

CSR&TI, BERHAMPORE, WEST BENGAL

HIGHLIGHTS OF CONCLUDED RESEARCH PROJECTS WITH REFERENCE TO ACHIEVEMENT OF THE OBJECTIVES, OUT PUT AND UTILITY DURING 2015-16 & UP TO THE CURRENT FINANCIAL YEAR.

#	Project Code, Title & period	Objectives	Out-put of the project	Utility of the out-put	Impact on Silk Industry
1	PIB 3424: Development of low temperature stress tolerant mulberry genotypes for sub-tropical plains (Jan., 09 – Dec., 15)	<ul style="list-style-type: none"> Development of low temperature stress tolerant mulberry genotype capable of providing higher leaf yield during Agrahayani (Nov.) and Falguni (Feb.) silkworm rearing seasons than the ruling variety, S-1635. 	<ul style="list-style-type: none"> Seven new genotypes were identified based on sprouting duration and electrical conductivity. Annual leaf yield/ plant (kg) in seven genotypes were C-45 (1.94 kg), C-108 (2.12 kg), C-212 (1.97 kg), C-225 (1.87 kg), C-232 (1.85 kg), C-371 (1.74 kg) and C-384 (2.51 kg) while 1.71 kg was in S 1635 (check). 	Further evaluation of selected seven new genotypes i.e., C-29, C-33, C-45, C-108, C-212, C-225 and C-384 under Final Yield Trial and Mulberry Variety Authorization trial.	High yielding and qualitatively superior mulberry variety for increasing mulberry & cocoon production thereby economic development to the farmers.
2	PPS 3452: Terrestrial Carbon sequestration for sustained high productivity of quality mulberry. (July.,11 to June, 15)	To enumerate the enhanced organic carbon stock of the soil due to the induction of altered farming practices in mulberry dim fit to carbon sequestration with comparison to existing one.	Among six farming practices, mulberry growing under moderate tillage with grass cover registered the highest leaf productivity of 38.72 ton ha ⁻¹ year ⁻¹ , the highest CSP of 6.90 ton ha ⁻¹ year ⁻¹ and the highest SOCS of 40.16 mg ha ⁻¹ against the existing farming practice (intensive tillage) leaf productivity 38.16 ton, CSP 6.53 ton and SOCS 35.25 mg ha ⁻¹ , respectively.	A program entitled “ Testing of carbon capturing efficiency of mulberry in different locations ” has already been initiated at RSRSS level.	To increase mulberry leaf productivity, Soil Organic Carbon Stock (SOCS) and Carbon Sequestration Potential (CSP).

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3	<p>APS 3497: Studies on the environmental effect on P1 rearing, its' grainage performance followed by commercial rearing of Silkworm <i>Bombyx mori</i> L., during unfavourable seasons of West Bengal.</p> <p>(May, 13 to Apr., 15).</p>	<p>Determination of the effect of environmental factors on P1 seed crop rearing during adverse crop seasons at farmers' level and its subsequent effects on commercial grainage performance and finally on commercial rearing at farmers' level.</p>	<p>Environmental factors such as, temperature and relative humidity influence on silkworm seed crop rearing, reproductive potential and on subsequent commercial grainage performance.</p>	<p>Solving the grainage problems and to overcome the stress during unfavourable crop seasons in West Bengal</p>	<p>Information would be useful in increasing silkworm layings production.</p>
4	<p>AIB 3496: Development of high temperature and high humidity tolerant bivoltine breeds of silkworm (<i>Bombyx mori</i> L.).</p> <p>(Jul., 12 to Jun., 15)</p>	<ul style="list-style-type: none"> • Determination of LD50 in silkworm • To develop a method of induction for thermal stress in silkworm. • Development of high temperature and high humidity tolerant breed. 	<p>Screening of silkworm breeds under high temperature ($35\pm 1^{\circ}\text{C}$) and high humidity ($85\pm 5\%$) conditions, 10 breeds were short listed as breeding resource materials based on overall performance with special emphasis on pupation rate. Based on overall performance at farmers' field, M6DPC x (SK6 x SK7) (Multi x Bi. hybrid) in West Bengal and Jharkand states and bivoltine hybrid, B.Con.1 x B.Con.4 in West Bengal, Jharkand and North Eastern states was recommended to rear during favourable seasons (Agrahayani, Falguni and Baishaki).</p>	<p>Selected 10 breeds with higher pupation at high temperature and high humidity conditions, will be utilised for further breeding work.</p>	<p>Hardy Multi x bivoltine and bivoltine x bivoltine hybrids for increasing cocoon and silk production.</p>

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5	<p>AIB 3531: Authorization trials of silkworm hybrids in Eastern and North Eastern India.</p> <p>(Aug., 14 to July, 15)</p>	<ul style="list-style-type: none"> To evaluate the newly developed, Multi x Bi and Bi x Bi hybrids at the farmers level in Eastern & North Eastern Zone To popularize the newly developed hybrids at the farmers level in Eastern & North Eastern Zone To analyze the data of the tested hybrids in Eastern & North Eastern Zone. To identify the suitable hybrids for the Eastern & North Eastern Zone. Recommendation of the hybrids for the Eastern and North Eastern zone for commercial exploitation. 	<ul style="list-style-type: none"> Multi x Bi hybrid [M6DPC x (SK6 x SK7)] performed cocoon yield 50.4 kg against 46.9 kg/ 100 dfls of Nistari x (SK6 x SK7). Bivoltine foundation cross B.Con.1 x B.Con.4 performed cocoon yield 51.6kg against 47.6 kg/100 dfls of (SK6 x SK7) during Agrahayani/Autumn, Falguni/ Spring and Biashaki crop seasons. 	<p>New hybrids will be authorized for commercialization in Eastern and North Eastern India.</p>	<p>Region-wise selection of hardy Multi x bivoltine and bivoltine x bivoltine hybrids for increasing cocoon and silk production.</p>
6	<p>PRE 3508: Studies on standardization of mass multiplication and field efficacy of <i>Scymnus pallidicollis</i> (Mulsant) for eco-friendly management of Tukra.</p> <p>(Apr., 14 to Mar., 16)</p>	<ul style="list-style-type: none"> To study the intrinsic rate of increase of the native predator in ambient conditions (as suggested by referees while evaluating the project). To standardize the mass multiplication technique of the native predator. To determine the optimum number of native predators that are required to be released per unit area. 	<ul style="list-style-type: none"> Life cycle of the predator <i>Scymnus pallidicollis</i> (Mulsant) under ambient conditions is 23-25 days. Recorded Multiplication rate of the pest (<i>M. hirsutus</i>) and its predator (<i>Scymnus pallidicollis</i>) was under laboratory conditions. Released predators at field level 	<p>Mass multiplication of predator, <i>Scymnus pallidicollis</i> (Mulsant) and evaluate predatory efficiency of <i>Scymnus pallidicollis</i> (Mulsant) will be popularized against mealy bug (<i>M. hirsutus</i>) for effective control of mealy bug.</p>	<p>To suppress mulberry pests and saving of crop loss.</p>

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7.	<p>PRE 3511: Studies on predatory efficacy of coccinellid predator, <i>Scymnus posticalis</i> Sicard for management of white fly on mulberry.</p> <p>(Apr., 14 to Mar., 16)</p>	<ul style="list-style-type: none"> • To evolve standardization of mass multiplication technique of the predator, <i>scymnus posticalis</i> sicard. • To evaluate predatory efficiency of <i>scymnus posticalis</i> sicard against whitefly, <i>dialeuropora decempuncta</i> on mulberry 	<ul style="list-style-type: none"> • Mass culture of mealy bug was done on potato sprouts and pumpkin. After release of 100, 200 & 300 mealy bug egg masses on pumpkins within a period of 30 days., it was multiplied 8565, 12438 & 15647 in numbers • Life cycle of the predator completed within 23-31 days. • Biological attributes of the predator on mealy bug revealed prolong life span and it could not be multiplied in large scale. 	<p>Standardization of mass multiplication technique for the predator, <i>scymnus posticalis</i> sicard and its predatory efficiency against whitefly, <i>Dialeuropora decempuncta</i> on mulberry will be helpful in IPM system.</p>	<p>To suppress mulberry pests and saving of crop loss.</p>