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A STUDY ON REELABILITY OF COCOONS OF VIDARBHA REGION

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ABSTRACT :

To obtain first hand experience with various aspects of the technology of silk reeling. Information of post cocoon activities will be spread among the people & the farmers .The programme also aimed to stimulate the interest of poor tribal and other marginalized communities for value-addition activities and empower them to engage in 'market realities'. Development of a system to continiously monitor and assess the technology gaps and provide require support inputs and services. The establishment of an institute for the production of eggs of improved silkworm races to supply disease free laying's (DFL), i.e. bunches of around 500 disease free silk worms eggs.

Keywords

Reeling, Cocoons, Silk, Technology.

INTRODUCTION:

The beauty of silk fabrics is legendary. For many countries, silk was synonymous with luxury and was used for garments worn of feast days, festivals and other occasions of great importance , wall hangings of silk were used to decorate the home of the wealthy and carpets woven of silk were used in the homes of the rich in Persia and china. From ancient days silk is known as a Queen of Fabric. Silk Reeling: After boiling of the cocoons , the main process of reeling begins. Reeling is the operation , where continious silk filament is extracted from the cocoon without any break. Before reeling light brushing is required to find out the tip of silk filament for extraction . the ends are all separated out and gathered together. This is then transferred to a reelingm/c. the cocoon is immersed in hot water bath (a) when the cocoon softens , it floats at (b)the winder (c) takes out the filament by means of the tension guide .(d) croissure and yarn guide (e) through out the reeling operation, the

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cocoon remains in the boiling water. When a cocoon is exhausted the second one is immediately subsitituted to reel a continous and uniform yarn.

MATERIAL AND METHOD:

Project Tools And Materials :Tools required are cocoon cooking machine, reeling machine, strength tester ,skeining machine ,denier measurement scale (R.E.M).

Selection Of The Sample :Selected samples for the project were cocoons from vidarbha region{ Nagpur, Maharashtra, } especially : Wardha , Katol ,Hingana & Bhandara .

Experimental Procedure:- Sorting of cocoon : sorting remove defective cocoons as well as the double cocoons before taking the produce to the market.

Method of sorting: The cocoons are spread out on tables with low partitions and the sorters sit around the tables and pick out the defective and double cocoons by visual inspection.

Cocoon Cooking :Cocoon cooking unwinds the cocoon filament spun by the silkworm. Cooking methods should be re-adjusted for better results.

Raw Silk Reeling: Silk reeling is the process by which a number of cocoon baves are reeled together to produce a single thread. This is achieved by unwinding filaments collectively from a group of cooked cocoons at one end in a warm water bath and winding the resultant thread onto a fast moving reel. All cocoons of 4 different vidarbha regions are reeled on multi end reeling machine. Multi-ends reeling machine The Multi-ends reeling machine is composed of driving part, groping ends, picking ends, standby bath, reeling part, jet boute, stop motion, traverse guider, small reels, steam heating pipes and clutches . The cooked cocoons contained in the tubs are carried into the groping ends portion of the reeling machine. From there, cocoons are moved into the picking

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ends apparatus. After correctly processing, the cocoons go to the standby bath for cocoon feeding. They are picked up by the reeler and fed to the reeling thread. During this step a number of cocoons will be dropped thus reducing the ratio of reeling cocoons per thread. The normal speed of cocoon feeding by a skilled reeler is around 16 times per minute. The reeling thread passes through the jetboute, silk button, first guider, second guider, third guider, fourth guider, traverse guider, in that order and then is wound onto the small reels. The cocoons dropped during the reeling process are gathered and reprocessed starting from the groping end section. The croissure of reeling thread is made between second guider and third guider, and the length of croissure is not for twisting of thread but for cohesion of thread by rubbing of composed filament. Typically, one set of Multi-ends reeling machines consists of ten basins with each basin having twenty ends or reels. Re-reeling : Re-reeling is a process of reeling the raw silk from small reels onto large (standard) reels with a circumference of 150 cm, adjusting the width and weight of skein uniformly. STRENGTH TESTING : A tensile test, also known as tension test, is probably the most fundamental type of mechanical test you can perform on material. By pulling on something, you will very quickly determine how the material will react to forces being applied in tension. As the material is being pulled, you will find its strength along with how much it will elongate. Yield Strength : A value called

RESULT AND DISCUSSION:

The results are described as follows :-Types of Yarn Count: 1. Direct Count System 2.Indirect Count.System. The Tex of a yarn indicates the weight in grammes of 1000 metres yarn. So that 40Tex means 1000 meters of yarn weigh 40gm. From above discussion it is concluded that, higher the yarn number(count) coarser the yarn and lower the number finer the yarn.2. Indirect Count System:Ne: No of 840 yards yarn

weighing in One pound Nm: No of one kilometer yarn weighing in One Kilogram Weight of Cocoons :- The weighing of the silk shell is the most important factor as this measure forecasts raw silk yield . weight of cocoons is 13.8358g. Bhandara -> The weight of cocoons is 24. 0242g. Average Reeling Cocoon Per Thread: To maintain reeling thread in the required size , the average cocoon number per thread must be adjusted by a check to produce silk thread in the same size throughout all ends during reeling.Breakages / Breaking Points -: Inefficient processing is considered to be the main cause of frequent breakdown , which in turn decreases reeling efficiency . Strength -> It indicates the quantity of weight a given fiber can support before breaking . degummed silk has greater strength / tenacity than raw silk . elongation defines the length to which a fiber may be stretched before breaking . raw silk has an elongation of 18 – 23% of its original length. Exces moisture increases the elongation of silk , but decreases it tenacity. Silk strength decreases about 20 % when wet and regains its original strength after dryingDenier Count ->The 'count' of a yarn is a numerical expression which defines its fineness . a number indicating the mass per unit length or the length per unit mass of yarn. If a given count is spun from a fine and a coarse fiber , a more uniform and a stronger yarn will result from the fine fibre.A fine fibre can be spun to finer counts than a coarse fibre. Only a fixed length from each skein is taken for the testing.Yarn Weight:-Yarn weight refers to the thickness of the yarn. It's range, from super fine to super bulky.

CONCLUSION :

It is concluded that , cocoons or yarns produced from katol region has excellent quality . The reasons behind that is , it has emerged as a successful non-conventionl activity . he sericulture directorate supplies them the seed or the disease-free eggs . The quality and quantity of yarns produced from the bhandara region is good than wardha and hingana

region. Agro-climatic conditions of bhandara district are conducive for silkworm rearing .The quality of silk produced from cocoon hingana and wardha region is low. Because the area under mulberry rearing being less and the facility of irrigation is available not to whole of the area. It is observed in the study in order to give the necessary time to time guidance as regards the growing of mulberry and rearing of silkworms, the supply of disease free lagging.(D.F.L) is being made regularly and is as per requirement . maintain temperature at or near 25 degree celcius and relative humidity around silkworms to spin good quality cocoons with a high reelability . Though different mounting devices are employed ; but rotary mounting frames provide good ventilation. The result would be improved reelability of cocoons.

Acknowledgement :

I would like to express my special thanks of gratitude to my ma'am who gave me the golden opportunity to do this survey on the topic –' A study on Reelability of Cocoons Of Vidarbha Region' which also helped me in doing a lot of Research and i came to be acquainted with about so many new things .

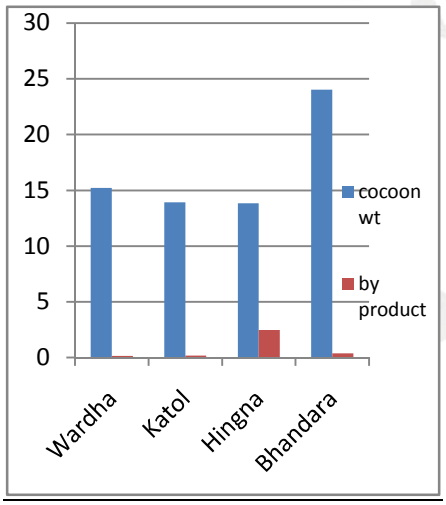
REFERENCE :

Sanjay Mande*, B.R. Pai, and V.V.N. Kishore Tata Energy Research Institute, D.S. Block, Habitat Place, Lodhi Road, New Delhi 110 003, India Received 5 November 1997; received in revised form 23 March 2000; accepted 10 April 2000

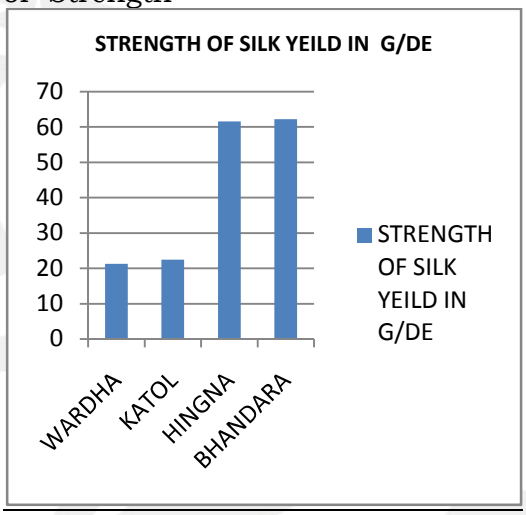
Reelability Study of Cocoons of Vidarbha Region

Vidarbha region	Types of cocoon	Cocoons Wt. each variety contains 100 cocoons	Avr. Reeling cocoon/thread	Breakages	Strength	Denier count	Yarn weight
Wardha	Mulberry	15.2069 g	3-4	1-2 ties	21.27 g/de	20.546 de (medium fine}	1.0273 g
Katol	Mulberry	13.9337 g	3-4	1-2 times	22.50 g/de	8.2659 de { very fine}	0.4133 g
Hingna	Mulberry	13.835 g	8-10	3-4 times	61.6 g/de	35.73 de {coarse}	1.7865 g
Bhandara	Tussar	24.024 g	8-10	5-7 times	62.18 g/de	9.63 de {fine}	0.4817 g

Graph 1: Graphical Representation of Cocoon Weight & It's By- Product



Graph 2: Graphical Representation of Strength



Graph 3: Graphical Representation of
of Denier Count

Graph 4 : Graphical Representation

Yarn Weight In Grams

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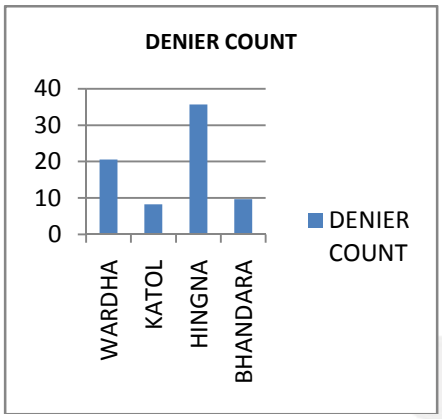
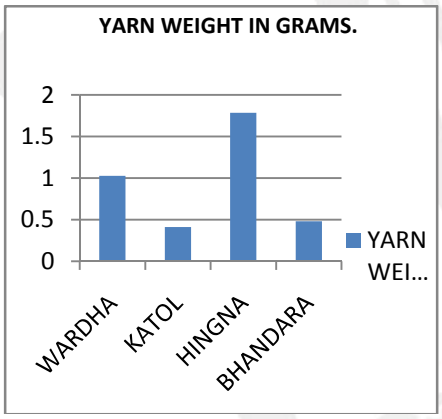
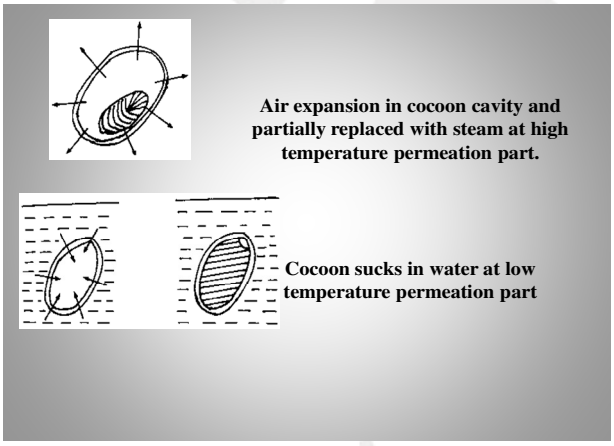

DENIER COUNT
40
30
20
10
0
WARDHA
KATOL
HINGNA
BHANDARA
DENIER COUNT


YARN WEIGHT IN GRAMS.
2
1.5
1
0.5
0
WARDHA
KATOL
HINGNA
BHANDARA
YARN WEI...


Air expansion in cocoon cavity and partially replaced with steam at high temperature permeation part.
Cocoon sucks in water at low temperature permeation part