Adoption of Recommended Practices of Tapioca by TheEriSilkworm Rearers of Udalguri, **Assam**, India

ABSTRACT:

The study was carried out in the Udalguridistrict of Assam in the year 2021–2022 with a sample size of 120 to know the adoption of recommended practices of tapioca cultivation by the eri silkworm rearer. Udalguri district is well known for itstraditional eri silkworm rearing. It is not only an important component of the people's traditions, but it also has the ability to create sustainable livelihood for rural residents. The data were collected from 6 (six) sericultural circles from the 3 (three) development blocks of Udalguri district *viz.,* Udalguri block, Rowta block and Mazbat block by using personal interview method and a structured schedule. It was observed from the study that 75 percent of respondents had medium level of adoption of scientific tapioca cultivation, whereas 15 per cent of the erirearer had low level of adoption and only 10 percent of them showed high level of adoption of scientific tapioca cultivation practices.It is imperative to conclude from the study that eri industry is strong enough to establish adistinctive identity in the study area. Tapioca cultivation involves simple scientific technology which is easytounderstandandadopt. Hence, the study recommended that the rearersneedtobeencouragedtowardsthe adoptionofscientificrecommended practices of tapioca to achieve better production and income generation

Keywords: Adoption, Erirearer, Recommended, Tapioca, Udalguri.

1. INTRODUCTION:

Sericulture is an important decentralised agro industry that contributes to the state economy as well as nation's economy by creating meaningful jobs.India is the only nation in the world to manufacture all four types of silk, with Muga being exclusive to India and having a golden sheen [1]. In Assam's economy, the sericulture sector is significant and occupies a unique position [2]..More than 90% of eri silk is produced in India's north-eastern area.Eri silkworms are reared by using leaves from various host plants. Castor and Kesseru serve as a primary host plant, while tapioca is considered as secondary host plant for Eri silkworms. Tapioca is a secondary host plant of eri silkworm. Tapioca is also known as cassava is an important starchy root crops grown in India more than a century.Ericulture can offer the underprivileged tapioca farmers a supplementary source of income.According to large-scale studies on total leaf availability, percentage of leaf plucked for silkworm feeding, and impact of leaf plucking on tuber yield of cassava in Andhra Pradesh it was found that around 25% of the leaf is available for eri silkworm rearing, without affecting the tuber yield of the cassava[3]. For tapioca growers in Assam, eri culture offers significant potential as a supplemental source of revenue.The use of modern agricultural technology and the adoption of improved practices for crop production helps farmers to

achieve higher production and increased income [4]. The suggested sericulture technology and their uptake by farmers differ significantly. Understanding farmers' knowledge and acceptance level for better technology is crucial to close this gap and create a relevant intervention approach[5].Udalguri is one of the most important districts of Assam (under BTR) which is well known for eri silk production and tapioca cultivation. In Udalguri district 535 nos. of sericultural villages (private), 6 nos. of govt sericulture farm & a total area 1609.81 hectares of land under silkworm food plant is present during 2020-21 [6]. The climate of this region's is ideal for raising silkworms as well as planting foodplant for them. This region gains benefit from the sericulture industry in various ways, it creates employment in a variety of methods, brings in money at various levels for diverse populations, andoffers better income opportunities than some other activities due to its sustainability and increasing demand of quality silk in global market.Even though the State Government had launched numerous development projects to improve the socioeconomic circumstances of Udalguri'serirearers over time, but there is still a need for an analysis of the critical factors affecting tapioca farming for the farmers' long-term sustainability.

2. METHODOLOGY:

Udalguri district of Assam was selected for the present study as Udalguri is one of the leading eri silk producing districts of Assam and eri silkworm rearers are using tapioca as a host plant of eri silkworm. Through Snowball technique of sampling design a total of 120 respondents were selected for collection of primary data. Three developmental blocks from Udalguri district *viz.,* Udalguri block, Rowta block and Mazbat block selected purposively where eri rearing and tapioca cultivation being practiced traditionally. A total of 6 (six) sericultural circles from the 3 (three) Development Blocks were selected, out of which 3 villages from each sericultural circle were selected for collection of data. To calculate the data different statistical techniques *viz*., mean, percentage, frequencies and standard deviation were used. By creating a standardised structured interview schedule based on the packages and practises of tapioca cultivation, adoption of scientific practices by eri silkworm rearers was assessed. Three response categories namely ‘Fully adoption’ ‘Partial adoption’ and “No adoption” were given for each of the practices with score 3,2 and 1 respectively. The respondents' individual adoption score was the sum of their scores from all of the practises. For each responses frequency and percentage distribution was calculated. To know the overall extent of adoption of recommended scientific tapioca cultivation mean and standard deviation was calculated and accordingly the responses were divided into three groups namely lowlevel of adoption (< Mean- SD), medium level of adoption (between Mean ± SD) and high level of adoption (>Mean + SD).

3. RESULTS AND DISCUSSION

3.1 Adoption of recommended package and practicesfor cultivation tapioca

The Table 1revealed that the majority of the respondent’s 54.16 percent were complete adopters ofselection of all types of soils except saline and alkaline with warm and humid climate with rainfall 1500-2000 mm, whereas 37.5 percent of respondents were partial adopter.Whereas, 8.33 percent of the respondents were accounted as a non-adopter of soil selection. The data also showed that most of the respondent’s 55.83 percent only partially adopted land preparation method while 30 percent of the respondents were non-adopters of land preparation method. Typically, a hoe or an

animal-drawn plough is used to prepare the field for cassava farming but nowadays, tractors are used to prepare land, mainly under contract, in Thailand, Malaysia, Tamil Nadu, India, and a large portion of South Vietnam [7].In addition, most of the respondent's 64.16 percent were full adopters of planting material, whereas 35.83 percent were partial adopters. The data presented in the table 1also showed that a majority of the respondent's 83.33 percent were non adopters of spacing whereas only 16.67 per cent of respondents partial adopters of proper spacing. However, all the respondents 100 percent were fully adopted the planting time of host plant.It was also observed that majority of the respondents 56.67 percent were non-adopters of weeding and cleaning when require, 30.83 percent were partial adopters and only 12.5 percent of respondents were complete adopters. Furthermore, the vast majority of respondents 70.83 percent were non-adopters of irrigation with 29.16 percent being partial adopters. When it came to intercropping majority of the respondents 54.16 percent were non-adopters, 45.83 percent were partial adopters.Due to the shortage of labour and expensive cost of labour intercropping was not adopted and practiced by the farmers [8,9,10]. Intercropping of tapioca with French bean or vegetable cowpea was found to be most profitable in India because of the early harvest of intercrops caused little reduction in tapioca yield [11,12

Table: 1 Adoption of recommendedpackage and practicesof Tapioca farming

Sl. No.	Recommendedpractices	Fulladoption		Partialadoption		Noadoption	
		F	%	F	%	F	%
Adoption of recommended cultivation practice							
a.	Selection of all types of soils except saline and alkaline. Warm and humid climate with rainfall 1500-2000 mm	65	54.16	45	37.5	10	8.33
b.	Land should be ploughed two- three times or dug to a depth of 25-30 cm	17	14.16	67	55.83	36	30
c.	Cuttings with 15-20 cm length giving slating cut	77	64.16	43	35.83	0	0
d.	Maintenanceofspacing (90cm × 90cm)	0	0	20	16.67	100	83.33
e.	Time of planting (April- May for Assam)	120	100	0	0	0	0
f.	Weedingandcleaningwhenrequire	15	12.5	37	30.83	68	56.67
g.	Irrigation (3-5 times)	0	0	35	29.16	85	70.83
h.	Intercropping with short duration crop like groundnut or cowpea etc.	0	0	55	45.83	65	54.16

Adoption of recommended rate of fertilizer application for tapioca cultivation							
a.	Cattle manure or cow dung during land preparation	85	70.83	35	29.16	0	0
b.	Urea at the time of planting and two months after planting (10kg/ bigha)	0	0	37	30.83	83	69.16
c.	Super phosphate at the time of planting and two months after planting (30kg/ bigha)	0	0	0	0	120	100
d.	Muriate of potash at the time of planting and two months after planting (10kg/ bigha)	0	0	0	0	120	100
Chemical control method of plant protectionfor tapioca cultivation							
a.	For controlling spiders, mites and scale insects (Spiromesifen 22.9 SC @ 96 g a.i./ha)	0	0	0	0	120	100
b.	For controlling Cassava mosaic and Cercospora leaf spot (Lambda-cyhalothrin 05.00% 1 5g ai/ha 3-4 times at monthly intervals)	0	0	0	0	120	100
c.	For leaf spot disease (Azoxystrobin 23 SC 0.1% 1g/ ltr or Chlorothalonil 75 WP 0.2% 2g/ ltr)	0	0	0	0	120	100

F= frequency, %= Percentage, a.i= active ingredient, L= liter, g= gram, WP= Wettable powder

3.2 Adoption of recommended rate of fertilizer applicationfor tapioca cultivation

The data presented in table 1 revealed that majority of the respondents 70.83 percent were complete adopters of farm yard manureduring land preparation while 29.16 percent of respondents were partial adopter. Moreover, in case of use of urea in the cultivation process many of the respondents 69.16 percent were non- adopters, while only 30.83 percent of respondents were found as partial adopters of using urea.It was observed from the table that 100.00 percent of the respondentswere non-adopters on the use of super phosphate and Muriate of potash.Qadriet. al [13] reported that poor rate of adoption and application of fertilizer in silkworm hostplant is due to the high cost of fertilizer and lack of awareness among the farmers

3.3 Chemical control method of plant protection for tapioca cultivation

Data presented on Table 1 revealed that all of the respondents 100 percent were non-adopters in terms of use of any chemical pesticide against the different types of disease and pest of tapioca.In the study area, it was found that respondents were lacked awareness and familiarity with common diseases and pests affecting tapioca which leads to difficulties in identifying and implementing effective control measures for the encountered diseases.Chikotiet. al[14]stated thatthere was no specific

management of cassava mosaic disease by the minority of farmers who were aware of the disease and the majority of the respondents (97.6%) were not familiar with the symptoms of cassava mosaic disease and could therefore not identify the disease.Houngueet. al[15]reported that, when cassava mosaic disease was observed in fields, farmers do not implement control measures, presumably because they were lack proper knowledge and training .

3.4 Overall adoption of recommended practices of tapioca by the erireares

As shown in Table 2 the vast majority of the respondents 75 percent had medium level of adoption of scientific tapioca cultivation, whereas 15 percent of the erirearer had low level of adoption. On the other hand, only 10 percent of them showed high level of adoption of scientific tapioca cultivation practices.Risk orientation and economic motivation at medium level may be significant factors for the medium level of technology adoption among tapioca growers.The most likely cause of low level of adoption of scientific tapioca cultivation by the erirearer is due to the fact that eri rearing has been done in the area from a long time and the people in the study area were familiar with the traditional host plant cultivation practices. In addition, lack of sufficient training, fewer extension contacts and lack of cash could be contributing factors to lower adoption rates.Archana et al.[16] found that the majority of respondents (57.50 percent) used technology at medium level in their cassava (tapioca) farming, followed by high level usage (25.83 percent) and lowlevel (16.67 percent).Kamble [17] also reportedthat 42.50 percent of respondents had a medium adoption level, whereas 30.00 percent and 27.50 percent of respondents had low and high adoption levels, respectively. Adoption and utilization of cassava production technologies were severely hampered by high wages, loan availability issues, technological limitations, insufficient land, and infestations of pests and diseases [18]

Table 2: Overall adoption of recommended practices of tapioca by the erireares

(n=120)

Sl.No.	Category	Frequency	Percentage	Mean	S.D
1	Low (Below 43)	18	15	48.12	4.88
2	Medium (43 to 53)	90	75		
3	High (Above 53)	12	10		

4. CONCLUSION

The results of this study showed that most of the respondents adopted recommended tapioca cultivation procedures for eri rearing to a medium extent. Eri culture could be developed in the study area by utilising its valuable biological resource like tapioca, which have the potential for value addition and export of the products. This activity can potentially serve as a supplemental source of revenue for the tapioca growers, especially for the rural women's without requiring a significant expenditure. To generate a positive attitude towards scientific tapioca farming method for eri rearing extension functionaries should make continuous efforts to accelerate the adoption of scientific tapioca cultivation

practices.The government and other departments should continuously work to establish ericulture as an additional revenue-generating activity, where tapioca is widely planted. Additionally, it might help them in gaining the confidence and abilities they need to perform the various tasks associated with tapioca cultivation more effectively.

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