The Silk Route

By: - Riya Metri (S.Y.)

As little children we have gone in circles reciting the nursery rhyme “Here we go round the Mulberry bush” and later read the fascinating story of Marco Polo discovering the ‘Silk Route’ to China. Put the two together and we have the story of silk. Sericulture or silk farming is the cultivation of silkworms to produce silk fabric. The moth, Bombyx mori, is the most widely used and intensively studied silkworm. Silk was believed to have first been produced in China from the early Neolithic period or Stone Age. Sericulture has become an important cottage industry in countries like Brazil, China, France, India, Italy, Japan and Russia. China and India are main producers with more than 60% of world’s annual silk production.

After mating, the female silk moth is placed on a paper and covered with a small bowl. The eggs it lays becomes the ‘egg card’. When the eggs hatch, the larvae are fed with mulberry leaves. As they grow in size, they shed their skin. This is called moulting. The larva is known as an instar. After the fourth moul, they spin their cocoon and pupate therein. The silk is continuous filament comprising fibroin protein secreted from two salivary glands in the head of each larva and gum called Sericin which cements the filaments together to form the cocoon. Left alone, the adult moth emerges by puncturing the cocoon. This results in ‘spun silk’ of broken filaments. To produce silk with long fibre, the pupa is sacrificed.

The gummy substance is removed by placing the cocoons in the hot water. This frees the silk filaments and makes them ready for reeling. This process is known as the de-gumming. The immersion in hot water also kills the silkworm pupa. Single filaments are combined to form thread which is chain through several guides. It is wound on reels. After drying, the raw silk is packed according to quality.

Stages of Production

1. The silk moth lays thousands of fertilized eggs.
2. The eggs hatch to form larvae or caterpillars known as Silkworms.
3. Larvae feed on Mulberry leaves.
4. Having grown and moulted several times, the silkworm extrudes a silk fiber and forms a web
5. It swings its head from side to side resembling figure ’8’, distributing the saliva that will form Silk.
6. The silk solidifies when it is exposed to air.
7. The silkworm spins approximately one mile (1.5 Km) of filament and completely encloses itself in a cocoon in about 2 to 3 days.
8. About 2500 cocoons are required to produce a pound, or about 5,500 per kilogram, of raw silk.
9. The intact cocoons are boiled, killing silkworm pupae inside to get the long fibres.
10. The silk filaments are then wound on reels.
Sericulture ... A remunerative profession!!!

We hear the oft-repeated refrain from our economists and sociologists, “Today large numbers of educated rural youth are migrating to cities in search of work as agriculture has not been remunerative”. Though there are several reasons for loss and failure in agriculture, proper guidance and right decisions taken at the correct time prevents losses, and at the same time generates thousands of rupees as income, besides providing employment to several others. Entrepreneurship is the need of the hour. Thus, income generation is the only way to retain youth in agriculture and today sericulture offers monthly income on par with salaries drawn from private jobs. Based on the entrepreneurs’ interest and work, sericulture is one of the onetime investment business with low input costs and high profits associated with it. It is labour intensive.

Since our college motto is to promote students to be focused on growing organic and to build up successful entrepreneurs, our Entomology Department, under the guidance of Rajan Shelke Sir, has taken a great initiative to inculcate the knowledge of sericulture on the campus and to motivate the students to think for various business ventures in agriculture in which sericulture is one of the most profitable and an flourishing sector in economy that one can have without much risk of failure.

The journey with the silkworm rearing began with the fascinating exhibition “Wonder World of Insects” which was held at University of Agricultural Sciences, GKVK, Bangalore in December, 2017. Rajan Shelke Sir attended the exhibition along with few students where they got to know more about silk rearing and its methods of growing which inspired them to try it out in our college campus. We got the eggs of silkworm of Bombyx mori species from the exhibition itself. Under the guidance of Rajan Shelke Sir, the students put the eggs for hatching and reared the larvae in controlled conditions. Since Mulberry silkworm rearing, being completely domesticated, demands specified environmental conditions like temperature (24-28°C) and relative humidity 70 to 85%, etc are standardized protocols.

The eggs of 60 df (1 df = 50 eggs) i.e. 3000 eggs were kept for hatching on 1st January. The eggs of mulberry silkworm eggs require 14 to 15 days for hatching on 16th January. This is the first instar. Silkworms are known to be gregarious and voracious feeders. Hence, when they are reared under controlled conditions, care should be taken to ensure that there is an adequate supply of mulberry leaves at least twice a day. The silkworms rearing rooms should be checked for the supply of Mulberry leaves and proper environmental conditions for their proper survival. It takes 28 to 30 days to complete its metamorphosis through 5 instars. The silk worms must be protected from the fatal Uzi fly by using mosquito nets on window and door frames. Thereafter, it pupated from 16th February onwards.

Once the pupae are formed, the 6 to 7 days old cocoons are processed. The pupae are killed by stifling and then the cocoons are dried for preservation and storage. There are different methods of stifling such as sun drying, steam stifling, hot air drying. After stifling and drying the cocoons are untangled into fine silk threads and then transferred to reeling machine. The silken threads are spun into yarn of the silk threads of appropriate size and length. Thus, the sericulture is one of the low input cost business since after establishing a mulberry garden and rearing shed, one can take up sericulture for years together. Along with other farm enterprises one can increase the farm income with sericulture.

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STAY MOTIVATED WITH SRIKANTH BOLLA !!!

Srikant Bolla is the founder of Bollant Industries and he is the first international blind student in Brain and Cognitive Science & Business at the Massachusetts Institute of Technology or MIT of USA.

Bolla was born in Seetharamapuram of Machlipatnam, a city of Andhra Pradesh. His family was mainly dependent on farming. After his matriculation, he wanted to pursue a course in science but was not permitted to do so. Bolla filed a case and after six months of uncertainty, he was allowed to join the science stream at his own risk. Bolla topped his class with a 98% on his 12th Standard exams. Bolla was then denied admission to coaching institute for entrance exam to join Indian Institute of Technology or IIT, where he wanted to study Engineering. The IIT rejected his admission because of his blindness but he could not be stopped from achieving his aim. He obtained a seat in Massachusetts Institute of Technology, where he was the first blind student.
After completion of his professional course at M.I.T., he got job offers in U.S.A, U.K, etc. with more salary package but he rejected all the offers and returned to India in 2012. He started a Braille printing press in the Samanvai Centre for children with multiple disabilities in Hyderabad, India. This provides disabled students with an access educational material. In 2012, with funding from Ratan Tata, Bolla started Bollant Industries which manufactures areca-based products and provides employment to several hundred people with disabilities. Bollant Industries has shown exceptional growth averaging 20% a month since inception, with 2016-17 fiscal year revenues crossing rupees 25 crores. In April 2017, Bolla was named by Forbes magazine in its “List of 30 under 30” across Asia. He is one of only three Indians in that list.

Now Srikanth Bolla is the C.E.O. of Bollant Industries, having Rs. 80 crore turnover per year. He is setting up the company’s biggest facility at Sricity in Chittoor district of A.P. Bollant Industries expects to be a Rs. 100 crore company in 2 years. Bolla’s venture has attracted some marquee investors. The first to invest was Ravi Mantha, followed by SP Reddy, both of whom are associated with TIE. They saw a spark and tenacity to fight adversity in Bolla and encouraged him and his ideas when former Tata group chairman Ratan Tata invested in Bollant Industries in his personal capacity, his first non-tech investment, it was a truly a vindication of Bolla’s efforts.

**Handball – a three year story**  
By:- Andrea Cheradil (T.Y.)

Wedding jitters is a well known kind of nervousness. Sports jitters is no different! The dawn of the day 21 February, 2018, filled me with the same kind of feeling as on 28 January, 2016 and 22 January, 2017. With every passing second of the day my heart beat raced a little higher because the future was unpredictable for the DBCA Women’s Handball team. The day could culminate with victory by defeating every opponent and returning gloriously as the winners of the handball hierarchy or the less desirable outcomes, including a knock out in the initial rounds.


At around 10:30 A.M. the team left the campus in the Winger driven by Oliver. The expectations of the college and the desire to prove our worth rode with us. The team itself was nothing short of a miracle. It could be possible only because of the persistence and support from the Faculty in charge of Sports, our coach Santosh Patil Sir and our well wishers, to whom I am very grateful to for their support that gave the strength to carry on against all odds.
Unaware of what the future held for us, glory or disgrace, we set foot at the Bandodkar Sports Complex, Peddem-Mapusa. With uncertainty lingering in our minds, and faith in our coach Santosh Patil Sir and the skills we picked up over the last two years, we went on to the field for our first encounter. It was technically the second round match of the day because we had a walk-over the Goa College of Pharmacy that failed to show up for the first match.

The team of G.R.Kare College of Law, Margao, was our first opponents. We had scored over the Salgaocar College of Law, Miramar, in our very first year. We made a good start with a lead of two opening goals but buy the end of the first half we were at a score of 2-3, trailing by one goal. But God’s grace was with us and Maria equalized the goal early in the second half. This gave us a new hope and the team that was on the back-foot and had almost come to terms with this defeat, rose as one. With this new glimmer of hope the team played with are renewed zeal and with the final whistle coming with one goal lead in our favour, the team let out a shriek of happiness. I swear, this whistle was the most pleasing sound I have heard recently in my life. I believe my team mates and well-wishers can connect with me on this.

Exhausted after the first game in the second round, we stretched out and relaxed for a while. Our coach Santosh Patil Sir, our mentor Miguel Braganza Sir, the Team Manager, Ma’am Jovita Siqueira and even Oliver uncle motivated us and reminded us what it means to be a player representing a college, pumping us with confidence and cheering us for the inevitable match with S.S. Dempo College of Commerce, Panaji, a team well known for its excellence in handball. The players were also sturdier than us. The quarter-finals match with the last eight teams in the fray, did not hold the ultimate glory for us and, this time, the blowing of the final whistle shattered my hopes. The defeat hit hard, but this is what means to be a sportsperson. Win some, lose some. That is life and we can always relate our performance in sports to our life.

Having said that, I am more than glad that we maintained our record of winning the opening match, each time and every time that we have played handball representing our college. I am positive that our juniors, Vineetha, Krutika, Aishwarya, Jayashri and Bhavna who joined the team this year, will keep it that way and improve the present standing. The future of the handball is now in their hands and its future will depend on them.

Overall the experience was overwhelming, the kind I will never forget and the jitters I will never overcome. Who does not want the excitement of uncertainty? Right? To be playing alongside teammates who are also your friends makes unforgettable and a sweet, sweet memories that I will always cherish and so will the other teammates.