

Muga Silk The Golden tread of Assam



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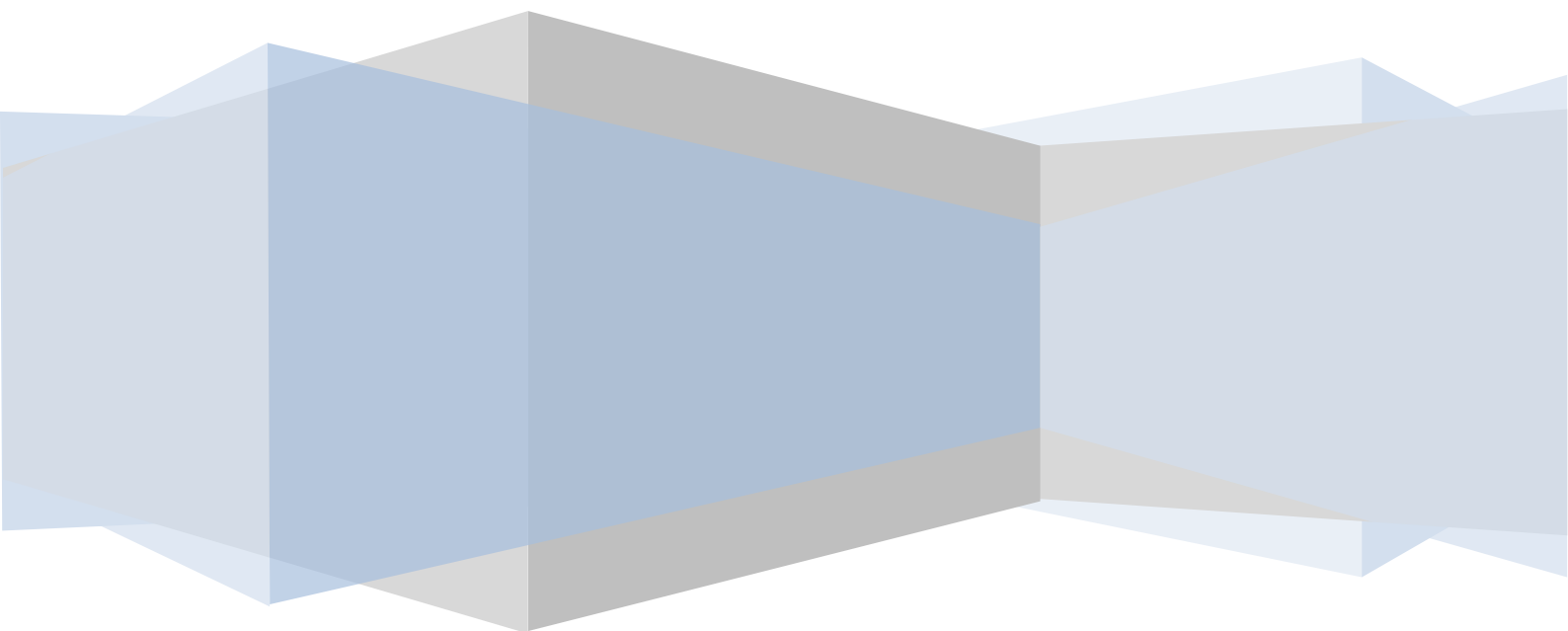
(b)



(c)



(d)



Acknowledgement

We would like to express our special thanks of gratitude to Numaligarh Refinery Limited for giving us the golden opportunity to do this wonderful project on “Muga Silk- The golden thread of Assam”. Also our special thanks to sericulture department Bogidhola Muga Sumoni Marangi, Golaghat.

At last but not the least, we would like to thank all the workers of the ‘Sumoni firm’ who are directly or indirectly connected with us in our every step of walk, without them we could not finalizing this project within the limited time frame.

Name of the students join in the project.

- 1.Arпита Kalita.(edu)
- 2.Minu Bora.(edu)
- 3.Junmoni Borah.(socio)
- 4 .Najmin Begum(socio)
5. Riti Kakoti.(Ass)
- 6.Binita Gogoi(Ass)
- 7.Papori Boruah(Ass)
- 8 Sushmita Saikia(socio).
- 9.Purabi Gogoi(socio)
- 10.Dipamoni Mech Rajbonshi(Ass)
- 11.Pranita Gogoi (Ass)
- 12.Bobita Bora (Ass)
- 13.Kasish Saikia (Edu)
- 14.Soniya Marapache (Ass)

15. Anjali urang.(Edu)

16. Dipty Suri.(eco)

Declaration:

Dr. Daisy rani Chutia, Assistant Professor department of Education hereby declare that this project report is the record of authentic work carried out by our girl students with the guidance of me. Our students during the period from 12th November to 29th January(1month extended) and has not been submitted to any other institute for publication or any other work.

Name and signature of the supervisor.

Dr. Daisy rani chutia.

Date:

Certificate

This is to certify that department of Education, under the guidance of Dr. Daisy rani Chutia,Assistant professor department of Education, Marangi Mahavidyalaya has successfully completed the project work titled- 'Muga silk', The Golden thread of Assam.

This project report is record of authentic work carried out by the students of the college during the period from 12th November to 12th February.

Signature of the principal

Date:

Certificate from NRL

Certificate from Assistant Director of Sericulture Golaghat.

Summary of the project:

Muga Silk is native of Assam and named after Assamese word “Muga” which indicates the amber (brown) colour of cocoon. *Antheraea assamensis* is the scientific name of Muga silkworm. The species was first described by Johann Wilhelm Helfer in 1837. It is largely found in Assam in Northeast India where 99% of its production occurs. Muga silk is a variety of wild silk geographically tagged to the state of Assam in India. The silk is known for its extreme durability and has a natural yellowish golden tint with a shimmering, glossy texture. It was previously reserved for the use of royalty. From time immemorial many ethnic and tribal groups have produced Muga silk.

Uniqueness of Muga Silk:

- It has a natural shining golden colour.
- Muga silk is a stain free fabric.
- Muga silk fabric is the second costliest fabric in the world next to pashmina.
- Muga silk is precious durable, lustrous strongest silk among the all types of natural silk.
- No artificial dye is required.
- Everlasting colour stability. The golden colour is increased after every wash instead of decay of shine.

Muga silk remains a classic item that every woman desires to own, however its traditional outlook, its non-versatility makes the demand a little niche. Nevertheless, the fabric does have a global connect specially in Japan where designers are using it to make ‘Kimonos’ and other traditional Japanese dresses.

Objective of the project:

The main objectives the project are:

1. Learn .about technical and Practical knowledge of Muga cultivation.
2. Knowledge about production and marketing of Muga Thread and worm.

Significance of th Project :

The study on the ‘ Muga Silk’ –The Golden thread of Assam can be learning paradigm in the college level to enhance the students knowledge and entrepreneurial skills aswell. The projects goal is to help the students to improve the vocational competence and develop self employability skills, implement a career plan in sericulture sector after graduating from the college.

About the project:

Name of the project :Muga Silk’ -The Golden thread of Assam.

Name of the supervisor: Dr.Daisy rani chutia.

Number of students join in the project: 15.

Total expenditure: one lakh.

Content:

- **Introduction**
- **Distribution**
- **Rearing of Muga Silkworm**
- **About Muga Silkworm feedon**
- **Life History**
- **Process of Muga Culture**
- **Rearing of Muga Polu**
- **Post cocoon processing**
- **Uniqueness of Muga Silk**
- **Market Price of Muga Silk**
- **Future of muga Silk.**
- **Conclusion**
- **Reference**
- **Photos**

Introduction :

Muga Silk is native of Assam and named after Assamese word “Muga” which indicates the amber (brown) colour of cocoon. *Antheraea Assamensis* is the scientific name of Muga silkworm. The species was first described by Johann Wilhelm Helfer in 1837. It is largely found in Assam in Northeast India where 99% of its production occurs. Muga silk is a variety of wild silk geographically tagged to the state of Assam in India. The silk is known for its extreme durability and has a natural yellowish golden tint with a shimmering, glossy texture. It was previously reserved for the use of royalty. From time immemorial many ethnic and tribal groups have produced Muga silk. Muga silkworm are mostly wild unlike the mulberry silkworm which is completely domesticated. The Muga Silkworm is a single species with little genetic variation among populations, survives harsh climate conditions and is subject to various diseases pests and predators. Muga silkworm which produces golden silk and is endemic to North East India. The Muga silkworm has been exploited commercially for several decades but there is little information on its distribution, genetic diversity, host plant preferences etc.

About Muga Silkworm:

Scientific name	: <i>Antheraea assamensis</i>
Phylum	: Arthropoda
Family	: Saturniidae
Order	: Lepidoptera
Kingdom	: Animalia



Distribution of Muga Silkworm:

Muga Silkworm, *A. Assamensis*, occurs in the Brahmaputra valley in Assam, East, West and South Garo hills of Meghalaya, Mokokchung Tuensung, Kohima and Wokha districts of Nagaland, Lohit and Dibang valleys, Chanlang and Papumpare districts of Arunachal Pradesh, Tamenglong district of Manipur and Coochbehar district of West Bengal. It also occurs in Northern Myanmar and the Kumaon and Kangra Valleys in the Western Himalayan hills, Sikkim, Himachal Pradesh, Uttar Pradesh, Gujarat, Pondicherry, Bangladesh, Indonesia and Sri Lanka.

About Muga Silkworm feed on:

Muga Silkworm feeds primarily on som (*Persea bombycina*) but will feed on Soalu (*Litsea monopetala*), dighloti (*L. Salicifolia*) and Mejankari (*L. Citrata*) if som is not available. Som occurs throughout Assam and is utilized there for the commercial rearing of Muga Silkworms.

Rearing of Muga Silkworm:

Muga Silkworm rear in out door on tree. One tree can be utilized for two rearing in a year alternately during spring and autumn, thus one full grown tree can yield 1000 cocoons in a year and 5 trees are required to produce 5000 cocoons which yield one Kg. of Muga Silk.

Muga Silkworm is semi domesticated and multivoltine in nature having 5 to 6 generations in a year. In accordance with the Assamese calendar the different generations in a year are names as follows-

Sl.No.	Assamese Name	Season	Month
1	Jarua	Winter	Dec-Feb
2	Chotua	Early spring	Mar-April
3	Jethua	Spring	May-June
4	Aherua	Early summer	June-July
5	Bhodia	Late summer	Aug-Sept.
6	Kotia	Autumn	Oct-Nov.

Table- I

Life History :

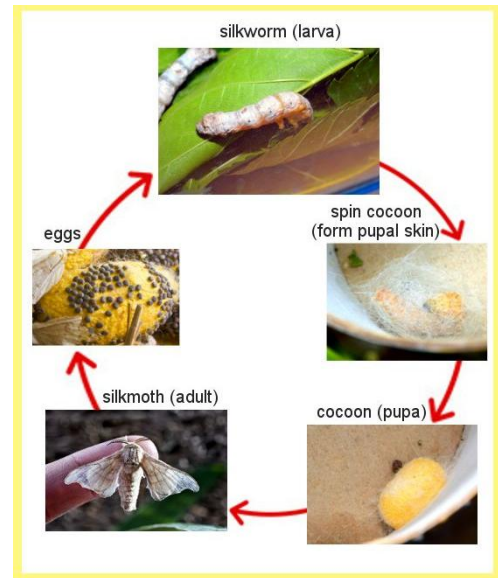
The moth is multivoltine the entire life cycle lasts for about 50 days in summer and 120 days in winter. Muga moth (*Muga polu*) also has the same life cycle as other silkworms. i.e. egg,

larva, pupa and adult. The wing and body of the male moth are copper brown to dark brown, while those of female is yellowish to brown. The male moth can also be distinguished from the female by its.

- a. Slightly smaller size.
- b. Slender abdomen.
- c. Busty antennae
- d. Sharply curved forewing tips.

The Muga (*Antheraea assamensis*) can be identified by the orange eye spots, the pale leading edge of the forewing and a black spot located towards the body. Typically, the males find the females upon emergence and copulate immediately.

The female moths eggs (popularly known as seeds) are laid on solau leaves. Eggs are hatched into larvae of about 2mm long. They grow rapidly, eat voraciously and end up about 30 mm long after 4-5 weeks. During this time, they moult four times. At the end they search suitable place for cocooning.



Process of Muga Culture- ‘Soil to Silk’:

Only well formed good cocoons are selected for seed production as well as for reeling purpose. Seeds cocoons are preserved in single layer to facilitate proper aeration and easy emergency seeds cocoons are allowed to emergence for coupling to produce seeds. After 17 days during summer and 35 days during winter moths are emerged from cocoon. The approximate body length of male moth is 3 cm and the female is 3.5 cm. The adult does not eat during the short period of its mature existence commercial cocoons are oven or sun dried subjected to kill the pupa and preserved for reeling. The commercial cocoons are reeled with traditional ‘Hand Bhir’ reeling device and improvised reeling machines.

Rearing of Muga Polu (Muga Moth):

The seed cocoons intended for preparation of eggs are taken from commercial rearers or from Government grainages. There are then laid in a single layer in trays to facilitate the emergence starts from dusk and continues till morning. The emerging adults are allowed to mate and in the coupled state, the pair is tied with a piece of cotton thread to 1.5-2 feet long stick made of dried traw which is known as Kharika. After overnight mating the couples separate in the morning and if they do not decouple. naturally they are made to do so by heat of fire lighted some distance away. The female moth lays about 150-250 eggs on ‘Kharika’. During the rearing period, farmers restrict entry of people to the rearing plot as they believe that the evil sight of outsider may cause ‘Mukhloga disease’. During summer the worms

hatch out in the morning in about 8 days. The Kharikas with the hatched worms are hanged on the host plants. The larvae immediately crawl and start feeding on leaves. When the leaves are exhausted, the larvae crawl down and are collected on triangular Bamboo Sieves with long handles (Chaloni) 3.30, which are again hanged on a fresh tree. Then a band straw with a little sand or ash is tied around the tree trunk 1-1. 2 m above the ground to prevent the worms from crawling down the ground. The larvae feed voraciously, pass through 4 moults and reach the nature stage. In the final stage, larvae become greenish blue with prominent tubercles. Larval period lasts for 30-35 days. The ripe worms come down the trees searching for a suitable place for spinning of cocoon. They are then collected by rearers and put in baskets containing mango twigs and leaves, which are set as cocoonages (Jali) the spinning of



cocoons. The Jalties are then hung and left undisturbed in separate rooms or at some shady place till cocoons are formed. Dry leaves, of singari, bhomloti azar, etc are utilized for preparation of jail by the farmers. It is believed that cocooning in singari leaves produces Shining and compact cocoons. Spinning takes about 2-3 days in summer and 7 days in winter Muga cocoon is golden or light brown in colour, 4-6 CM long and 2-3 cm broad with a rudimentary peduncle without ring.



Post cocoon processing:

The Muga cocoon is compact and leathery in structure. The length of continuous silk filament ranges from 350-450 meters with 4 to 5 breaks. Immediately after removed from the mountages, cocoons are spread on bamboo mats in the sun during hot hours of the day that practically kills the Chrysalis. For degumming of cocoon, local people use alkali (Khar) made by burning Banana peel/ Pseudo-stem or paddy straw / husk. Cocoons are boiled in such mild alkaline solutions for about 15-20 minutes. Almost entire reeling of Muga is done with a primitive machine, called Bhir or Bhawri operated by two persons. The cocoons are kept in Basin with warm water. In this process, it requires two persons. One person releases the filaments from cocoons while the other twists the filament into one thread and wind around 100 gm raw silk per day on an average. Only 40-45% silk filament is reeled and rest is rejected as waste.

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- Muga silk is precious durable, lustrous strongest silk among the all types of natural silk.
- No artificial dye is required.
- Everlasting colour stability. The golden colour is increased after every wash instead of decay of shine.
- Muga silk fabric can be washed by all the washing material. There is no washing restriction.
- Resistant to Achid.
- Moisture regain capacity to wear over the year due to its thermostatic nature.



Price of Muga Silk:

Muga silk is one of the highest qualities of silk and its ability to retain the original golden glow, makes the cost worth -while. The price of Muga thread cost is in between 22,000 to 25,000 thousand per kg. Muga silk is now becoming a coveted item for wedding and traditional wear.

Future of muga silk:

Assam is the natural home for Muga Silk. The state also accounts for the highest production of muga in the country. It is a matter of pride that Assam also enjoys a global monopoly in muga production; the state produces 87% of India's production. Muga Silk is an exclusive contribution of Assam to the world of sericulture and textiles. The texture and durability of this unique golden silk have attracted global attention for several countries. Muga had put Assam on the famous silk route and had thus attracted traders from far and wide t6o this land. But its cultivation and production have remained confined the traditional system, which has prevented the Muga based economy from growing. According to the Government of Assam, the state had produced 587.47 metric tones of muga silk between 2011 and 2016, which works out to about 98 metric tones per annum. In 2019, the government of Assam had launched an ambitious project called Assam Silk outreach Mission for taking muga raw silk production up to 10 times in the next 10 years.

Conclusion:

Muga silk remains a classic item that every women decrees to own, however its traditional outlook, an non-versatility makes the demand a little niche. Nevertheless, the fabric does have a global connect specially in Japan where designers are using it to make 'Kimonos' and other traditional Japanese dresses.

Reference:

1. Muga Silk, Central Silk Board, Ministry of Textiles, Government of India, 3 July, 2016
2. Hyde Nina (1984), "The Queen of Textiles"
3. Deka Rhani, "The great Indian Corridor in the east." P-63
4. Dhavalikar M.K. Archeology of Guwahati 1972, P. 139
5. Phukan, Raju (2012) "Muga Silk Industry of Assam in Historical perspectives." Global journal of Human Social Science-12.
6. Mahanta, S, Assam Buranji D.H.A.A. 1945, P-70