mulberry fields. It shows that (80.83%) of the respondents fully adopt the collect of younger leaves for young age silkworms, 15.00% of the respondents partially adopt followed by 4.17% of the respondents does not adopt the collect of younger leaves for young age silkworms. It was observed that majority (87.5%) of the respondents fully adopt the construction of rearing house to prevent the pest from entering while providing proper aeration sowing period, 6.67% of the respondents does not adopt and 5.83% of the respondents partially adopt the construction of rearing house to prevent the pest from entering while providing proper aeration. It revealed that

(90.83%) of the respondents fully adopt the disinfect the rearing room 3-4 days before commencement of every rearing, 6.67% of the respondents partially adopt and 2.5% of the respondents does not adopt the disinfect the rearing room 3-4 days before commencement of every rearing. It shows that (57.5%) of the respondents fully adopt the paraffin paper to regulate the temperature and humidity of the rearing tray, 25.00% of the respondents partially adopt and 17.5% of the respondents does not adopt the paraffin paper to regulate the temperature and humidity of the rearing tray. It was observed that majority (95.00%) of the respondents fully adopt the sanitize of hand before handling of silkworm, 3.33% of the respondents partially adopt and 1.67% of the respondents does not adopt the sanitize of hand before handling of silkworm irrigation system. It stated that majority (85.00%) of the respondents fully adopt the practice of moulting care during moulting of silkworm, 12.5% of the respondents partially adopt and 2.5% of the respondents does not adopt the practice of moulting care during moulting of silkworm. It shows that majority (62.5%) of the respondents fully adopt the applied of lime powder to reduce humidity of the silkworm rearing tray, 26.67% of the respondents partially adopt and 10.83% of the respondents does not adopt the applied of lime powder to reduce humidity of the silkworm rearing tray. It was observed that 68.33% of the respondents fully adopt the proper spacing in a single rearing tray to avoid competition for food, 25.00% of the respondents partially adopt and 6.67% of the respondents does not adopt the proper spacing in a single rearing tray to avoid competition for food.

It stated that 44.17% of the respondents fully adopt the separation of weak worms from the healthy worms to prevent disease breakout, 29.16% of the respondents does not adopt and 26.67% of the respondents partially adopt the separation of weak worms from the healthy worms to prevent disease breakout. It revealed that majority (60.83%) of the respondents fully adopt the avoiding of overcrowding of mountage with mature silkworm, 20.00% of the respondents does not adopt and 19.17% of the respondents

partially adopt the avoiding of overcrowding of mountage with mature silkworm. It was stated that majority (77.5%) of the respondents fully adopt delayed of harvesting of ripened worms for 1-2 days during winter, 18.33% of the respondents partially adopt and 4.17% of the respondent does not adopt delayed of harvesting of ripened worms for 1-2 days during winter. It was observed that majority (94.17%) of the respondents fully adopt the sort of harvested cocoons depending on the quality of the cocoon, 3.33% of the respondents partially adopt and 2.5% of the respondents does not adopt the sort of harvested cocoons depending on the quality of the cocoon. It was observed that majority 45.00% of the respondents partially adopt the transport of the cocoons in cooler hours of the day, 35.00% of the respondents fully adopt and 20.00% of the respondents does not adopt the transport of the cocoons in cooler hours of the day. It stated that majority (75.83%) of the respondents fully adopt the perforated basket and avoid cramming of cocoons in bags, 12.5% of the respondents

partially adopt and 11.67% of the respondents does not adopt the Adopt perforated basket and avoid cramming of cocoons in bags.

Table 3: Over all distribution of respondents based on the adoption level of the respondents regarding advanced cocoon production techniques.

Sl. No.	Adoption	Frequency	Percentage
1	Low (33-40)	29	24.17
2	Medium (41-48)	58	48.33
3	High (49-56)	33	27.5
Total		120.00	100.00

The fig 1 reveals that majority 48.33 percent of the respondents had medium adoption level, 27.53 percent of the respondents had high level of adoption and 24.17 percent of the respondents have low adoption level. Similar findings was also reported by Brahma (2020) [3].

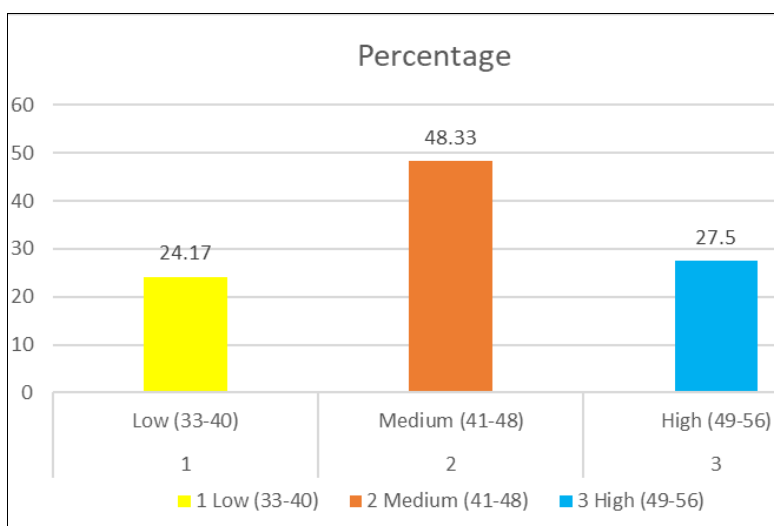


Fig 1: Adoption level

Overall distribution of respondents based on the adoption level of the respondents regarding advanced cocoon production techniques

Table 4: Correlation between selected dependent variable with adoption regarding advanced cocoon production techniques.

Sl. No.	Variables	Correlation Coefficient ('r' Value)
1.	Age	0.8228*
2.	Caste	0.9835**
3.	Education	0.8623**
4.	Occupation	0.3617*
5.	Annual Income	0.8871*
6.	Family Type	0.8526**
7.	Land Holding	0.8147*
8.	Farming experience	0.7959**
9.	Source of agricultural information	0.7346**
10.	Scientific orientation	0.7549*
** = Significant at 0.01 level of probability		
* = Significant at 0.05 level of probability		
NS = Non Significant		

* = Significant at p = 0.05%, ** = Significant at p = 0.01%, NS = Non-Significant

The above Table 4 stated that all the ten independent variables, i.e. age, caste, education, occupation, annual income, family type, land holding, farming experience, source of agriculture information and scientific orientation are positively and significantly correlated with adoption regarding advanced cocoon production technologies. whereas there were no negatively significantly correlated with adoption regarding advanced cocoon production techniques

Conclusion

It was concluded that the socio-economic profile of the respondents, majority of the respondents are of middle age (40 to 55 years), most of the respondents are from ST caste, majority of the respondents has attained High School, majority of the respondents are engage in agriculture, most of the respondents has medium level of income (3 to 4 lakh), most of the respondents were from nuclear family, majority of the respondents have 1-2 acres of land with majority of the respondents had above 15 years of farming experience, majority of the respondents had medium level of source of agriculture information similarly majority of the respondents also had medium level of scientific orientation.

Majority of the respondents had medium level category of overall knowledge regarding advanced cocoon production technologies. The factors influencing the knowledge of farmers regarding advanced cocoon production were age, caste, education, occupation, income, family type, land holding, farming experience, source of agriculture information and scientific orientation which were directly co-related with the knowledge regarding advanced cocoon production technologies. Majority of the respondents exhibited a medium level of adoption regarding advanced cocoon production techniques. The factors influencing the adoption of farmers regarding advanced cocoon production techniques were age, caste, education, occupation, income, family type, land holding, farming experience, source of agriculture information and scientific orientation which were directly co-related with the adoption regarding advanced cocoon production techniques. The main constraints faced by the farmers includes intervention of middleman in selling cocoons, lack of proper trainings, lack of sericulture technology knowledge, lack of knowledge of crop insurance and schemes etc. Farmers should be trained for better productivity and support from the state government as well as sericulture department should be ensure for the poor farmers.

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