SPINNING AND HARVESTING

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Mounting & Spinning

Towards the end of the fifth stage, the silkworm stops eating and becomes the so-called mature larva and starts spinning the cocoon.

The object of the worm is spinning the cocoon is to protect itself from external disturbances and natural enemies during the most critical period of its metamorphosis.

Mounting:

Picking the ripe worms and putting them on mountages is called 'mounting' /

Transferring mature fifth instar larvae to mountages is called mounting.

Ripening of Worms

Ripe worm in search of a suitable place

Pupation in Sequence

Spinning is over

The silkworm loses appetite & stops eating

Skin becomes translucent in colour

Begins to look in search of a suitable place

worms move towards the periphery of the rearing trays in search of anchorage

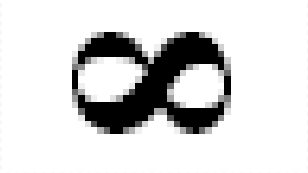
Ripe worm initiated the spinning process

Spinning

After mounting, passes last excreta in semisolid condition, & starts spinning.
First forms Hammock **Hammock *i.e.*, FLOSS**

The movement of Head during spinning

In Outer Layer **In Middle & Inner Layer**



Mounting

Picking the ripe worms and putting them on the mountages

Methods of Mounting –

1. **Hand Picking and Mounting**
2. **Straw Cocoonages in Japan**
3. **Revolving Mountages made of Cardboard**

Mountages- Different types of mountages are used in different parts of India.

In addition to support the spinning worms, the mountages should satisfy the requirements like,

It should provide convenient space of suitable dimension for spinning good sized cocoons,

Should not promote formation of double cocoons, malformed cocoons and flimsy cocoons,

Should have provisions for drying up of the last excreta of the worm prior to spinning and prevention of its falling on the cocoons of other worms,

Should be suitable for easy mounting and harvesting.

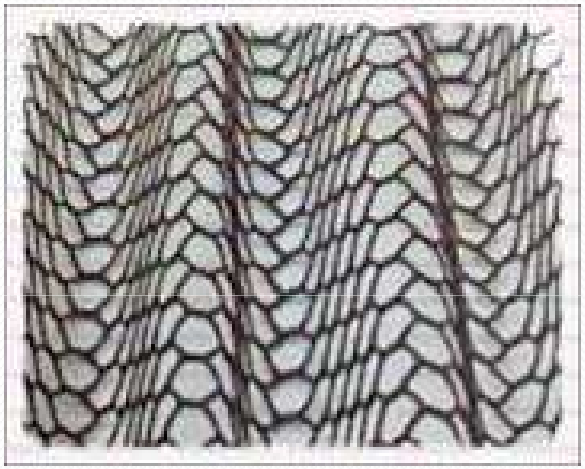
Types Of Mountages- The common mountages are,

1. **Bamboo Mountage:** Chandrika which is formed by a bamboo spiral is the most common mountage used in South India and West Bengal. This consist of a bamboo mat of size 1.8 m x 1.2 m supported by split bamboo reapers on all sides. On this bamboo mat, a bamboo tape of 4 to 5 cm width is wound in a spiral manner. The bamboo tape has V-shaped struts supported by three long bamboo strips. About 1000 -1100 worms can be mounted.

1.8 x 1.2 meters in size
Accommodates 40 to 60 larvae per sq ft
Or 1000-1100 larvae per chandrika

2.Plastic corrugated mountage:

60 x 90 cms in size & accommodates with the regular trays

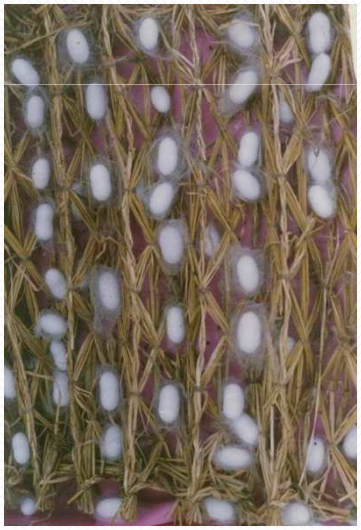


3.Rotary Mountages:

Each mounting frame has 13 rows and 12 columns containing 156 mounting slots. Each slot is 4.5 x 3 x 3 cms in size and the dimension is 55 cms in length, 40 cms in width and 3 cms in depth.

4. Grass- Dried grass and twigs spread in shallow bamboo baskets are used in Assam.

Dried weeds, paddy straw and fresh weeds are used in Jammu and Kashmir. In these two moulting and harvesting is difficult and require more labour. Further, formation of double and deformed cocoons is high.



Paddy Grass Mountage

Mustard Hey

Paddy Grass

5. Bottlebrush Mountages

Bottle brush mountage are not only cheap but can be fabricated very quickly and occupies very little space compared to Chandrika.

It consists of a thick coconut or jute fiber-rope into which 6 to 9" sticks (midrib of coconut leaves) are inserted very closely. The silkworms used the sticks as support and spin the cocoons in the space between the sticks.

Population Density on Mountages

- **50 Worms per 30X30 cm Or 2 cm^2 per worm.**
- **Chandrike 1.8 X 1.2 m holds 1000-1100 worms.**
- **Revolving Mountages 1560 worms / unit.**

Environmental Conditions

Temerature:

- Worms during spinning require a slightly higher temperature than rearing.
- Too high a temperature will compel the worms to spin in haste and thus waste a lot of silk.
- Too low a temperature, causes delay in the spinning and affects the colour, lustre and texture of cocoons. Also, the cocoons will not be so compact.
- Too high a temperature make the filament thicker, and too low a temperature, to make it thinner. Violent fluctuation leads to ununiformity.
- Around 24°C is quite ideal for spinning.

Environmental Conditions

Relative Humidity:

- RH at the range of 60 to 70 per cent is ideal.
- Too much moisture affects the lusture of the filament.
- From the point of view of reeling, drier the air during mounting the better it will be, but too great a dryness debilitates the worms and is to be avoided.
- Ventilation is an essential point for attention as a good deal of moisture has to be got rid of and there is also a good deal of excreta-solid, liquid and gaseous.
- The practice in Karnataka and West Bengal to place the chandrikes in the open has much in its favor.

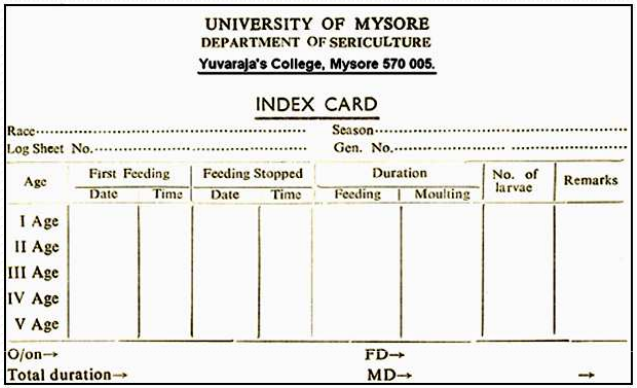
Harvesting

- **MV- Spinning Completes on 3rd to 4th day – harvesting on 5th day**
- **BV- Spinning Completes on 4th to 5th day – harvesting on 6th to 7th day**

Transportation

Maintenance of Rearing Records

1. Index Card



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INDEX CARD

Race..... Season.....
Log Sheet No..... Gen. No.....

Age	First Feeding		Feeding Stopped		Duration		No. of larvae	Remarks
	Date	Time	Date	Time	Feeding	Moulting		
I Age								
II Age								
III Age								
IV Age								
V Age								

O/on→ FD→
Total duration→ MD→ →

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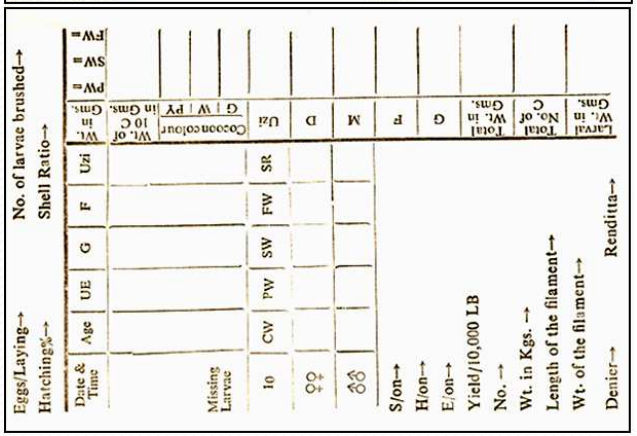

No. of larvae brushed→
Shell Ratio→
Eggs/Laying→
Hatchings%→
Date & Time | Age | UE | G | F | Uzi
Missing Larvae
Io ♀♀ ♂♂
CW PW SW FW SR
Cocoon colour
G | W | PY
Wt. of 10 C in Gms.
Wt. in Gms.
D M F G
Total Wt. in Gms.
Total No. of C
Larval Wt. in Gms.
PW= SW= FW=
S/on→ H/on→ E/on→ Yield/10,000 LB
No. → Wt. in Kgs. →
Length of the filament→
Wt. of the filament→
Denier→ Renditta→

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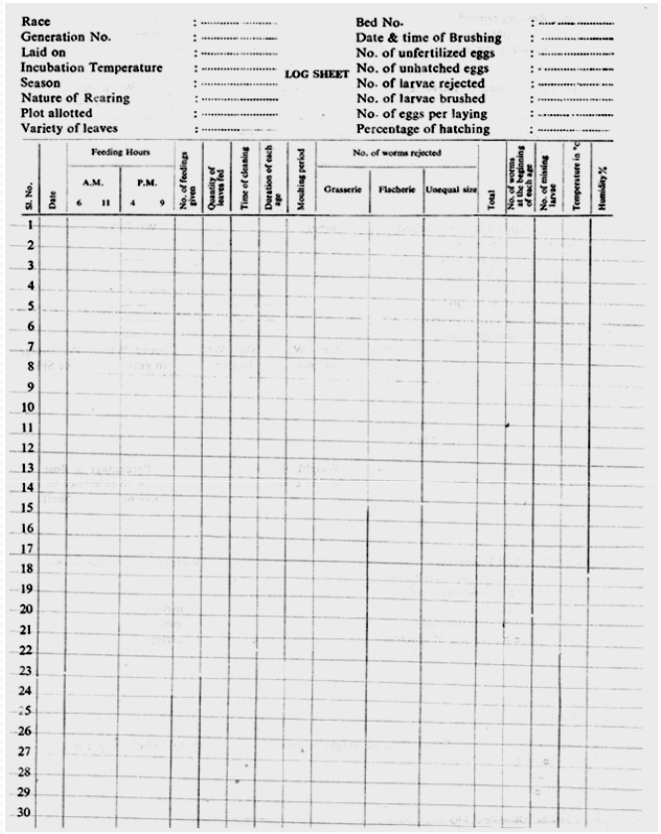
2. Log Sheet



Race : ..... Bed No. : .....
Generation No. : ..... Date & time of Brushing : .....
Laid on : ..... No. of unfertilized eggs : .....
Incubation Temperature : ..... **LOG SHEET** No. of unhatched eggs : .....
Season : ..... No. of larvae rejected : .....
Nature of Rearing : ..... No. of larvae brushed : .....
Plot allotted : ..... No. of eggs per laying : .....
Variety of leaves : ..... Percentage of hatching : .....

Sl. No.	Date	Feeding Hours A.M. 6	11	P.M. 4	9	No. of feedings given	Quantity of leaves fed	Time of cleaning	Duration of each age	Moulting period	No. of worms rejected: Grasserie	Flacherie	Unequal size	Total	No. of worms at the beginning of each age	No. of existing larvae	Temperature in °C	Humidity %
1																		
2																		
3																		
4																		
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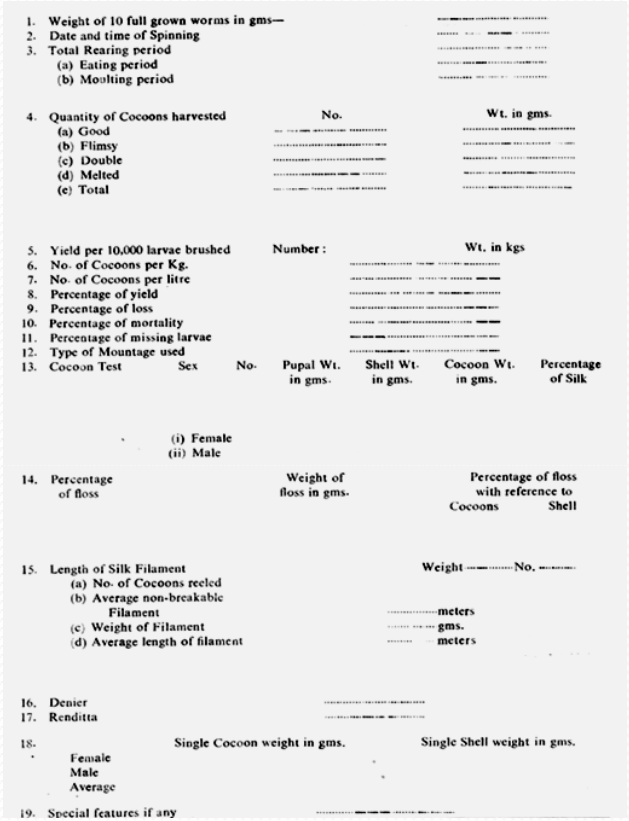

1. Weight of 10 full grown worms in gms— .....
2. Date and time of Spinning .....
3. Total Rearing period .....
   (a) Eating period .....
   (b) Moulting period .....

4. Quantity of Cocoons harvested	No.	Wt. in gms.
(a) Good	.....	.....
(b) Flimsy	.....	.....
(c) Double	.....	.....
(d) Melted	.....	.....
(e) Total	.....	.....

5. Yield per 10,000 larvae brushed	Number :	Wt. in kgs
6. No. of Cocoons per Kg.		.....
7. No. of Cocoons per litre		.....
8. Percentage of yield		.....
9. Percentage of loss		.....
10. Percentage of mortality		.....
11. Percentage of missing larvae		.....
12. Type of Mountage used		.....

13. Cocoon Test	Sex	No.	Pupal Wt. in gms.	Shell Wt. in gms.	Cocoon Wt. in gms.	Percentage of Silk
	(i) Female					
	(ii) Male					

14. Percentage of floss	Weight of floss in gms.	Percentage of floss with reference to Cocoons	Shell

15. Length of Silk Filament — Weight ..... No. .....
    (a) No. of Cocoons reeled
    (b) Average non-breakable Filament ..... meters
    (c) Weight of Filament ..... gms.
    (d) Average length of filament ..... meters

16. Denier .....
17. Renditta .....

18.	Single Cocoon weight in gms.	Single Shell weight in gms.
Female		
Male		
Average		

19. Special features if any .....

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Acknowledgements/References
to

1. Internet
2. Sericulture Manual II, FAO, Rome.