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Half Yearly R&D News Bulletin of CSR&TI, Berhampore

Dec.,13 to June,14

DIRECTOR'S MESSAGE

I am happy to place on record that researchers of CSR&TI, Berhampore have made considerable achievements in developing need based technologies. The Brown leaf rust, one of the major foliar diseases of mulberry in the Kalimpong hills during Autumn crop (August- September), caused by *Peridiopsisora mori*, can be successfully managed by pruning of mulberry plants at crown level during 2nd week of June which will not only increase the quality leaf productivity but will also ensure good quality seed cocoon production during autumn crop. For the first time in mulberry, *Scymnus pallidicollis* (Mulsant) reported as native predator of pink mealy bug [*Maconellicoccus hirsutus* (Green)].

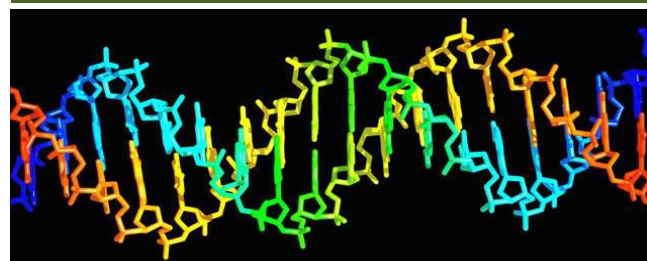
Scientist of this Institute has developed a synthetic yield-weather model. Simultaneously, a broad spectrum cost - effective, less hazardous and user friendly fumigant room disinfectant (Dibromo-dimethyle hydantoin and Para-Dichloro-Benzene based) 'Ghor Sodhon' have also been formulated for disease management in silkworm crops. The research findings also revealed that foliar application of Benzyl adenine purine along with Potassium chloride increased mulberry leaf yield upto 28% under cold stress condition.

The micronutrient Zn has been diagnosed critical for West Bengal plains, Orissa, Jharkhand and North-Eastern states. Mn has been diagnosed critical for West Bengal hills. Cu in addition to Zn has also been diagnosed critical for North-Eastern states and accordingly recommendations of spray schedule for zone-specific critical micronutrient have been derived. Scientists of this Institute have identified amylase marker which could be used to differentiate non-diapausing silkworm breeds from diapausing one. As amylase is the most important digestive enzyme, breeds with amylase introgressed can be identified with this marker. In addition, under Bivoltine Production Programme, fifteen clusters are functioning in Eastern and North Eastern zones.

Director

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Sex-Chromosome Degeneration: A Future without female silkworms !!!



The sex chromosome constitution in female silkworms can be largely compared with that of males in human beings. In both, the chromosomes are heterozygous. It is ZW in female silkworms and XY in human males. W chromosome determines femaleness in silkworms where as Y chromosome determines maleness in humans. The Y chromosome, once rich in genes, now has about 78 genes, compared with about 1100 genes in the female X chromosome. Some mammals, including mole voles and spiny rats, have lost their Ys already, and sex-determining genes have emerged on other chromosomes. The destiny of Y chromosome is not known. Whether the male sex determining gene will be emerged on other chromosome after its decay or not. If not emerges, there will not be human males in future. It is the fate of not only human beings, but all organisms with heterozygous sex-chromosome constitutions. In grasshoppers, the Y chromosome has already degraded. But the female sex-determining has been transferred to the X chromosome.

In silkworms the Z chromosome are very rich in genes containing as many as 800 genes whereas its counter part, the female W chromosome, once rich in genes, has already lost all genes except the Female determining gene, the *Fem* and it is getting degraded. Hence it is expected that during the course of evolution, the W chromosome may loss this gene also. If it is carried to another chromosome like in the other mammals and grass hopper, there is a relief. Otherwise the Fem gene also is likely to be vanished along with the W chromosome there by resulting in the extinction of silkworms as a whole from the planet.

Source: S. Sreekumar *et al.*, (2012), *J. Sericulture & Technology*, 3(1&2): 16-27.

संस्थान में आयोजित हिन्दी दिवस/पखवाड़ा, 2013

केन्द्रीय रेशम उत्पादन अनुसंधान एवं प्रशिक्षण संस्थान, बहरमपुर (प.बं.) में प्रत्येक वर्ष की भांति इस वर्ष भी दिनांक 02-09-2013 से 16-09-2013 तक हिन्दी दिवस/पखवाड़ा, 2013 का भव्य आयोजन किया गया। इस अवसर पर संस्थान के अधिकारियों/ कर्मचारियों को राजभाषा हिन्दी के प्रति प्रेरित व प्रोत्साहित करने तथा राजभाषा प्रावधानों के सम्यक कार्यान्वयन व अनुपालन में और भी गति लाने की दृष्टि से संस्थान में दिनांक 02-09-2013 से प्रारंभ कर 10-09-2013 तक विविध प्रतियोगिताओं यथा टिप्पण व आलेखन, शब्दावली, निबंध, वाद-विवाद, सुलेख व श्रुतिलेख, राजभाषा प्रश्नोत्तरी (क्वीज), अंत्याक्षरी तथा तात्क्षणिक भाषण का सफल आयोजन किया गया। हिन्दी दिवस / पखवाड़ा, 2013 के मुख्य समारोह का भव्य आयोजन दिनांक 16-09-2013 को संस्थान के प्रेक्षागृह में किया गया। इस समारोह की अध्यक्षता संस्थान के निदेशक महोदय डॉ. एस. निर्मल कुमार द्वारा किया गया। समारोह के दौरान मुख्य अतिथि के रूप में श्री आर. सी. ध्यानी, डीआईजी, सीमा सुरक्षा बल, मुर्शिदाबाद, श्री राजगुरु सिंह, प्राचार्य, केन्द्रीय विद्यालय, बहरमपुर, श्री निरंजन पुष्टि, मुख्य प्रबंधक, स्टेट बैंक ऑफ इंडिया, बहरमपुर तथा जवाहर नवोदय विद्यालय, मुर्शिदाबाद के प्राचार्य श्री हाजी मोहम्मद ए. अली महोदय क्रमशः विशिष्ट व मानद अतिथि के तौर पर इस समारोह में विराजमान थे।

इस अवसर पर माननीय श्री आर. सी. ध्यानी, डीआईजी, मुख्य अतिथि द्वारा अपने अभिभाषण में यह उद्गार व्यक्त किया कि हिन्दी ही एकमात्र ऐसी भाषा है जो पूरे राष्ट्र की अखंडता को एकसूत्र में बांध रखने की क्षमता रखती है। उन्होंने यह भी कहा कि यह देख व जानकर अत्यंत हर्ष हो रहा है कि संस्थान के अधिकारी/पदधारी अपने अनुसंधानात्मक गतिविधियों के साथ-साथ हिन्दी के प्रति निष्ठावान और अपना अधिकांश सरकारी कामकाज हिन्दी में निष्पादित कर राजभाषा हिन्दी के सम्यक कार्यान्वयन व तत्संबंधी संवैधानिक अपेक्षाओं की दिशा में सतत प्रयत्नशील व सचेष्ट है।

तत्पश्चात, संस्थान के निदेशक माननीय डॉ. एस. निर्मल कुमार महोदय ने अपने अध्यक्षीय भाषण में कहा कि संविधान में हिन्दी को पूर्ण रूप से राजभाषा का दर्जा प्रदान किया गया है और इस प्रकार हमारा राष्ट्रीय जिम्मेवारी बनता है कि हम सहिष्णुता के भाव से इसे और भी मजबूत बनाएं तथा प्रशासनिक क्षेत्रों के साथ-साथ तकनीकी और शोध के क्षेत्र में भी राजभाषा हिन्दी को उचित स्थान व मर्यादा प्रदान कर अपने कर्तव्य का निर्वहन करें तथा राजभाषा नीति के सम्यक अनुपालन व प्रचार-प्रसार के लिए कटिबद्ध व सतत प्रयत्नशील रहें।



हिन्दी कार्यशाला

केन्द्रीय रेशम उत्पादन अनुसंधान एवं प्रशिक्षण संस्थान, बहरमपुर में राजभाषा नीति के सम्यक अनुपालन और इसके प्रावधानों के पूर्णरूपेण कार्यान्वयन के क्षेत्र में और भी गति लाने तथा अधिकारियों/ पदधारियों में राजभाषा हिन्दी के प्रति रुझान पैदा करने की दृष्टि से दिनांक 19/20.11.2013 को "कंप्यूटर पर हिन्दी का व्यवहारिक प्रशिक्षण" विषयक एक दो दिवसीय प्रशिक्षण सह-कार्यशाला का आयोजन किया गया। इस प्रशिक्षण कार्यक्रम के अंतर्गत राजभाषा विभाग, भारत सरकार द्वारा राजभाषा नीति व इसके उपबंधों के सफल व सम्यक कार्यान्वयन और प्रचार-प्रसार के उपयोगार्थ विकसित विविध टूल्स यथा ई-महाशब्दकोष, मशीन अनुवाद, यूनिकोड टाइपिंग पैकेज आदि की विस्तृत जानकारी तथा इसके अनुप्रयोग व प्रचालन विधि पर संस्थान के विभिन्न संवर्गों के कुल 17 पदधारीगण प्रशिक्षित किए गए।

कार्यक्रम के उदघाटन समारोह के दौरान उपस्थित संस्थान के निदेशक प्रभारी व वैज्ञानिक-ई, श्री एम. के. मजुमदार ने प्रतिभागियों को संबोधित करते हुए यह विचार व्यक्त किया कि आज का युग सूचना क्रांति एवं प्रौद्योगिकी का युग है।

तदुपरांत, संस्थान के सहायक निदेशक (राभा) द्वारा कंप्यूटर पर यूनिकोड पैकेज के माध्यम से हिन्दी टंकण की सरल एवं सुगम पद्धति से प्रशिक्षण कार्यक्रम में उपस्थित पदधारियों को विस्तृत जानकारी दी गई। इसके अलावा, प्रशिक्षार्थियों को फोनेटिक माध्यम से टंकण कार्य हेतु विकसित पाठ्य सामग्री भी उपलब्ध कराया गया। इस दौरान राजभाषा मंत्र अनुवाद पैकेज की जानकारी तथा इस प्रयोजन हेतु उपलब्ध अन्यान्य सॉफ्टवेयर पर भी प्रशिक्षार्थियों को प्रशिक्षित कराने के साथ-साथ इस पर व्यावहारिक प्रशिक्षण प्रदान किया गया।

कार्यक्रम के दूसरे दिन राजभाषा प्रावधानों व नियमों की जानकारी तथा ऑनलाइन हिन्दी शिक्षण से संबंधित पैकेज की जानकारी के अलावे इन विषयों पर एक जाँच परीक्षा आयोजित की गई। व्यावहारिक प्रशिक्षण व जाँच परीक्षा के दौरान हिन्दी तथा कंप्यूटर अनुभाग के पदधारियों द्वारा भी टंकण आदि की प्रक्रिया में प्रशिक्षार्थियों को सहयोग व सम्मुखीन समस्याओं को हल करने में सक्रिय सहयोग प्रदान किया गया।

कार्यशाला के समापन समारोह के दौरान संस्थान के निदेशक महोदय, डॉ. एस. निर्मल कुमार द्वारा अपने अध्यक्षीय अभिभाषण के दौरान "कंप्यूटर पर हिन्दी के व्यवहारिक प्रशिक्षण" की उपयोगिता के बारे में अपना विचार व्यक्त करते हुए कहा कि हम अन्यान्य क्षेत्रों की भाँति राजभाषा के क्षेत्र में भी इस अधनातुन तकनीकों और सुविधाओं का उपयोग एवं व्यवहार कर राजभाषा हिन्दी के कार्यान्वयन की दिशा में एक नए आयाम की सृष्टि कर सकते हैं।

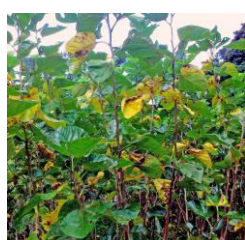


IMPACT OF BROWN LEAF RUST ON BIVOLTINE SEED COCOON PRODUCTION IN KALIMPONG HILLS

Brown leaf rust caused by *Peridiopsisora mori* is one of the major foliar diseases of mulberry in Kalimpong hills during Autumn crop (August- September). The disease appears during 2nd week of August and continues upto November. About 40-50% leaf area is damaged due to the disease and infected leaf become unsuitable for feeding of silkworm larvae. Besides, the disease also induces early defoliation of mulberry leaves; as a result farmers of Kalimpong hills face great difficulty to provide quality leaves to silkworm during autumn seed crop rearing. Impact of brown leaf rust infected leaves on silkworm seed crop rearing conducted during autumn season with SK breeds at RSRS, Kalimpong revealed that feeding of rust infected leaves decreased larval wt. to the tune of 3.1 to 3.9%; ERR by number and weight, 7.4 to 22.1% and 8.1 to 23.09% respectively, single cocoon wt. 0.76 to 1.27%, single shell wt. 3.4 % and shell ratio 2.2 to 2.6%. The autumn crop at Kalimpong hills and Sikkim state being one of the important sources of silkworm seed cocoons for preparation of layings for plains of West Bengal and other states in Eastern and North-Eastern regions, mulberry cultivation practices has been developed. Pruning of mulberry plants at a crown height during 2nd week of June has been found increasing quality leaf productivity and harvest of good quality seed cocoon during autumn crop.



Healthy mulberry leaves (Pruned during 2nd week of June)



Rust infected mulberry leaves (Pruned during 2nd week of Dec.)

INSTITUTIONAL BIOSAFETY COMMITTEE MEET



The Institutional Bio-safety Committee (IBSC) of the Institute organized its 2nd meeting at the Institute on 14/03/2014. Dr. S. Nirmal Kumar, Director & Chairman,

IBSC, CSR&TI, Berhampore informed that containment facilities are being made available at the Institute and testing of transgenic silkworms will be taken up in two phases. First phase will be taken up at the Institute and second at the farmer's field. Dr. P. J. Raju, Director, Andhra Pradesh State Sericulture Research & Development Institute, Hindupur narrated the plan of action for transgenic silkworm at the CSR&TIs of Central Silk Board and informed that the standard operating procedures (SOPs) have already been made for transgenic silkworm rearing and will be given to the testing Institutes. Dr. V. Sathyavathi, Scientist, CCMB, Hyderabad presented the genesis and achievements made on the development of BmNPV resistant transgenic Nistari to commercial CSR2 transgenic lines. Dr. Rupak Kumar Bhadra, Member, IBSC, suggested on preparedness for containment facilities at the Institute for transgenic silkworm testing. Dr. R.K.Sanyal, Member, IBSC, explained the biosafety measures required to be taken care. The action plan has been finalized for testing of transgenic "*Nistari x (SK6 x SK7)*" silkworm hybrids.

A MEGA EXTENSION EVENT : RESHAM KRISHI MELA ORGANIZED

Resham Krishi Mela (RKM) was organized by CSR&TI, Berhampore on 21/01/2014 at Municipal Ground, Rampurhat, Birbhum, West Bengal. Shri A. Banerjee, Parliamentary Secretary, Govt. of West Bengal was the Chief Guest of the event. Shri R. Roy, SDO, Rampurhat graced the occasions as representing the District Magistrate. Shri A. K. Saha, Vice-Chairman, Rampurhat Municipality, Dr. K. Mandal, Scientist-D, ZSSO Malda, Dr. S.N. Kole, DD, DoT(Seri) Birbhum, Mr. S. Das, DD, DoT(Seri) Malda and Mrs. Kaveri Mitra, AD, DoT(Seri) Rampurhat, West Bengal along with other dignitaries were present in the Mela. Dr. S. Nirmal Kumar, Director, CSR&TI, Berhampore welcomed all the dignitaries and informed the objective of the RKM, the extension mega event for development of Sericulture in the zone. Highlighting the progress achieved in sericulture as well as live demonstration on reeling, an exhibition was displayed for the sericulture farmers for "*Seeing is believing*" approach. An *Impact Assessment of the Resham Krishi Mela* was done for the first time through intricate discussion with the farmers and filling up of structured questionnaire. Information generated was analyzed to schematize future course of action, for extension of sericulture in a major scientific way. A total of 1006 sericulture farmers/ stakeholders from West Bengal and Jharkhand states participated in this Mela and made the program a grand success.



- ❖ **RSRS, Kalimpong:** At Rabindra Bhanu Mancha, North Bengal University Campus, Siliguri, Darjeeling, a Resham Krishi Mela was organized on 24/01/2014. The aim of the mela was to disseminate new technologies to the sericulture farmers of Darjeeling hills and Terai region, West Bengal and Sikkim state. A total of 132 farmers participated in the mela.



- ❖ **RSRS, Ranchi:** On 20/12/2013, a Resham Krishi Mela was organized at CTR&TI campus, Nagri, Jharkhand. A total of 713 farmers/ stakeholders were educated on mulberry sericulture in the mela which was the first time in Jharkhand district where such a huge gathering was noticed. Ram Krishna mission, at Ranchi attended the mela and put their inputs for development of sericulture in the state.
- ❖ **RSRS, Jorhat:** A Resham Krishi Mela was organized on 28th March, 2014 at its own campus of RSRS. About 210 mulberry sericulture farmers from Jorhat, Golaghat and Sivasagar district of Assam participated in the mela.



HUMAN RESOURCE DEVELOPMENT

WOMEN EMPOWERMENT:

SPINNING TRAINING UNDER NATURAL FIBRE MISSION (BRGF)

CSR&TI, Berhampore has organized a residential training prog. under the sponsorship of DoT(Seri), Murshidabad, to impart training to 100 women of Murshidabad district in 6 batches on spinning for 15 days. The training prog. was aimed at upgrading the operational skill of the Matka spinners of Murshidabad district in motorized spinning machine, improve the quality of yarn, production efficiency and income enhancement of the women spinners. Training was practical oriented on the operation of the motorized machines. At the end of each batch an evaluation was done to assess the improvement of the trainees under this programme and results were overwhelming. During the programme spinners were shown the difference in soaking the cocoons with different media and also the cost-effectiveness of the procedures:

#	Soaking media	Qty. reqd. / kg cocoon	Rate (Rs.)	Amount (Rs.)	Comments
1	Besan	1 kg	40/ kg	40.00	Traditional practice. Cause bad smell, irritation and scars appear in hand. Unhygienic.
2	Baking powder	30 g	200/ kg	6.00	Improved technique. No bad smell. No scar in hand. Hygienic.
3	Soap with Baking powder	1 soap & 30 g	24/ soap & 200/ kg	30.00	More hygienic

The DoT (Seri), Murshidabad informed that spinning machine will be provided to the Gosthi who will continue new practices. It was suggested that the Takli spinners should also use baking powder instead of Besan to improve the quality of yarn and for monetary benefit until machines are provided. It was also suggested to purchase quality pierced/ cut cocoons to get a good return.

INTEGRATED SERICULTURE DEVELOPMENT SCHEME (ISDS)

The ISDS programme has been envisaged to train youth/ women in the fields of mulberry cultivation, commercial silkworm rearing, cocoon handicrafts, cocoon reeling and spinning skill updating of extension agents. The trainees were identified and selected from an exhaustive list prepared course wise in coordination with the DoS. Eligibility criteria for selection of trainees were educational qualification, age, category etc. The programme was conducted at free of cost and all the selected persons were provided free boarding and lodging for a period was 15 days.

The trainees expressed their happiness as they were able to spin 200 g of yarn in motorized machine per day as compared to 50 g per day with their traditional practice. The spinners used to get Rs. 20-25 for 50 g yarn produced as per their traditional practice. They expect that adoption of improved technologies will facilitate to earn better income and thereby will strengthen their socio-economic status.

The spinners also expressed their satisfaction for the management and facilities provided by the Training Division.

Details of ISDS courses conducted during 2013-14

Sl. No.	Name of the course	Duration (Days)	Persons trained
1.	Skill updating of Extension Agents	15	60
2.	Cocoon handicraft	15	40
3.	Mulberry cultivation	15	104
4.	Commercial Silkworm rearing	15	127
5.	Cocoon reeling & spinning	15	60
Total:		-	391



Spinners are engaged in spinning



Experts are teaching the spinners

R&D REVIEW MEETING CONDUCTED

- 38th & 39th Research Advisory Committee (RAC) Meeting held on 12th - 13th Aug., 2013 & 6th -7th March, 2014.
- 39th & 40th Research Council (RC) Meeting held on 30th Sept., and 1st Oct., 2013 & 6th -7th May, 2014.

Articles for News & Views

Director, CSR&TI, Berhampore determined to publish this half yearly news bulletin regularly on promising research findings, ToT, Field Trials, and Sub-RECs of Eastern and North-Eastern states are requested to send their articles in favour of Director, CSR&TI, Berhampore(WB) for the said publication. Communication may also be made by email: csrtiber.csb@nic.in or csrtiber@gmail.com



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