CSRTI - Berhampore

East & North East
Mulberry Sericulture

TECHNOLOGY DESCRIPTOR

Central Sericultural Research & Training Institute
Central Silk Board, Ministry of Textiles, Govt. of India
Berhampore, West Bengal - 742 101

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Foreword

CSRTI-Berhampore is consistently thriving for sustainable development of sericulture industry for the last 77 years of its journey since 15th October 1943. CSRTI-BHP, under the aegis of Central Silk Board, contributed immensely in achieving continuous excellence in mulberry silk production through need-based research and technological support/services for East & North Eastern India. The major technological inputs include improved mulberry varieties; productive silkworm hybrids; improved package of practices for mulberry cultivation & silkworm rearing; post-cocoon systems etc. The institute reaches the stakeholders level through Transfer of Technology, Extension Communication & Developmental programmes across the states in E & NE region in close coordination & cooperation of the collaborators, the DOSs of Eastern & North Eastern India. The mulberry sericulture technology interventions from soil to silk are backbone of the growth of the silk industry and plays an important role for realizing the potential benefits of technology adoption properly by the farmers. CSRTI-BHP over the decades developed several need-based technologies capitalizing on well-planned sericulture research activities driven by motivated scientific team for improving sericulture productivity and quality. The technological efficiency and impact could better be achieved through systematic communication of technology. This **East & North-East Mulberry Sericulture-Technology Descriptor** highlights salient features of important technologies widely accepted/followed by seri-farmers in the region. It also includes few necessary technological inputs for successful cocoon crop harvests along with crop calendar & capacity building programmes.

Significant contributions of scientific team of CSRTI-BHP is highly acknowledged. CSRTI-BHP is grateful to acknowledge the constant encouragement and support of Shri. Rajit Ranjan Okhandiar, IFS, Member Secretary, Central Silk Board in bringing out this publication. I earnestly believe that **Technology Descriptor** would serve as guide for seri-farmers, extension personnel alike.

Dr. V. Sivaprasad
Director
CSRTI-Berhampore

CONTENTS

Mulberry Varieties

S-1

- Year of Recommendation: 2000
- Parentage: OP Seeds of Mandalaya

Salient Features

- Quick Regeneration after Pruning
- High Rooting Ability (86%)
- Simple, Entire, Ovate, Dark Green, Smooth & Shining Leaves
- Short Inter-Nodal Distance (3.88cm)
- Tolerant to Sucking Pests
- Moderately Tolerant to Leaf Spot
- Leaf Yield Potential:

  28 - 29 MT/ha/year (irrigated)
  11 - 12 MT/ha/year (rainfed)

Nutritive Value

- Moisture (70%)
- Sugar (38 mg/ g fresh wt.)
- Protein (21 mg/ g fresh wt.)

Suggested Recommendation

Irrigated & Rainfed areas of East India

TIPS

Adopt recommended package of cultivation practices

S-1635

- Year of Recommendation: 2000
- Parentage: OP Seeds of CSRS-1

Salient Features

- Quick Sprouting Triploid with Early Vigour
- High Rooting Ability (85%)
- Large, Dark Green, Cordate, Acute & Slightly Coarse Leaves
- Short Inter-Nodal Distance (3.64cm)
- Moderate, Thick & Semi-Erect Branches
- Leaf Yield Potential:

  40 - 45 MT/ha/year (irrigated)
  8 - 14 MT/ha/year (rainfed)

Nutritive Value

- Moisture (74%)
- Sugar (32 mg/ g fresh wt.)
- Protein (21 mg/ g fresh wt.)

Suggested Recommendation

Irrigated & Rainfed areas of East & NE India

TIPS

Adopt recommended package of cultivation practices

C-2038

- Year of Recommendation: 2017
- Parentage: $CF_1$10 × C763

Salient Features

- Large, Medium Green, Smooth, Heart shaped, Glossy & Slightly Coarse Leaves
- Thick, profuse & Semi-Erect branches
- Moderately Tolerant to Leaf Spot & Sucking Pest
- Leaf Yield Potential:

  53 - 54 MT/ha/year (irrigated)
  17 - 21 MT/ha/year (rainfed)

Nutritive Value

- Moisture (79%)
- Sugar (37 mg/ g fresh wt.)
- Protein (31 mg/ g fresh wt.)

Suggested Recommendation

Irrigated & Rainfed areas of East & NE India

TIPS

Adopt recommended package of cultivation practices

Kosen

- Year of Recommendation: 1965
- Parentage: Introduction from Japan

Salient Features

- Boat shaped, Broadly Ovate, Dark Green, Smooth & Palmately veined Leaves
- Erect Open-spreading type & Thick long branches
- Long Inter-nodal Distance
- Moderately Tolerant to leaf spot
- Quick Sprouting after Pruning
- Leaf Yield Potential:

  4 - 5 MT/ha/year (hills)
  10 -12 MT/ha/year (foot hills)

Nutritive Value

- Moisture (79%)
- Sugar (44 mg/ g fresh wt.)
- Protein (32 mg/ g fresh wt.)

Suggested Recommendation

Hills of Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

$BC_2$59

- Year of Recommendation: 2000
- Parentage: *M. indica* var Matigara Local x Kosen

Salient Features

- Large, Smooth, Unlobed, Glossy, Broadly Ovate, Dark Green & Thick Leaves
- Semi-erect Branches, Slightly Spreading with Moderate Growth
- Moderately Tolerant to Powdery Mildew
- Leaf Yield Potential:

  9 - 10 MT/ha/year (hills)
  15 - 16 MT/ha/year (foot hills)

Nutritive Value

- Moisture (75%)
- Sugar (29 mg/ g fresh wt.)
- Protein (16 mg/ g fresh wt.)

Suggested Recommendation

Rainfed Hills of Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

Tr-10

- Year of Recommendation: 2000
- Parentage: T-4 (4x) x Philippines (2x)

Salient Features

- Large, Smooth, Unlobed, Dark Green, Smooth & Glossy Leaves
- Erect & Thick Branches
- Long Internodes
- High Rooting Ability (85%)
- Fast Growth after Pruning
- Leaf Yield Potential:

  7 - 8 MT/ha/year (hills)
  12 -14 MT/ha/year (foot hills)

Nutritive Value

- Moisture (76%)
- Sugar (29 mg/ g fresh wt.)
- Protein (16 mg/ g fresh wt.)

Suggested Recommendation

Rainfed hills of Eastern & Central India Himachal & Doon valley

TIPS

Adopt recommended package of cultivation practices

Tr-23

- Year of Recommendation: 2017
- Parentage: T20 (4x) × S162 (2x)

Salient Features

- Thick, Entire/Lobed, Glabrous, Green, Dentate Margin & Acute with Hetrophyllus Leaves
- Whitish Brown Branches with Erect Growth Habit
- Moderately Tolerant to Sucking Pest & Foliar Diseases
- Fast Growth after Pruning
- Very Early Defoliation
- Leaf Yield Potential:

  11 - 12 MT/ha/year (hills)
  24 - 25 MT/ha/year (foot hills)

Nutritive Value

- Moisture (75%)
- Sugar (32 mg/ g fresh wt.)
- Protein (25 mg/ g fresh wt.)

Suggested Recommendation

Rainfed Hills of Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

C-1730

- Year of Recommendation: 2012
- Parentage: T25 (4x) × S162 (2x)

Salient Features

- Thick, Dark Green, Serrate Margin, Acute apex and Slight Coarser Leaves
- Straight Branches with Brown Stem & Medium size
- Medium Inter-nodal length (4.54 cm)
- Tolerant to drought/moisture stress
- Moderately Tolerant to leaf spot & Foliar pests
- Leaf Yield Potential:

  15 - 16 MT/ha/year

Nutritive Value

- Moisture (75%)
- Sugar (32 mg/ g fresh wt.)
- Protein (25 mg/ g fresh wt.)

Suggested Recommendation

Rainfed Red Laterite Soils of Eastern & Central India

TIPS

Adopt recommended package of cultivation practices

C-2028

- Year of Recommendation: 2012
- Parentage: China White x S-1532

Salient Features

- Large, Smooth, Green, Crenate Margin, Cordate Base, Acute, Glossy & Shining Leaves
- Semi-erect Branches with Slightly Curved & Greyish-white
- Tolerant to Flood/Water logging/ Stagnation of 4-6 Weeks
- High Membrane Stability, Higher Abscisic Acid & Low Ethylene Content
- High Survival & Low Leaf Senescence
- Moderately Tolerant to leaf spot
- Leaf Yield Potential:

  36 - 37 MT/ha/year (irrigated)

Nutritive Value

- Moisture (78%)
- Sugar (26 mg/ g fresh wt.)
- Protein (22 mg/ g fresh wt.)

Suggested Recommendation

Flood Prone areas in Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

C-2058 (C-9)

- Year of Recommendation: 2020
- Parentage: Berhampore-A × Shrim-2

Salient Features

- Medium, Smooth & Dark Green Leaves
- Short Inter-nodal Distance (4.18 cm)
- Quick Sprouting
- Early Vigour after Pruning
- Higher Survival
- Low Leaf Senescence
- Moderately Tolerant to leaf spot & Sucking Pests
- Leaf Yield Potential:

  34 - 35 MT/ha/year
  (irrigated; under 50% NPK)

Nutritive Value

- Moisture (78%)
- Sugar (31 mg/ g fresh wt.)
- Protein (26 mg/ g fresh wt.)

Suggested Recommendation

Low input soils or 50% RDF in Eastern & NE India

T I P S

Adopt recommended package of cultivation practices

C-2060 (Gen-1)

- Year of Recommendation: 2020
- Parentage: Kajli OP × V-1

Salient Features

- Medium, Smooth & Dark Green Leaves
- Short Inter-nodal Distance (3.0-4.0 cm)
- Quick Sprouting & Early Maturity
- Higher Survival
- Low Rate of Leaf Senescence
- Tolerant to low temperature stress
- High Leaf Yield during Winter
- Leaf Yield Potential:

  58-60 MT/ha/year (irrigated)

Nutritive Value

- Moisture (79%)
- Sugar (33 mg/ g fresh wt.)
- Protein (32 mg/ g fresh wt.)

Suggested Recommendation

Irrigated Areas of Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

C-1360 (Ganga)

- Year of Recommendation: AICEM IV (2019)
- Parentage: Philippines × Vietnam-2

Salient Features

- Resistant to Powdery Mildew
- High thickness Leaves
- High regeneration
  (10-16 days after pruning)
- Moderately Resistant to Leaf Rust & Bacterial Leaf Spot
- Leaf Yield Potential:
  57 MT/ha/year (irrigated)

Nutritive Value

- Moisture (79%)
- Sugar (40 mg/ g fresh wt.)
- Protein (46 mg/ g fresh wt.)

Suggested Recommendation

Irrigated Areas of Eastern & NE India

TIPS

Adopt recommended package of cultivation practices

Silkworm Hybrids

N x SK6.SK7

- Year of Recommendation: 2010
- Parentage: Nistari (land race)

  SK6 & SK7: X-3D & X-5(PN)

Salient Features

- Productive Multi x Bi Hybrid
- Larval Period: 22 - 23 days
- Marked Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 50 - 57kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 15 - 16
- Filament Length (m): 650 - 700
- Renditta: 8.5 - 9.0
- Sustainable Cocoon Yields

Suitable Seasons

All Through the Year

Suggested Recommendation

West Bengal & North Eastern States (Summer & Autumn)

TIPS

Maintain Rearing Room Temp. @ 28 - 30°C RH @ 75 - 80%

MCon1 x BCon4

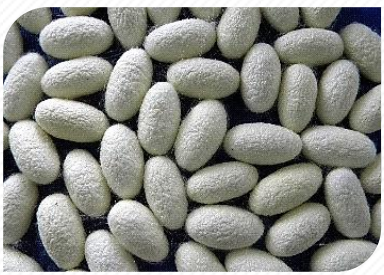
- Year of Recommendation: 2010
- Parentage: MCon1: JPN x CB5
  BCon4: M6DPCLm x D6P

Salient Features

- Productive Multi x Bi Hybrid
- Larval Period: 23 - 24 days
- Marked Larvae with Bluish White Body
- White Colour Cocoons
- Cocoon Yield: 50 - 57kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 17.5 – 18.00
- Filament Length (m): 700 - 775
- Renditta: 8.5 - 9.0
- Sustainable Cocoon Yields

Suitable Seasons

Agrahayani
Falgooni
Baisakhi



Suggested Recommendation

West Bengal &
North Eastern States
(Summer & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 31°C
RH @ 75 - 80%

MCon4 x BCon4

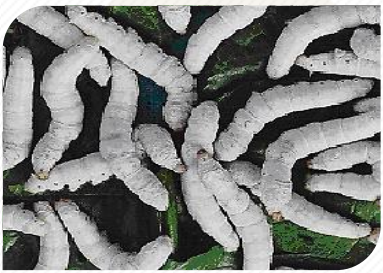
- Year of Recommendation: 2010
- Parentage: MCon4: D6P x M6DPCLm
  BCon4: M6DPCLm x D6P

Salient Features

- Productive Multi x Bi Hybrid
- Larval Period: 23 - 24 days
- Plain Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 50 - 55kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 17.00 - 18.00
- Filament Length (m): 700 - 750
- Renditta: 7.5 - 8.5
- Sustainable Cocoon Yields

Suitable Seasons

Agrahayani
Falgooni
Baisakhi



Suggested Recommendation

West Bengal &
North Eastern States
(Summer & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 31°C
RH @ 75 - 80%

M6DPC x SK6.SK7

- Year of Recommendation: 2018
- Parentage: M6DPC: M6M81 x DP
  SK6 & SK7: X-3D & X-5(PN)

Salient Features

- Productive Multi x Bi Hybrid
- Larval Period: 22 - 23 days
- Marked Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 50 - 57kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 17.00 - 18.00
- Filament Length (m): 700 - 750
- Renditta: 8.5 - 9.0
- Sustainable Cocoon Yields in Bhaduri season also

Suitable Seasons

Agrahayani
Falgooni
Baisakhi
Bhaduri

Suggested Recommendation

West Bengal &
North Eastern States
(Summer & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 32°C
RH @ 75 - 80%

12Y x BFC1

- Year of Recommendation: 2020
- Parentage: 12Y: MCon4 x MH1
  BFC1: BCon1 x 4S

Salient Features

- Productive Improved Crossbreed
- Larval Period: 22 - 23 days
- Plain Larvae with Bluish White Body
- Yellow Colour Cocoons
- Cocoon Yield : 55 - 62kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 19.00 - 20.00
- Filament Length (m): 750 - 800
- Renditta: 8.0 - 8.5
- Sustainable Cocoon Yield

Suitable Seasons

Agrahayani
Falgooni
Baisakhi

Suggested Recommendation

West Bengal &
North Eastern States
(Summer & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 32°C
RH @ 75 - 80%

N x M12(W)

- Year of Recommendation: 2005
- Parentage: Nistari (land race)

  M12(W): R1(E) x M6DPC

Salient Features

- Productive Multivoltine Hybrid
- Larval Period: 17 - 18days
- Marked Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 25 - 30kg/100 dfls
- Pupation Rate: > 95%
- Shell (%): 13.00 - 14.00
- Filament Length (m): 300 - 350
- Renditta: 9.0 - 11.0

Suitable Seasons

Jaishta
Bhaduri
Aswina

Suggested Recommendation

Unfavourable Seasons of West Bengal

TIPS

Maintain Rearing Room Temp. @ 30 - 35°C
RH @ 75 - 85%

N x MCon4

- Year of Recommendation: 2010
- Parentage: Nistari (land race)

  MCon4: D6P x M6DPCLm

Salient Features

- Productive Multivoltine Hybrid
- Larval Period: 17 - 18days
- Marked Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 35 - 40kg/100 dfls
- Pupation Rate: 80 - 85%
- Shell (%): 14 - 16
- Filament Length (m): 350 - 400
- Renditta: 9.5 - 10.5

Suitable Seasons

Jaishta
Bhaduri
Aswina

Suggested Recommendation

Unfavourable Seasons of West Bengal

TIPS

Maintain Rearing Room Temp. @ 30 - 35°C
RH @ 75 - 85%

MCon1 x MCon4

- Year of Recommendation: 27-04-2010
- Parentage: MCon1: JPN x CB5
  MCon4: D6P x M6DPCLm

Salient Features

- Productive Multivoltine Hybrid
- Larval Period: 17- 18days
- Marked Larvae with Yellowish Body
- Yellow Colour Cocoons
- Cocoon Yield : 35 - 42kg/100 dfls
- Pupation Rate: 80 - 85%
- Shell (%): 15 - 16
- Filament Length (m): 350 - 450
- Renditta: 9.0 - 10.0
- Sustainable Cocoon Yield

Suitable Seasons

Jaishta
Bhaduri
Aswina

Suggested Recommendation

Unfavorable Seasons of West Bengal

TIPS

Maintain Rearing Room Temp. @ 30 - 35°C
RH @ 75 - 85%

SK6 x SK7

- Year of Recommendation: 2008
- Parentage: SK6: X-3D
  SK7: X-5(PN)

Salient Features

- Productive Bivoltine Hybrid
- Larval Period: 22 -23days
- Plain Larvae with Bluish Body
- White Colour Cocoons
- Cocoon Yield : 50 - 65kg/100 dfls
- Pupation Rate: > 90%
- Shell (%): 19 - 20
- Filament Length (m): 850 - 900
- Renditta: 8.0 - 9.0
- Sustainable Cocoon Yield

Suitable Seasons

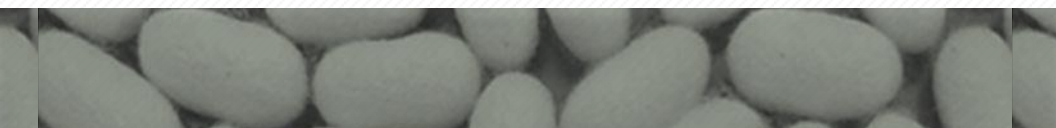
Agrahayani
Falgooni
Baisakhi

Suggested Recommendation

West Bengal &
North Eastern States
(Spring & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 30°C
RH @ 75 - 80%



BCon1 x BCon4

- Year of Recommendation: 2018
- Parentage: BCon1: CB5 x JPN
  BCon4: M6DPCLm x D6P

Salient Features

- Productive Bivoltine Hybrid
- Larval Period: 22 - 23 days
- Plain Larvae with Bluish Body
- White Colour Cocoons
- Cocoon Yield : 55 - 67kg/100 dfls
- Pupation Rate: > 90%
- Shell (%): 19 - 20
- Filament Length (m): 850 - 900
- Renditta: 6.5 - 7.5
- Sustainable Cocoon Yield

Suitable Seasons

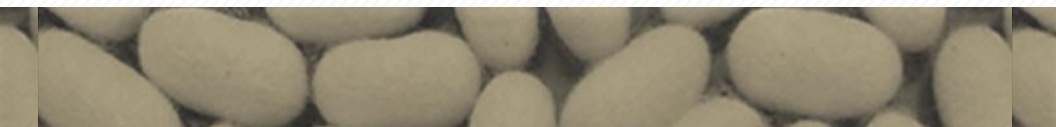
Agrahayani
Falgooni
Baisakhi

Suggested Recommendation

West Bengal &
North Eastern States
(Spring & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 28°C
RH @ 75 - 80%



BHP-DH
(BHP 3.2 x BHP 8.9)

- Year of Recommendation: 2020 (OFT)
- Parentage: BHP3: Gen3 x MC4E; BHP2: SK3C x Gen3
  BHP8: DUN22 x D6PN; BHP9: DUN22 x NB18

Salient Features

- First Bivoltine Double Hybrid developed at CSRTI-BHP
- Better Fitness Traits acquired through G x E Interactions
- Larval Period: 23 - 25 days
- Marked Larvae with Bluish White Body
- Cocoon Yield: 65 - 70kg/100 dfls
- Pupation Rate: > 90%
- Shell (%): 20 - 21
- Filament Length (m): 900 – 1000
- Raw Silk %: 14 - 16
- Renditta: 7.0 - 7.2
- Reelability: 85 - 90%

Suitable Seasons

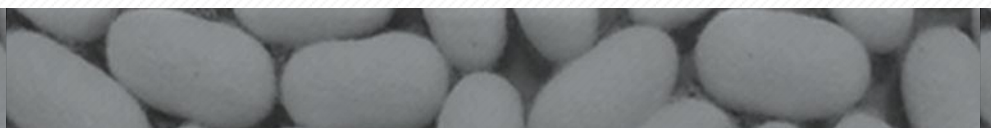
Agrahayani
Falgooni
Baisakhi

Suggested Recommendation

West Bengal &
North Eastern States
(Spring & Autumn)

TIPS

Maintain Rearing Room
Temp. @ 25 - 30°C
RH @ 75 - 80%
(Oct-April)



WB-DH
(WB 7.5 x WB 1.3)

- Year of Recommendation: 2020 (OST)
- Parentage: WB7: BHR3 x Gen3; WB5: SK4C x Gen3
  WB1: SK4C x D6(M); WB3: D6(M) x SK4C

Salient Features

- Bivoltine Double Hybrid Tolerant to High Temperature
- Larval Period: 22 - 23 days
- Marked Larvae with Bluish White Body
- White Colour Cocoons
- Cocoon Yield : 60 - 65kg/100 dfls
- Pupation Rate: > 90%
- Shell (%): 19 - 21
- Filament Length (m): 850 - 900
- Renditta: 6.5 - 7.0
- Sustainable Cocoon Yields at high temperature

Suitable Seasons

All Through the Year

Suggested Recommendation

West Bengal & North Eastern States (Summer & Autumn)

TIPS

Maintain Rearing Room Temp. @ 28 - 33°C
RH @ 75 - 80%

Mulberry Cultivation

Mulberry Nursery

Salient Features

- Well-drained loamy soil is ideal for nursery
- Deep plough the land two times in 1st week of October
- Prepare nursery beds (3 m × 1.2 m) with 5 cm bed height
- Maintain 30 - 45 cm wide furrows between two nursery beds
- Apply 5 pans of FYM/Compost/Vermicompost
- Prepare 15 - 20 cm length cuttings with 3 - 4 active buds
- Treat cuttings with 0.2% carbendazim solution for 30 minutes
- Plant cuttings with a spacing of 15 cm x 10 cm
- Place the cuttings vertically, exposing only one bud
- Irrigate immediately & then once in 4 - 5 days
- Apply Urea @ 250g/bed after 55 - 60 days
- 4 - 6 months old saplings to be supplied to farmers

Healthy Mulberry Saplings
ESSENTIAL
for better establishment & uniform growth
" GOOD ENTERPRISE OPTION "

Do's

✓ Select 6 - 9 months old healthy branches
✓ Use 10 - 15 mm thick branches for cuttings
✓ Undertake plant protection measures

Dont's

✗ Do not use lower stout & tender-green shoots
✗ Do not use Pest & Disease affected branches

Mulberry Cultivation
(Irrigated Condition)

Salient Features

- Most suitable high yielding varieties : S1635 & C2038
- Spacing with 60cm x 60cm for small scale plantation
- Economic mulberry yield starts from 2nd Year onwards
- Apply 20 MT of FYM or Vermicompost/ha/Year
- Apply NPK @ 336:180:112 kg/ha/year in Five splits or use Urea: 729 kg, SSP: 1125 kg & MOP: 187 kg/ha/year
- Irrigate once in 10 - 15 days based on soil type/moisture
- Undertake regular intercultural operations (weeding etc.)
- Manage pests & diseases through BCA/bio pesticides
- Cost of mulberry leaf production (Rs. 3.20 - 3.80 per kg)

This Package is
E S S E N T I A L
For Quality Mulberry Leaves

D o ' s

✓ Select high yielding mulberry varieties
✓ Harvest the leaves as per silkworm crops

D o n t ' s

X Do not plant closer than recommended spacing
X Do not harvest premature/over mature leaves

Mulberry Cultivation
(Rainfed Condition)

Salient Features

- Most suitable high yielding varieties are S1635 & C1730
- Spacing with 90cm x 90cm for small scale plantation
- Economic mulberry yield starts from 2nd Year onwards
- Apply 10 MT of FYM or Vermicompost/ha/Year
- Apply NPK @ 150:50:50 kg/ha/yr in 3 splits (June, Sept & Jan) or use Urea: 326 kg, SSP: 313 kg & MOP: 84 kg
- Arrange critical irrigation for maintenance, if rainfall is scanty
- Undertake intercultural operations (weeding etc.)
- Manage pests & diseases through BCA/bio pesticides
- Cost of mulberry leaf production (~Rs. 2.70 per kg)

This Package is
E S S E N T I A L
For Quality Mulberry Leaves

D o ' s

✓ Select high yielding mulberry varieties
✓ Harvest the leaves as per silkworm crops

D o n t ' s

✗ Do not plant closer than recommended spacing
✗ Do not harvest premature/over mature leaves



Mulberry Plantation
(Paired Row System)

Salient Features

- Most suitable high yielding varieties are S1635 & C2038
- Plantations are raised in Paired Rows
- Plantation Pattern:

  Distance between two rows: 90 cm

  Distance between two pairs: 150 cm

  Distance between plants in a row: 60 cm
- Maintain a population of 13,888 plants per hectare
- Apply the recommended dose of fertilizers/manures
- Undertake intercultural operations (weeding etc.)
- Manage pests & diseases through BCA/bio pesticides
- Benefit-Cost ratio : 2.13 : 1

E A S Y
for Intercultural Operations
by Power Tiller & Mini Tractor

D o ' s

✓ Select high yielding mulberry varieties
✓ Harvest the leaves as per silkworm crops

D o n t ' s

✗ Do not plant closer than recommended spacing
✗ Do not harvest premature/over mature leaves

Mulberry Plantation
(3ft x 3ft System)

Salient Features

- Most suitable varieties: S1635, C1730, C2038 etc.
- Plantation Pattern:

  Distance between two rows & plants: 90 cm
- Maintain a population of 1606 plants per bigha
- Apply the recommended dose of fertilizers/manures
- Undertake intercultural operations (weeding etc.)
- Manage pests & diseases through BCA/bio pesticides
- Easy for drip irrigation & other cultural operations
- High quality leaf production
- High productivity per plant
- Benefit-Cost ratio : 1.93 : 1

E A S Y
for Intercultural Operation
by Power Tiller & Weeder

D o ' s

✓ Select high yielding mulberry varieties
✓ Harvest the leaves as per silkworm crops

D o n t ' s

✗ Do not plant closer than recommended spacing
✗ Do not harvest premature/over mature leaves

Tree Mulberry Cultivation

Salient Features

- Most suitable varieties: C1730, S1635, C2038, $BC_2$59 etc.
- Plantation Pattern:

  Distance between two rows & plants: 6 ft or 8 ft

  Maintain crown height at 150-180 cm
- Maintain a population of 399 or 224 plants per bigha
- Apply the rainfed recommendation of NPK/manures
- Undertake intercultural operations (weeding etc.)
- Manage pests & diseases through BCA/bio pesticides
- Easy for drip irrigation with hydrogel
- High quality leaf production & productivity per plant
- Economic yield starts from 3rd year onwards
- Benefit-Cost ratio : 1.78 : 1
- Intercropping with legume/vegetables for initial period

E A S Y
for Intercultural Operation
by Power Tiller & Tractor

D o ' s

✓ Select suitable mulberry varieties
✓ Harvest the leaves as per silkworm crops

D o n t ' s

✗ Do not plant closer than recommended spacing
✗ Do not harvest premature/over mature leaves

Nutrient Recommendation

Salient Features

- Recommended for high yielding varieties in E & NE India
- Apply nitrogen in 5 equal splits, phosphorus & potassium in two equal splits in alternate crops (Irrigated)
- Apply RDF in 3 splits during June Sept & Jan (Rainfed)
- Fertilizers should be applied 15-20 days after pruning
- Apply the fertilizers nearer to root zone (5-8 cm soil depth)

Fertilizer	Irrigated	Rainfed
NPK (kg/ha/yr)	336:180:112	150:50:50
FYM (MT/ha/yr)	20	10
BCR	1.44 :1	1.65 :1

ESSENTIAL
for High Quality Leaf Production

Do's

✓ Irrigate immediately after the fertilizer application
✓ Maintain weed-free gardens
✓ Maintain 10 days gap between FYM & Fertilizers

Dont's

✗ Do not apply chemical fertilizer & FYM together
✗ Do not apply overdose of chemical fertilizers


Nitrofert

(*Azotobacter chroococcum*)

- Year of Recommendation: 2002

Salient Features

- Eco-friendly biofertilizer
- Isolated from mulberry soil rhizosphere
- Reduces 50% chemical nitrogenous fertilizers requirement
- Improves biological activities in soil
- Apply in root zone of plant
  (10-15 cm depth; 10-15 days after pruning)

ESSENTIAL
for Eco-friendly Nitrogen

Do's

- ✓ Maintain soil moisture (35-40%) for better results
- ✓ Mix Nitrofert with FYM/soil in 1:2 ratio
- ✓ Irrigate immediately after the Nitrofert application
- ✓ Apply chemical fertilizers after 15-20 days

Dont's

- ✗ Do not mix with chemical fertilizer while apply
- ✗ Do not use old (expired) Nitrofert

Nitrofert	Irrigated	Rainfed
Dose (kg/ha/yr)	20	10
Splits	Once in a Year	
BCR	2.9 :1	2.6 :1

Phosphofert

(*Arbuscular Mycorrhizal Fungi*)

- Year of Recommendation: 2002

Salient Features

- Eco-friendly biofertilizer from mulberry soil rhizosphere
- Improves disease &drought tolerance
- Reduces 70-80% chemical Phosphatic fertilizers requirement
- Enhances water & solute uptake, root proliferation, phosphate mobilization, plant growth & leaf yield
- Apply directly to the mulberry root zone
  10-15 cm depth; 10-15 days after pruning)

E S S E N T I A L

for Mobilizing the Phosphorus available in the soil, especially "P" deficit soils

D o ' s

- ✓ Maintain soil moisture (35-40%) for better results
- ✓ Irrigate after application of Phasphofert
- ✓ Apply chemical fertilizers after 35-40 days

D o n t ' s

- ✗ Do not apply along with chemical fertilizers
- ✗ Do not use Old (expired) Phosphofert

Phosphofert	Irrigated	Rainfed
Dose (kg/ha/yr)	70-100	40-50
Splits	Once in 4 Years	
BCR	2.7 :1	3.5 :1

Soil Test Based Fertilizer Application

Salient Features

- Mulberry production depends on soil nutrient status
- Collect soil samples (>20/acre) representing the whole field
- Mix samples, dry & pack 300 gm under the shade
- Submit the soil sample to soil test labs
- Fertilizers should be applied on the basis of Soil Test

Nitrogen (N)			Phosphorous (P_2O_5)			Potassium (K_2O)		
N (Kg/ha)	Urea Kg/ha/crop		P (kg/ha)	SSP Kg/ha/crop		K (kg/ha)	MOP Kg/ha/crop	
	Irrigated	Rainfed		Irrigated	Rainfed		Irrigated	Rainfed
<280	183	205	<45	311	217	<200	47	53
280-450	147	164	45 – 90	249	173	200 – 350	38	42
450	110	123	>90	187	130	>350	28	32
OC should be >0.5%; Apply FYM @ 20MT (Irrigated) & 10 MT (Rainfed)/ha/Yr								

ESSENTIAL

for Judicious Application of Recommended fertilizer doses & optimizing mulberry leaf yield

Do's

- ✓ Test the soils once in 3 years
- ✓ Apply Vermicompost also @ 15-7.5 MT/ha/yr
- ✓ Apply fertilizers/manures as recommended

Dont's

- X Do not apply over/under doses of fertilizers
- X Do not collect soil samples after fertilizering/rain/ irrigation/pruning; from bunds/water logged areas/tree shades/near compost pits



Sulphur Supplementation

- Year of Recommendation: 2012-13

Salient Features

- Recommended for Sulphur deficient soils in West Bengal caused by excessive leaching in low OC soils
- Sulphur deficiency results in marginal necrosis of emerging leaves followed by paling/yellowing of mature leaves
- Plants look stunted and produce inferior quality leaf
- Apply Ammonium sulphate as per recommendation based on Soil Test values

Sulphur Requirement (kg/ha/Yr)		
Soil Test Value (kg/ha)	Irrigated Plains	Rainfed Hills
5	94	34
10	76	28
20	42	18
30	8	7
35		2
40	Sufficient for Mulberry	

ESSENTIAL for Amelioration of Sulphur Deficiency

Do's

✓ Test the soils once in 3 years

✓ Apply other fertilizers/manures as recommended

Dont's

X Do not apply over dose or lower doses

Morizyme-B

- Year of Recommendation: 2007

Salient Features

- MORIZYME-B is PGR formulation for foliar application
- MORIZYME-B results in 25-30% increase in leaf yield, besides improving mulberry leaf quality
- Spray during winter months accelerates leaf growth
- Leaves should be fully drenched with MORIZYME-B
- Dilute One ml MORIZYME-B in one litre water
- Spray twice per crop
  - 1st Spray (15-20 days after pruning)
  - 2nd Spray (15 days after the 1st spray)
- Expenditure: Rs.327/crop/acre
- Benefit-Cost ratio : 1.5 : 1
- Improves silkworm growth & productivity also

ESSENTIAL
for General Improvement of
Mulberry Leaf Quality & Yield,
especially in WINTER months

Do's

✓ Spray during cooler hours of the day
✓ Repeat the spray on next day, if rains within 7-8 hr

Dont's

✗ Don't spray against the direction of wind

Jal Sanjivini

- Year of Recommendation: 2007

Salient Features

- JAL SANJIVINI foliar application minimises water loss from mulberry leaf surface
- Increases moisture retention capacity
- JAL SANJIVINI spray results in ~10% increase in leaf yield under rainfed/water stress conditions
- Leaves should be fully drenched with JAL SANJIVINI
- 10g JAL SANJIVINI is dissolved in one litre water
- Spray twice per crop

  1st Spray (20 days after pruning)

  2nd Spray (10 days after the 1st spray)
- Benefit-Cost ratio : 1.2 :1

ESSENTIAL
For
Improving Mulberry Leaf Yield
in WATER STRESSED conditions

Do's

- ✓ Spray during cooler hours of the day
- ✓ Repeat the spray on next day, if rains within 7-8 hr
- ✓ Use fresh product for rainfed mulberry only

Dont's

- ✗ Don't spray against direction of wind

Low Cost Drip Fertigation System

- Year of Recommendation: 2019

Salient Features

- An efficient system for water & nutrient management
- Drum Kit System: Place plastic drum (1000 litre at 1-1.5 m height from the ground); 12 mm inline drip laterals (2.4 lph, 30 cm); 0.25 HP solar pump
- Drip Tape System: 16 mm thin drip tape laterals only
- Drip holes should face towards the soil surface
- Irrigate @ 27,653 litres on alternate days (2.8 lit/day/plant)
- Apply 75% RDF (20:11:8 NPK kg/ac/crop) in 6 split doses (15 -49 days after pruning @ 7 days interval)
- Enhances leaf yield by 27% by efficient nutrient utilization
- Saves water up to 24% & fertilizer by 25%
- Benefit-Cost ratio : 1.95 :1

ESSENTIAL
for Production of Superior Quality Mulberry Leaf

Do's

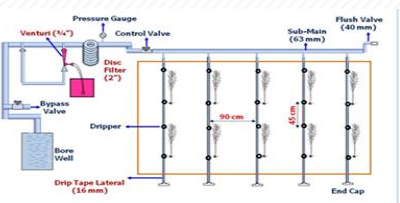
✓ Pour the supernatant fertilizer (DAP/MOP) solution

✓ Clean the filters & laterals by flushing periodically

✓ Select low discharge drippers

Dont's

X Do not extend the length of lateral >10-15 m



Mulberry Protection

Mulberry Crop Protection

Salient Features

- **Timely & effective management measures need to be undertaken to ensure leaf harvests**

Disease	Season	Foliar Spray
Bacterial Leaf Spot (*Xanthomonas campestris* pv. *mori*)	May - Nov	Streptomycin (9%) + Tetracycline (1%) @ 1 g/L of Water
Brown Leaf Spot (*Myrothecium roridum*)	May - Nov	Carbendazim 50% WP @ 2 g/L of Water
Black Leaf Spot (*Pseudocercospora mori*)	May - Feb	
Powdery Mildew (*Phyllactinia corylea*)	Nov - Feb	
Brown Leaf Rust (*Peridiopsora mori*)	Jan - Feb	Mancozeb 75% WP @3.0 g/L of water
Root Rot (*Fusarium solani*)		Rot-Fix @ 5g/Litre; 2 Litre/plant at root zone

ESSENTIAL
for Minimizing Damages by Foliar/Root Diseases

Do's

- ✓ 10-15 days safe period to be followed after spray
- ✓ Spray during cooler hours @ prescribed doses
- ✓ Use face mask & gloves while spraying

Dont's

- ✗ Don't spray against direction of wind






Pest Calendar

Salient Features

- Timely & Effective management measures need to be undertaken for ensured leaf harvests

Months	Thrips	Mealy Bug	Whitefly
Jan			
Feb			
March			
April			
May			
June			
July			
Aug			
Sept			
Oct			
Nov			
Dec			

% PI
<5
5-10
>10

ESSENTIAL
for Control Pests Damages by Appropriate IPM Measures

Do's

✓ Take Measures (Chemical/Bio/Mechanical)

Dont's

X Don't neglect the infestation of these pests




Integrated Pest Management

Salient Features

- Timely & Effective Mulberry Pest-Specific measures need to be undertaken for minimizing damages

Mechanical Method

- Remove & destroy infested portions by burning or by dipping in 0.5% soap solution
- Install Yellow sticky traps 15 days after pruning (June - Nov) @ 20/bigha for Whitefly management

Chemical Method

- Spray 1.5% Neem oil (1500 ppm; @15ml/L) when Tukra infestation reaches 10%; Thrips population crosses 20/leaf & Whitefly infestation reaches 20/plant
- Safe period for feeding silkworms: 15 days after the spray

Biological Method

- Release Lady Bird Beetles, *Scymnus pallidicolli* @1000/acre/year in two splits for Mealybug management
- Release eggs of Green Lacewing, *Chrysoperla zastrowi* @ 1000 eggs/acre/year in two splits for Thrips management

ESSENTIAL

to Minimize Damages of Pests adopting integrated approaches

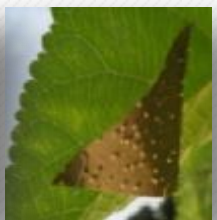
Do's

✓ Take Appropriate Measures (Chemical/Bio/Phys.)
✓ Release beetles after 8-10 days of chemical spray

Dont's

✗ Don't spray against direction of wind





Silkworm Cocoon Production

Bleaching Powder
(Disinfection of Rearing House & Appliances)

Salient Features

- Effective disinfectant against all silkworm pathogens
- Cost-effective chlorine based disinfectant

Usage

- Cleaning of rearing house after crop harvest
- Disinfection of rearing houses, surroundings & appliances
- Hygiene maintenance

Preparation

- To prepare 100 litres bleaching powder solution, mix 5 kg bleaching powder and 300g slaked lime
- Initially, make a thick paste, then add 100 litres of water to make disinfectant solution (5% bleaching powder solution)

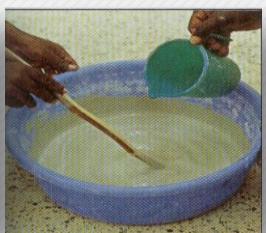
Do's

- ✓ Use quality bleaching (30-32% available Cl_2)
- ✓ Use mask while spraying the solution
- ✓ Keep the powder in air-tight bags/vessels
- ✓ Clean sprayer thoroughly with water after use

Dont's

- ✗ Never expose the bag to direct sunlight
- ✗ Don't spray on metallic items (corrosive)
- ✗ Don't use muddy & impure water

Expenditure: Rs. 140/- (100 dfls)
Benefit-Cost Ratio: 5 :1



Chlorine Dioxide

(Disinfection of Rearing House & Appliances)

Salient Features

- Commercially available as Sanitech at 20,000 ppm
- Less corrosive, less hazardous & highly germicidal

Usage

- Disinfection of rearing houses, surroundings & appliances
- Maintenance of personal & rearing hygiene

Preparation

- To prepare 100 liters chlorine dioxide, mix 250g activator crystals and 2.5 litre Sanitech solution. Keep for 10 min and then add 97.5 litres water + 500g slaked lime. Mix thoroughly and use as disinfectant

Do's

- ✓ Make sure that solution turns yellow upon mixing with the activator crystals
- ✓ Use mask while spraying the disinfectant
- ✓ Clean the sprayer thoroughly with fresh water

Dont's

- ✗ Never prepare solution in direct sunlight
- ✗ Don't mix Sanitech & lime together
- ✗ Don't use impure & muddy water

Expenditure: Rs. 500/- (100 dfls)
Benefit-Cost Ratio: 8 : 1

Ghar Sodhon
(Disinfection of Rearing House & Appliances)

- Recommended Year: 2016

Salient Features

- An user friendly fumigant room disinfectant

Usage

- Disinfection of rearing houses & appliances

Preparation

- Keep the Ghar Sodhon (50g) in a glass or non-metallic bowl/ dish as a thin layer
- Keep the doors, windows & ventilators of the rearing room in closed condition for a period of 24 hours
- Open the doors and windows of rearing room early in the morning; on the day of brushing or shifting the chawki worms
- Ghar Sodhon is available in 50g packets in a sealed cover (sufficient for a room size of 18m^3 area which is suitable for 100 dfls rearing)

Do's

- ✓ Make sure the room is air tight
- ✓ Use mask while opening the room

Dont's

- X Do not stay in the room during fumigation
- X Do not open ventilators during fumigation

Expenditure: Rs. 100/- (100 dfls)
Benefit-Cost Ratio: 5.19 :1

NIRMOOL

(Disinfection of Rearing House & Appliances)

- Recommended Year: 2020

Salient Features

- Eco & User friendly disinfectant effective against all the common silkworm pathogens
- Cost-effective, non-corrosive, stable, easily soluble & odorless
- CSRTI-BHP Patented Technology (Applied; June 2020)

Usage

- Disinfection of rearing houses, appliances & surroundings
- Maintenance of personal & rearing hygiene

Preparation

- Mix 2 Kg NIRMOOL powder to 100 liters of water
- Drench spray the rearing room & rearing appliances with a power/gator sprayer
- A rearing room of 20 m^3 area suitable for 100 dfls rearing requires 100 litres of NIRMOOL solution

Do's

- ✓ Ensure adequate ventilation
- ✓ Use water at room temperature
- ✓ Use mask while disinfecting the rearing room

Dont's

- X Avoid direct exposure to eyes/skin
- X Do not inhale or swallow NIRMOOL

Expenditure: Rs. 120/- (100 dfls)
Benefit-Cost Ratio: 6.8 :1



Chawki Rearing

(Improved Silkworm Productivity)

Salient Features

- Collect Quality Pebrine free eggs for Chawki rearing
- Maintain 27-28°C temperature & 85-90% humidity in CRC
- Remove paraffin paper one hour before every feeding & allow cross ventilation for bed drying
- Dust slaked lime when worms settle for moult & dust bed disinfectant when larvae come out of moult
- Conduct chawki certification (for larval growth & health) during II moult, dust lime & transport to farmers in cool hours
- Missing larvae should be < 5% & undersized < 15%
- Weight of 100 larvae during 2nd moult (3.4-3.8 g for BV & 2.2-2.6 g for CB)

Healthy Larvae
V I T A L / E S S E N T I A L
for harvesting of successful cocoon crops
" GOOD ENTERPRISE OPTION "

Do's

- ✓ Organize chawki rearing in Mini CRCs
- ✓ Raise chawki garden for succulent & nutrient leaf
- ✓ Equip CRCs with necessary equipment
- ✓ Maintain proper hygiene in CRC

Dont's

- ✗ Do not transport eggs during hot hours
- ✗ Do not cover beds with paraffin paper moult
- ✗ Don't distribute Pebrinized chawki to farmers




Late Age Rearing

(Sustainable Cocoon Yields)

Salient Features

- Rearing of silkworms from 3rd instar to cocooning
- Requires well-ventilated separate rearing room
- Rearing racks could be made of iron, wood, bamboo or hard plastic or any locally available materials
- Rearing shelves are prepared using nylon ropes/GI wire strips
- Transfer worms under II moult (Chawki) onto shelves
- Provide 2 feedings in a day with fresh mulberry shoots
- Maintain room temp. (24-26˚C) & relative humidity (75-80%)
- Dust slaked lime when worms settle for moult
- Dust Bed disinfectant when larvae come out from moult
- Provide adequate space for optimal growth of larvae (3 sq.ft for shoot rearing & 2 sq.ft for tray rearing per dfl)
- Provide spacing of 700-800 sq.tt bed area for 100 dfls

SHOOT/SHELF Rearing
ESSENTIAL
for Economic Cocoon Production

Do's

- ✓ Harvest mulberry shoots during cooler hours for 4th & 5th instar larvae & wrap with wet gunny cloth
- ✓ 50-70 larvae per sq. ft is ideal for better growth
- ✓ Destroy diseased & under grown larvae
- ✓ Mount with suitable mountages when >50% matures

Dont's

- ✗ Don't dust bed disinfectants on feeding larvae
- ✗ Don't delay feeding after dusting of bed disinfectants



LABEX

(Rearing Bed Disinfectant)

- Recommended Year: 2005

Salient Features

- Silkworm body & rearing seat disinfectant to prevent spread of common silkworm diseases
- CSRTI-BHP Patented Technology (IP No. 200199/15.12.2006)

Usage

- For prevention of common silkworm diseases during rearing

Application

- Apply after every moult before resumption and also on 4th day of final instar
- Dust on silkworm body & rearing seat @ 3-4 g/sq.ft

Do's

- ✓ Feed silkworms 30 minutes after dusting
- ✓ Wear a mask while dusting LABEX
- ✓ Dust LABEX in recommended quantity

Dont's

- X Don't dust the mixture on feeding larvae
- X Don't cover the tray or rack after dusting

Stage	LABEX (100 dfls)	Expenditure (Rs. 220/100 dfls) Benefit-Cost Ratio (2.95 :1)
After I moult	90 g	
After II moult	270 g	
After III moult	510 g	
After IV moult	960 g	
4th day of V instar	1670 g	
Total	**3500g (3.5 kg)**	

SERICILLIN

(Rearing Bed Disinfectant)

- Recommended Year: 2013

Salient Features

- Silkworm body & rearing seat disinfectant to prevent spread of especially Muscardine and common diseases
- More effective during rainy & winter seasons

Usage

- For prevention of muscardine disease during rearing

Application

- Apply after every moult before resumption and also on 3rd & 5th day of final instar
- Dust on silkworm body & rearing seat @ 3-4 g/sq. ft

Do's

- ✓ Feed the silkworms 30 minutes after dusting
- ✓ Wear a mask while dusting
- ✓ Dust recommended quantity as per schedule

Dont's

- X Never dust the mixture on feeding larvae
- X Don't cover the tray or rack after dusting

Stage	SERICILLIN (100 dfls)
After I moult	80 g
After II moult	120 g
After III moult	300 g
After IV moult	800 g
3rd day of V instar	1200 g
5th day of V instar	1500 g
Total	**4000g (4.0 kg)**

Expenditure

(Rs. 300/100 dfls)

Benefit-Cost Ratio

(6.4 :1)

Mounting & Harvesting

(Improved Cocoon Quality)

Salient Features

- Cross ventilation, uniform light, 24-25˚C Temperature & 60-70% relative humidity are essential in the mounting hall
- Mount only mature larvae with proper mounting density (Crossbreed: 50 larvae/sq. ft; Bivoltine: 40 larvae/sq. ft)
- Mountages like chandriki (bamboo), plastic collapsible & rotary could be used
- Mounting on bamboo chandriki's results in high defective cocoons & large variations in cocoon size & shape
- Quality cocoons could be harvested on plastic mountages
- Plastic collapsible mountages are used as self-mounting devices on shelves to save labour
- Cover mountages by nylon net/straw/news paper for proper spinning & take-off news paper after three days
- Remove unspun/dead/diseased larvae, if any
- Harvest Crossbreed cocoons on 5/6th & Bivoltine on 7/8th day
- Defloss the harvested cocoons & pack in thin-aerated bags
- Transport the cocoons during cooler hours
- Clean mountages from floss, dead/diseased & melt cocoons
- Disinfect mountages in 2% bleaching powder for a day
- Sun-dry the mountages & store in a disinfected area

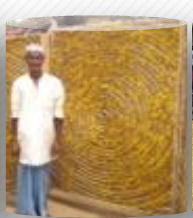
Do's

- ✓ Prefer the plastic collapsible mountages
- ✓ Lift mountages from the bed after 3 days

Dont's

- ✗ Do not mount the immature larvae
- ✗ Do not close windows during spinning




Suvarna with Souroneer

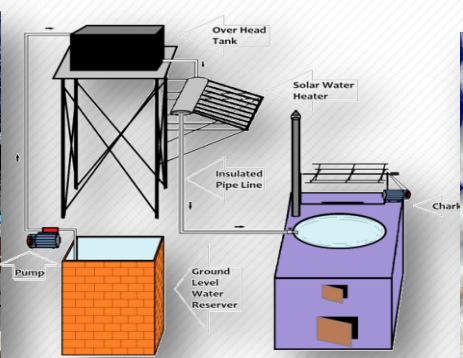
(Improved Silk Reeling)

- Recommended Year: 2019

Salient Features

- An Improved Package for Charkha Silk Reeling
- SUVARNA ensures production of good quality weft yarn
- Motorization with 0.5 HP (Single Phase) motor for reel rotation
- An option for variable reel-speed is with SUVARNA for reeling different quality cocoons in all seasons
- Provision to stop the machine instantly to avoid size variation
- Duster cloth roller for removal of excess moisture for reducing gum spots on yarn
- Motorization ensures filament uniformity & yarn quality
- SOURONEER ensures pre-heated water & saves ~ 50% fuel costs
- Conversion cost is reduced by ~37% as compared to 'Katghai'
- Saves labour & drudgery
- Improves working environment
- Benefit-Cost Ratio: 1.5 :1 (SUVARNA with SOURONEER)

RIGHT CHOICE
to replace
KATGHAI (Traditional Charkha)
in Eastern India



Sericulture Training Programmes

@ CSRTI-BHP & Nested Units

Programme	Course	Duration	Persons/ Batch
PGDS – Mulberry (Kalyani University)	Post Graduate Diploma in Mulberry Sericulture	**15** Months	30
Farmers Skill Training	Chawki Rearing	**10** Days	25
	Late Age Rearing	**10** Days	25
	Mulberry Cultivation	**5** Days	25
	Integrated Pest & Disease Management	**5** Days	25
	Handicrafts Training	**5** Days	25
Technology Orientation	Biological Control of Insect Pests	**5** Days	25
	Pebrine Detection Methods	**2** Days	20
	Faculty Refresher Programme	**5** Days	20
Post-Cocoon Technology	Cocoon Processing & Reeling Technology	**5** Days	25
Hands-on-Training	Demonstration of Silkworm Rearing	**10** Days	20
Intensive Mulberry Sericulture	Bivoltine Rearing Technology	**30** Days	20
Exposure Visit	Sericulture Technologies in Progressive Areas	**3** Days	30



Sericulture Crop Calendar

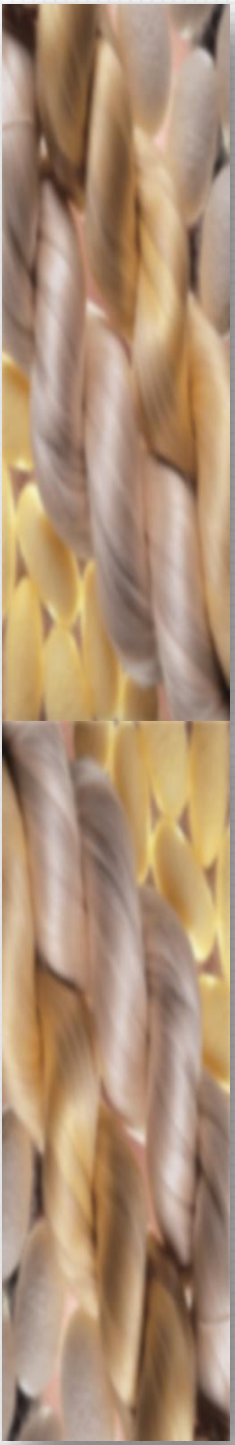
Silkworm Crops Across East & NE India

STATE	CROP-I	CROP-II	CROP-III	CROP-IV	CROP-V
BIHAR	Chaitra Feb 1st Week	Baisakhi March 4th Week	Shravani June 3rd Week	Bhaduri Aug 1st Week	Agrahayani Nov 1st Week
CHHATTISGARH	Spring Feb 1st Week	Summer May 2nd Week	Late Autumn July 4th Week	Autumn Oct 1st Week	
JHARKHAND	Spring March 1st Week		Monsoon Aug 3rd Week	Autumn Oct 3rd Week	
ODISHA	Spring Feb 3rd Week	Summer May 3rd Week	Monsoon Aug 3rd Week	Autumn Oct 3rd Week	
WEST BENGAL	Falgooni/ Chaitra March-April	Baisakhi April-May	Jaishta/ Shravani June-July	Bhaduri/ Aswina Sept	Agrahayani Nov-Dec
ARUNACHAL PRADESH	Spring March-April			Autumn Sept-Oct	
ASSAM & BTC	Spring March			Autumn Sept	
MANIPUR	Spring-I March 1st Week	Spring-II April 4th Week	Summer June	Autumn-I Sept	
MEGHALAYA	Spring April			Autumn Aug-Sept	
MIZORAM	Spring April		Summer July	Autumn Sept	
NAGALAND	Spring March		Summer July	Autumn Sept	
SIKKIM	Spring April			Autumn Aug/Sept	
TRIPURA	Spring-I Feb Last Week	Spring-II April-May	Summer June	Autumn-I Sept	

CSRTI - Berhampore

East & North East Mulberry Sericulture

TECHNOLOGY DESCRIPTOR



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CSRTI Berhampore

Central Sericultural Research & Training institute (CSRTI)-Berhampore working in pursuit of excellence renders R&D and technological support/services to the silk industry in Eastern & North Eastern India (West Bengal, Odisha, Bihar, Jharkhand, Chhattisgarh, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim & Tripura). CSRTI-BHP is well equipped with infrastructural facilities essential for conducting advanced research in Mulberry Sericulture. Since inception, the institution has contributed to the development of mulberry varieties, silkworm breeds/hybrids, package of practices for mulberry cultivation, silkworm rearing & several novel innovations/products and processes suitable to the region. CSRTI-BHP works in close coordination with DoSs in various states for benefiting the stakeholders. Also offers Post-Graduate Diploma in Sericulture (15 months) for students across India in Mulberry Sericulture under the aegis of Kalyani University, West Bengal. CSRTI-BHP conducts training programmes in various disciplines to the farmers, reelers, officials, students etc.

East North East Silk

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