VALIDATION / ToT / OTHER PROGRAMMES

Being Implemented

In collaboration with various DOS

Progress Report as on 31-10-2012

By

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CONTENTS

1. Mulberry Silkworm Race Authorization Programme (Phase VIII) (All India Coordination Program of C.O., Bangalore)

Duration: Jan., 2011 – Dec., 2012

Objective: To evaluate the hybrids developed by various institutes by testing in 34 test centers (17 Multi X Bi. & 17 Bi. X Bi.) throughout India.

DoS involved: West Bengal, Orissa, Jharkhand, Assam, Meghalaya & Mizoram

Progress made: Co-ordinating, supply of layings, collection and compilation of performance data of eight test centers. All 30 crops were conducted in case of Multi. x Bi. crops, where as all 16 crops have been completed in case of Bi. x Bi. crops. Final analysis will be carried out after obtaining the post-cocoon analysis from SCTH, Malda.

Test centres:

Kalitha DoT(Seri), Birbhum	RSRS, Kalimpong
Piasbari, DoT (Seri). Malda	RSRS, Koraput
STI, Aizawl, Mizoram	RSRS, Jorhat
Govt. Silk Farm, Shillong	RSRS, Ranchi

Hybrids tested:

Sl. No.	***Multi x Bi hybrids***	***Bi x Bi hybrids***
1	FVB1 x FVB12	AP71 x AP72
2	NDV6 x CSR2	PO3 x ND5
3	ND7 x CSR2	NK2 x HND
4	PM x FC2	CSR50 x CSR51
5	PM x NK2	(AP71.AP9) x (AP72 x AP8)
6	N x (SK6 x SK7	(CSR52.CSR50) x (CSR51.CSR53)
7	M6DPC x SK4C	CSR21DR x CSR28DR
C	PM x CSR2	CSR2 x CSR4
C	N x NB4D2	(CSR2.CSR26) x (CSR2 x CSR27)
Tested	Four times per year	Twice per year

2. BAI (P)-010 Popularization of Authorized Silkworm Hybrids

Duration: Sept., 2010 – Aug., 2012

Objective: To popularize the authorized hybrid at farms and farmers level to increase the productivity with quality silk

DoS involved: West Bengal, Jharkhand, Meghalaya, Assam and Uttaranchal

Progress made:

- 2, 50, 269 hybrids of N x M. Con.4, M. Con.1 x M. Con.4, M. Con.4 x B. Con.4 and B. Con. 1 x B. Con.4 have been supplied, by providing 1780 dfls of M. Con. 1, 4500 dfls of M. Con.4, 835 dfls of B. Con.1, 1035 dfls of B. Con. 4 as P1 to DoT(Seri), LSP and NGOs.
- At the same time, 5375 dfls of Multi. x Bi. and Bi. x Bi. dfls directly supplied to the farmers, RSRS and RECs.
- As a P1, M. Con. 1 had a yield of 28-48 kgs/100dfls, M. Con.4 had a yield of 35-50 kgs/ 100dfls, B. Con.1 had a yield of 40-60 kgs/100dfls and B.Con.4 yielded 45-62 kgs/100 dfls.
- The hybrids, M.Con.1 x M.Con.4 yielded 35-45 kgs/100 dfls; M. Con.4 x B. Con.4 yielded 36-45 kgs/100dfls; N x M. Con.4 yielded 34-40 kgs/100dfls; B. Con.1 x B. Con.4 yielded 52-64 kgs/100 dfls**.**

3. BAI (P) - 009 Field level testing of new hybrids

Duration: Jan., 2011 – Dec., 2012

Objective: To evaluate the performance of two new multi x bi hybrids and one bi x bi hybrid in the field.

DoS involved: West Bengal, Orissa, Assam, , Mizoram, Manipur, Meghalaya and Sikkim.

Technology:

1. M6DPC x D6PN, (Multi. x Bi. hybrid)
2. M6DPC x (D6PN x SK4C) (Multi. x Bi. hybrid)
3. D6PN x SK4C (Bi. x Bi. hybrid)

Progress made:

In this programme, two multi. x bi. hybrids viz., M6DPC x D6PN and M6DPC x (D6PN x SK4C) along with one control hybrid N x NB4D2 were subjected for field trial. In addition, the Bi x Bi Hybrid D6PN x SK4C along with control NB18 x P5 was also considered for trial. The rearing was conducted during spring (February-April) and autumn (September-December) seasons of 2011-12.

- The hybrids were the outcome of the project AIB 3237.
- The new hybrids recorded more cocoon yield than the control hybrids.

The performance of the Multi x Bi. Hybrids tested by the farmers under seven test centres REC, Imphal, REC, Jorhat, REC, Nabagram, REC, Shillong , REC, M.P.Raj, REC, Bagmara and REC Aizawl was compiled. The data indicates that the hybrid M6DPC x D6PN, an average cocoon yield of 53.0 kg ranging from 61.1 kg to 45.9 kg, M6DPC x (D6PN x SK4C) hybrid showed an average cocoon yield of 52.9 kg ranging from 67.6 kg to 47.3 kg while in the control (N x NB4D2), an average cocoon yield of 46.8 kg ranging from 52.6 kg to 37.6 kg was obtained.

The Bi. X Bi. Hybrid D6PN x SK4C along with control NB18 x P5 was tested and the average cocoon yield of 45.5 kg was obtained as against the control 42.6 kg.

Percentage improvement of 13.3 % and 13.0 % was observed in the hybrids M6DPC x D6PN and M6DPC x (D6PN x SK4C) as against the control (N x NB4D2). Similarly, 6.80 % of improvement in cocoon yield was observed in Bi. X BI. Hybrid (D6PN x SK4C) against the control (NB18 x P5).

4. Post authorization trials of silkworm hybrids in eastern & north eastern India

(A programme in collaboration with NSSO & various DoS)

Duration: Nov., 2012 – Dec., 2014

Objective:

- To evaluate and popularize the authorized hybrids at the farmers' level in eastern & north-eastern India
- To identify the suitable authorized hybrids for the eastern & north-eastern India
- To recommend the hybrids for the eastern & north-eastern zone for commercial exploitation

DoS involved: **West Bengal, Odisha, Jharkhand, Chattisgarh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim.**

This programme is to be implemented under three schemes.

Scheme: I *(for the testing of bivoltine hybrids)*

In this scheme, Gen3 x Gen2, SLD4 x SLD8 along with the control hybrid, NB18 x P5 will be tested with 840 farmers coming under the jurisdiction of 18 test centers.

Scheme: II *(for the testing of multi x bi hybrids)*

In this scheme, M.con.1 x B.con.4, M.Con.4 x B.Con.4 along with the control hybrid, Nistari x NB4D2 will be tested with 1120 farmers coming under the jurisdiction of 14 test centers.

Scheme: III *(for the testing of multi x multi hybrids)*

In this scheme, M.Con.1 x M.Con.4, Nistari x M.Con.4 along with the control hybrid, Nistari x M12(W) will be tested with 970 farmers coming under the jurisdiction of 9 test centers of West Bengal.

Quantum of DFLs required for the programme: 9,76, 000 dfls

Budget involved: 80 lakhs

Progress made: The first tiral was initiated with around 75,000 dfls of M.Con.1 x B.Con.4, M.Con.4 x B.Con.4 along with the control hybrid, Nistari x NB4D2 were distributed to the farmers of West Bengal and Jharkahnd during Agrahayani, 2012 with date of brushing during first week of November, 2012.

5. Improvement of silkworm seed cocoon production at farmers' level with special reference to bivoltine seed cocoon in West Bengal

Funded by*:* Department of Science & Technology, Govt. of West Bengal, Kolkata. *In Collaboration with:* **DOT(S) Govt. of WB & ZSSO, Malda**

Budget: Rs. 5.29 lakhs

Duration: Nov., 2011 – Oct., 2012

Objective: Stabilization & improvement of Bivoltine & Multivoltine seed cocoon crops especially during adverse crop seasons of West Bengal and establishment of model seed rearers.

DoS involved: West Bengal (Seed farmers of 3 villages in Murshidabad Dt.)

Progress made:

i. The project has been **completed** within the stipulated period utilizing the DST (W.B.) fund of Rs 5,29,260/-. fully.

ii. Compilation of pooled data of five crops each from the three villages under the Project i.e. Banjetia, Kalitala Diar and Kiriteswari revealed an average 7.0 kg /100 dfls cocoon yield gain over control. At Banjetia village, the cocoon yield gain was noted as 7.4 kg/ 100 dfls whereas, it was 7.3 kg / 100 dfls at Kalitala Diar village. At Kiriteswari village 8.4 & 5.2 kg/ 100 dfl cocoon yield gain was noted in bivoltine & multivoltine respectively.

iii. Nine nos. of Model Seed Rearers have been selected from three villages under the project who will act as motivators to the others.

iv. Rearing inputs were distributed as per the Project schedule.

v. Besides, one awareness programme was arranged at Banjetia village on **22nd September, 2012.** To get feedback information from the stake holders, one workshop was also arranged on 18th October, 2012 at the Institute involving DoT (Seri.), ZSSO, Malda, R.O., Kolkata.

6. BPP (VP) 003: Validation trial on the superiority of paired row plantation in chawki mulberry garden with regard to leaf yield and cocoon productivity

In collaboration with: DOT(S) Govt. of WB & ZSSO, Malda

Duration: Oct., 2010 – Sept., 2012

Importance of the Programme:

- Chawki rearing is a vital aspect of sericulture industry which in turn decides the survival of worms in late age, their health, robustness and ultimately productivity of quality cocoon crop. The nutritive value of mulberry leaf is a key factor for better cocoon crop.
- Tender, succulent and nutritious leaves are known to augment the growth and development of young age silkworm which may be achieved by providing necessary agronomic input so as to allow the mulberry plant to express their full genetic potential in the form of both qualitatively and quantitatively superior chawki leaf production.
- However, such specific quality leaf production is not possible from a general mulberry garden, as the leaves contain less moisture% and are also poor in nutritional constituents.
- Keeping this in view, a project PPA 3366 was undertaken to develop a suitable package of practices for chawki garden through paired row system and spaced plantation with a goal to quality and productivity improvement of chawki mulberry leaf which ultimately leads to superior cocoon production.
- The project depicted the superiority of paired row plantation in terms of both mulberry leaf and cocoon production.
- The finding of the project is needed to be validated before recommendation, for which the present programme has been takenup.

Objective: Confirmation of the findings of the project PPA 3366 *i.e* superiority of paired row plantation for chawki mulberry garden.

DoS involved: West Bengal (Akherighata farm, Murshidabad Dt.)

NSSO units involved: P2 BSF, Karnasubarna and P1 BSF Banguria

Progress:

i. The programme has been concluded during Sept ’12 as per the milestone.

ii. Analysis of pooled data revealed that Validation trial conducted at three test centres i.e. P1 BSF, Banguria; P2 BSF Karnasubarna and DoT(S) Farm Akherighata confirmed the findings of the Project PPA 3366 i.e. superiority of Paired Row plantation [(150cm + 90cm) x 60cm spacing] in chawki mulberry garden with regard to leaf yield and cocoon production in comparison to 60 cm x 60 cm plantation (control).

iii. Leaf yield / ha/year was recorded at par in paired row plantation [(150cm + 90cm) x 60cm] and 60 cm x 60 cm plantation (contron) in all the three test centres(16.2 16.8 MT ; 14.5 14.9 MT and 15.2 &15.7 MT at P2 BSF Karnasubarna, DoT(S) Farm Akherighata and P1 BSF Banguria respectively) although the number of plants/ha was double in 60 cm x 60 cm spacing (27777) against 13888 in paired row system .

iv. Cocoon yield / 100 dfls [32.3& 28.6 kg (multi); 30.5& 27.3 kg(multi) and 32.3 & 27.0 (multi) & 53.8 & 48.1 kg (Bi)] was also found significantly higher with paired row plantation [(150cm + 90cm) x 60cm] in comparison to 60cm x 60cm plantation (control) at P2 BSF Karnasubarna, DoT(S) Farm Akherighata and P1 BSF Banguria respectively which clearly depicted the superiority of paired row plantation in chawki mulberry garden in comparison to control (60cm x 60cm plantation).

7. All India Coordinated Experimental trial on Mulberry (Phase – III) (A program of C.O., Bangalore)

Duration: August, 2011 – December, 2015

Objective: To identify and authorize suitable mulberry variety for commercial use in different agro-climatic mulberry cultivation zones of India.

DoS Involved: West Bengal, Assam, Manipur, Orissa & Jharkhand

Number of varieties selected by MVAC for the trial: 5

MV1 – C 2038 (CSR&TI, BHB)

MV2 - FYT/99-G4 (CSR&TI, Mysore)

MV3 – Suvarna-2 (KSSRDI)

MV4 – Vishala (NC-KSSRDI)

MV5 – V-1 (Mysore) for South & S1635 (Berhampore) for East & North Zones (RC)

For RSRS, Kalimpong and Sahaspur

MV1 – C2038 (CSR&TI, BHB)

MV2 - FYT/99-G4 (CSR&TI, Mysore)

MV3 – Suvarna-2 (KSSRDI)

MV4 – Tr-23 (CSR&TI, BHB)

MV5 - Vishala (NC-KSSRDI)

MV6-S–146(Berhampore)

Progress:

- Transplantation of saplings at all test centers (8 nos.) has been completed.

8. Field evaluation of plant growth regulator combination for improvement of quality leaf yield of mulberry especially under cold stress condition

Duration: Dec., 2011 – Nov., 2012

Objective: To confirm the effect of plant growth regulator combination in respect to increase leaf yield and quality of mulberry under cold stress condition

DoS involved: **West Bengal** (Kumarpur and Koshbag in Murshidabad, Kotasur in Birbhum, Sadullapur in Malda and Ranaghat in Nadia)

Technology:

Foliar application of Benzyl adenine (kinetin) + KCl @ 5mg/litre exhibited best result by increasing mulberry leaf yield 40% more over control (water spray) during winter. (Emanated from the programme 'Impact of plant growth regulators to promote photosynthetic activity, leaf productivity and quality in mulberry especially under cold conditions 'conducted during Oct. '09 – Sept. '10). By foliar application of Benzyl adenine + KCl an extra income of Rs. 5060/- per ha per crop (BC 6:1) can be generated through selling of additional leaf 2.53 mt/ha/crop. 300 extra dfls /ha/crop can also be reared by additional leaf produced.

Progress made:

1) During February, 2012 crop, after 20 days of pruning of mulberry variety S-1635 at 5 DoT(S) farms, 1st foliar spray of Benzyl adenine + KCl combination was done and subsequently 2nd spray was given after 20 days of 1st spray. Leaf yield data was recorded. The perusal of data indicated that the increase of mulberry leaf yield was found significant over control, irrespective of locations. The increase in leaf yield was found to the tune of 20.6 % (control-6494.3 kg/ha.,Tr.-7833.8 kg/ha.) at Khosbag, 25.5% (control-5824.5 kg/ha., Tr.-7307.6 kg/ha.) at Kumarpur, 24.3 % (control-5800.6 kg/ha., Tr.-7211.9 kg/ha.) at Kotasur, 37.0% (control- 3169.4.kg/ha., Tr.-4341.5 kg/ha.) at Sadullapur and 27.9% (control-1028.6 kg/ha., Tr.-1315.6 kg/ha.) at Ranaghat DoT(S) farms respectively, exhibiting an overall increase of 27.0 %.

2) During Autumn (November crop, 2012), 1st and 2nd spray of PGR combination were completed at all five DoT (Seri.) farms. Data collection is in progress.

9. Studies on the field efficacy of selected dose of insecticide in whitefly management

Duration: July, 2011 – June, 2013

Objective: To validate the efficacy of selected dose of pesticide in regulating the population of whitefly (Findings emanated from PRE – 3394, "Studies on the efficacy of some insecticides for management of whitefly and their bio-safety to silkworm, *Bombyx mori*")

DoS involved: West Bengal (Farms at Madhughat, Murshidabad & Nadia districts and 105 farmers of three districts)

Technology:

From the findings emanated from PRE – 3394, "Studies on the efficacy of some insecticides for management of whitefly and their bio-safety to silkworm, *Bombyx mori*", it was found that among three new pesticides tested against whitefly, 0.015% thiamethoxam was found to be effective in suppressing the whitefly population upto 96% till 7th day of spray. The safe period for silkworm rearing was observed as 14 days. The cost Benefit ratio of the technology was 3 : 1. As whitefly is a serious problem in many parts of West Bengal, a validation programme was taken up to confirm the finding in collaboration with DoS, W.B. in their farms and farmers under their command area. Accordingly the study was initiated at DoS farms of Madhughat, Murshidabad & Nadia districts and farmers' fields (105 nos.).

Progress made:

The study was conducted during Bhaduri / Ashwina, 2012 (July – September) and Agrahayani, 2012 (September – November). The observations have revealed that during July – September, 2012, thiamethoxam (0.015%) has reduced the whitefly population to an extent of 93% by 15th day of spray. The yield gain recorded was 27% over untreated plots. In the control plot (0.1% dichlorvos spray) the yield gain was 16%.

10. Study on the efficacy of newly developed bed disinfectant (Sericillin) in hot spot areas for the control of muscardine disease of silkworm, *Bombyx mori*

Duration: August, 2010 - July, 2012

Objective

To study the incidence of Muscardine disease of silkworm, *Bombyx mori* in hot spot areas and efficacy of newly developed bed disinfectant (Sericillin) in hot spot areas for the control of muscardine disease of silkworm, *Bombyx mori.*

DOT (Seri) involved: West Bengal, Jharkhand, Chhattisgarh, Manipur

Technology:

Silkworm Pathology Laboratory has formulated one bed disinfectant called 'SERICILLIN'. It is a synergistic composition for disinfecting silkworm body and silkworm bed. It is a mixture of three chemicals. The formulation is cost-effective and all the chemicals are available in the local market. This powder formulation is found effective against Muscardine as well as it is equally effective against all common silkworm diseases such as Grasserie, Flacherie. Sericillin inactivates all types of pathogens of silkworm existing on the rearing bed and silkworm integument and thus prevent secondary contamination. Requirement of Sericillin / 100 dfls of rearing are 4 kgs (cost of 4 kg. is 120/-) ensures an economic gain of around 4 kg more cocoon yield with a Benefit Cost Ratio of 6.4:1.This technology is under process of patenting at NRDC New Delhi (Ref No. IRP/11082-L/2012 dated 18.05.2012). Several entrepreneurs are coming forward for having the licence for commercialization and large scale production of sericillin.

Progress made:

Total 150 kg Sericillin was distributed to the 24 farmers (protected) in Bhadrapur / Akalipur area of Birbhum district for Baisakhi Commercial crop, 2012. Average cocoon yield gain over control was 3.12 kg (13.82%) per 100 dfls using the Sericilin on 12300 dfls. In protected lots, less than 0.01% Muscardine was reported against control (20.20%).

11. Institute Village Linkage Programme – Phase III.

Duration: April, 2010 – March, 2013

Objectives:

- To identify the problems of the target group based on analyzing the existing farming situation of the given area
- To apply participatory methodologies for solving identified problems and thereby increasing productivity and profitability in a sustained manner.
- To impart training to the target group

DoS involved: West Bengal, Odisha, Chattisgarh, Jharkhand, Assam, Meghalaya, Manipur, Mizoram, Tripura, Nagaland and Sikkim

Progress made (2012-13):

***Irrigated zones (270 farmers under three units)**:*

Baisakhi (April-May'12) : During the season the leaf yield recorded was 8.98 mt/ha, registering a gain of 14.7 % over control (7.83 mt). A total of 33,800 Dfls of M x B hybrids were reared and the cocoon yield recorded was 45.38 kg/100 Dfls against the control yield of 41.55 kg (Gain : 9.2 %).

Shravani (June-July'12) : The mulberry leaf yield in this season was 7.08 mt/ha against the control yield of 6.64 mt, the enhancement being 6.6 %. A total of 2050 Dfls were reared of M x B hybrids and the cocoon yield was 37.82 kg/100 Dfls against 33.95 kg under control (Gain : 11.4 %). Moreover, 11000 Dfls of M x M hybrids were reared and the yield was 27.63 kg/100 Dfls against 24.80 kg, the increase being 11.4 %.

Bhaduri (August'12) : The mulberry leaf yield observed was 9.03 mt/ha with a gain of 15.6 % over control (7.81 mt). 9000 Dfls of M x M hybrids were reareddduring the season and the cocoon yield was 26.10 kg against 23.03 kg/100 Dfls under control (Gain : 13.3 %).

Aswina (September'12) : During the season the leaf yield was 8.03 mt/ha against 7.4 mt under control, the gain being 8.5 %. 4450 M x B hybrids were reared and the cocoon yield was 33.75 kg/100 Dfls against the control yield of 29.0 kg (Gain : 16.4 %). Moreover, 21000 Dfls of M x M hybrids were reared and 28.03 kg/100 Dfls was recorded against 26.48 kg under control, the gain being 6 %.

***Rainfed zones (750 farmers under 15 units)**:*

Spring (April-May'12) : During this season, the mulberry leaf yield recorded was 3.74 mt/ha against the control yield of 3.28 mt (Increase : 14.0 %).
A total of 8300 Dfls of M x M hybrids were reared and the cocoon yield was 24.16 kg against 21.82 kg/100 Dfls (10.7 %).
Also, 6225 Dfls of M x B were reared and the yield was 39.86 kg against 35.27 kg/100 Dfls (Gain : 13.0 %).

Moreover 9022 Dfls of B x B were reared and the yield was 44.33 kg/100 Dfls against 39.26 kg (Gain : 11.3 %).

Summer (July - Aug'12) : In this season, the leaf yield recorded was 5.02 mt against 4.55 mt/ha (Increase : 10.3 %).
A total of 3550 Dfls of M x M hybrids were reared and the cocoon yield was 23.85 kg against 22.07 kg/100 Dfls (8.0 %).
Also, 13097 Dfls of M x B were reared and the yield was 35.32 kg against 33.02 kg/100 Dfls (Gain : 7.0 %).
Moreover 7500 Dfls of B x B were reared and the yield was 43.80 kg/100 Dfls against 36.60 kg (Gain : 9.7 %).

Autumn (Sept'12) : During the period the leaf yield was 3.39 mt/ha against 3.47 mt under control, the gain being 7.7 %.
A total of 2500 Dfls of M x M hybrids were reared and the cocoon yield was 29.64 kg against 28.69 kg/100 Dfls (3.3 %).
Moreover 16103 Dfls of B x B were reared and the yield was 41.64 kg/100 Dfls against 37.76 kg (Gain : 10.3 %).

12. Monitoring of Cluster activities during XII Plan

Duration: April, 2012 onwards

Objective: To impart necessary technical assistance and training to improve the productivity among the 1511 beneficiaries

DoS involved: West Bengal & Mizoram

During XI five year plan, three cluster promotion programmes (mulberry pre-cocoon) have been implemented through Research Extension Centres under CSR&TI, Berhampore in three locations viz. Nabagram cluster (600 farmers) thro' REC, Nabagram and Kaliachak cluster (675 farmers) thro' REC, Mothabari, in West Bengal and Serchhip cluster (232 farmers) thro' REC, Aizawl in Mizoram in collaboration with DoT (Seri.), Govt. of West Bengal and DoS, Govt. of Mizoram. Based on the above, three separate projects have been prepared with the budget allocation of 322.22 lakh for Nabagram cluster, 314.47 lakh for Kaliachak cluster and 134.70 lakh for Serchhip cluster during XI plan period (2008-09 to 2011-12).

Regular monitoring is being done and necessary technical guidance is being provided by the Research Extension Canters (Kamnagar, Mothabari & Aizawl) in the cluster area by monitoring teams constituted involving DoS officials, lead farmers, representatives from Self Help Groups and NGOs.

13. Consultancy to DoS for Crisis Management

Crisis: In eastern parts of India, outbreaks of major pests and diseases viz., thrips, mealy bug, whitefly, Bihar hairy caterpillar, leaf spot, root rot, grasserie, flacherie and gattine are reported during crucial crop periods. During our regular survey and surveillance programmes farmers and extension functionaries are being advised about the control measures, which have to be adopted for the effective management of these pests. But, due to climatic vagaries and leaving the pests unnoticed are the cause for outbreaks of these pests. We provide immediate assistance by visiting the affected areas, and necessary recommendations whenever outbreaks are reported by DoT (S.) and NSSO units in West Bengal. **During April – September, 2012, 24 visits were made in Malda, Murshidabad, Birbhum and Nadia districts of West Bengal.**

Villages covered:

Panchgram, Alinagar, Balaspore, Budadanga, Qutubpur, Kriteswari, Banjetia (Murshidabad) (Murshidabad Dt.), Bandhkhala, Bhadrapur, Roypur, Tithidanga , Kalitha, Mokrampore, Kalyanpur, Kundupara, Rameswarpur Mustafadanga, Anantanagar, (Birbhum Dt.), Senpara, Harekrishnapur, Kuchaidanga, Pipulkhola, Kuchaidanga, Tokipur, and Banguria (Nadia) (Nadia Dt.), Mossimpore, Sujapore, Bangalgram, Alipur, Shersahi and Alinagar (Malda) .

Measures suggested:-

1) For prevention of disease incidence, thorough disinfection of rearing rooms and appliances, care in disposal of litter and destroy the diseased larvae immediately.
2) The faecal and litter of diseased larvae need to be piled in a manure pit for decomposition; maintenance of strict hygienic condition & proper environmental conditions

3) Infection of flacherie disease was observed during Baisakhi, 12 crop in Senpara and Harekrishnapur villages in Nadia distrct. The farmers were advised to reduce high humidity of the rearing rooms by letting in fresh air as the silkworms are in the final instar and regular dusting with labex (a silkworm bed disinfectant).

4) For the control of thrips and mealy bug (Tukra), farmers were advised to apply 0.1% dimethoate (safe period: 14 days) and 2% Pongamia oil (Safe period: 10 days). In the initial stages of infestation clipping of tukra infested shoots and subsequent burning is recommended to prevent the spread of symptoms.

5) For the control of Bihar hairy caterpillar control measures were suggested (collection of mulberry leaves with egg masses and early stages of bihar hairy caterpillars and burning them and application of 2% dimethoate with a safe period of 14 days).

6) For the control of whitefly, application of 0.1% dichlorvos was suggested with 14 days safe period.

7) For the control of Bacterial leaf spot, 0.01% plantomycin / pusamycin was recommended (1gm/ 1 liter of water) (safe period: 7 days).

8) For the control of root rot disease, 0.1% Diathane – M (10 grams /plant) should be applied around the affected plants after removing the soil to a depth of 15 cm. (or) Application of RAKSHA (a powder based formulation of *Trichoderma harzianum*) in the soil would be able to suppress the disease.

9) Sudden mortality of silkworms during Autumn P1 seed crop rearing was reported in a farmer's rearing house at Banjetia village, Murshidabad. Reasons found for the sudden mortality of silkworms during Autumn P1 seed crop rearing were that, the neighbouring farmers had applied chemical pesticides in the paddy and vegetable fields adjoining the mulberry fields. Due to drift of pesticide, mulberry leaves of the adjoining

fields got contaminated. The same leaves were fed to silkworms. As an immediate remedial measure, farmers were advised not to use the leaves of the same field for the ongoing rearing. Farmers were advised to be vigilant, about the pesticidal spray in the adjoining fields. Farmers were further advised to inform their neighbours regarding the silkworm rearing schedules, so as to avoid pesticidal spray during that particular period.

14. Integrated Skill Development Scheme

(A training initiative by Central Silk Board & Ministry of Textiles,

Govt. of India)

Duration: 2011 -2014

Objectives:

1. To address the trained manpower needs of Sericulture by developing a cohesive and integrated framework of training based on the needs for enhancing the competitiveness of the industry.
2. To increase the employability of residents of the target areas through imparting of skills in the above segments.
3. To cater the range of skill required and simultaneously ensuring sufficient flexibility to meet the needs over a period of the next five years.
4. To create a trainers pool by conducting the advance training programmes.
5. To ensure training in design development programmes which is critical for artisans to help them produce diversified products with innovative uses and improved quality to meet changing market trends.

Budget: 64.27 Lakhs

Training will be imparted to: 900 trainees

DoS involved: West Bengal, Odisha, Jharkhand, Chattisgarh, Assam, Meghalaya, Mizoram, Manipur, Tripura & Sikkim

Types of Training Components:

1. Reeling & Spinning
2. Extension Agent
3. Mulberry Cultivation
4. Silkworm Rearing
5. Silk Handicrafts

Mode of selection: Candidates are being sponsored by respective DoS and selected jointly by respective DoS and CSB units

Progress made: So far five batches of trainings were trained involving a total of 78 trainees.

1. First batch training was conducted on Silk Reeling & Spinning during 12-3-2012 to 26-3-2012.

2. Second batch training was conducted on Skill updation of Extension Agent during 14-5-2012 to 28-5-2012.

3. Third batch training was conducted on Cocoon handicrafts during 13.8.2012 to 27.8.2012.

4. Fourth batch training was conducted on Mulberry cultivation during 3.10.2012 to 17.10.2012.

5. Fifth batch training was conducted on Commercial Silkworm rearing during 19.11.2012 to 3.12.2012