वार्षिक प्रतिवेदन
Annual Report
2019-20

केंद्रीय रेशम उत्पादन अनुसंधान एवं प्रशिक्षण संस्थान

[illegible]

Central Sericultural Research & Training Institute (CSRTI)

[illegible]

CSRTI Hyosung Organizational set-up

सं./No. 56

वार्षिक प्रतिवेदन

ANNUAL REPORT

2019-20

केंद्रीय रेशम उत्पादन अनुसंधान एवं प्रशिक्षण संस्थान
Central Sericultural Research and Training Institute
केंद्रीय रेशम बोर्ड, वस्त्र मंत्रालय, भारत सरकार, मैसूरु – 570 008
Central Silk Board, Ministry of Textiles, Government of India, Mysuru – 570 008

प्रकाशक
डॉ. पंकज तिवारी
निदेशक
सीआईआईएल, मैसूरु

Published by
Dr. Pankaj Tiwary
Director
CIIL, Mysuru

संपादकीय समिति
डॉ. पंकज तिवारी
डॉ. विनोद कुमार
डॉ. एन. बालसुब्रमण्यन
डॉ. एल. रामामूर्ति
डॉ. अशोक कुमार डी.एस.

Editorial Committee
Dr. Pankaj Tiwary
Dr. Vinod Kumar
Dr. N. Balasubramanian
Dr. L. Ramamoorthy
Dr. Ashok Kumar D.S.

सहायता
श्री एच.एम. मल्लिकार्जुनप्पा
सुश्री एम. पद्मा
श्री सी. प्रकाश

Assistance
Mr. H. M. Mallikarjunappa
Mrs. M. Padma
Sri C. Prakash

हिन्दी अनुवाद
श्री सी.के. उपाध्याय
सुश्री के. दीक्षित
श्री जनार्दन तिवारी

Hindi Translation
Sri C. K. Upadhyay
Ms. [illegible]
Sri Janardan Tiwari

पुस्तक एवं आवरण सज्जा
श्री जे. जूड कुमार

Book & Cover Design
Mr. J. Jude Kumar

मुद्रक
मेसर्स पुष्पा ऑफसेट प्रिंटर्स,
विद्यारण्यपुरम,
मैसूरु-570 008

Printed by
M/s Pushpa Offset Printers
Vidyaranyapuram,
Mysuru 570 008

प्रतियाँ : 100
© भा.भा.सं., मैसूरु
अगस्त, 2020

No. of Copies: 100
© CIIL, Mysuru
August, 2020

CONTENT

प्रस्तावना

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

HIGHLIGHTS

(ICRI) Mysuru, is the premier research and development institute of farm chars in Southern parts of India. The institute continued its roles to the needs of agriculture farmers of the southern zone comprising Karnataka, Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Andaman Islands and Kavaratti Islands by enriching them with the best and latest in technologies for improving the productivity and quality of horticultural products.

To address to the climate change, eight domain resistant mulberry accessions were identified viz., MR-0127, MR-0163, MR-0183, MR-0171, MR-0184, MR-0122, MR-0123 and MR-0170 with high water and moisture use efficiency. Eight resistant germplasm accessions (MR-0, Kanvapalli-1, MR-84, Kanakambaram (P-1), Nagaraja-1 Local, Tippu Cultivar-1, Thai Purple, MR-0) were identified against root knot disease caused by Meloidogyne incognita from 43 accessions. Identified two genotypes highly tolerant to alkalinity stress (pH-9) viz., Selection (MR-0170), Kharia Jayagir-1 (MR-0183). Two genotypes (MR-0183, MR-0184) which could be utilized for future breeding programmes. Four selections (willing for resistance and alkalinity stress tolerance in mulberry were developed based on validation (TF-MR-1.0) by farmers in varying conditions.

Project work on mulberry variety G-4 has been filed and is hosted by PPV&FRA under DUS project. We have also completed trials (multilocation) on mulberry germplasm collected from Kerala and North Eastern zone. 1000 soil samples from different states were analyzed and provided the site specific nutrition recommendations to the cultivators/farmers. We established 400 farmer's details & documented and maintained for future research, mapping, clustering by the experts. Quality analysis of 100 samples/genotypes received from ICRI, farmers, different organizations/units were got done. Anti-fit, a product developed for control of root rot disease of mulberry has been explored and among the antifungal formulations of combination studies.

A total of 1000 double hybrid (DH) silkworm breeds were developed utilizing Multivoltine and Indian silkworm germplasm resources and has showed shell/cocoon ratio of 21.0, filament length of 1,000 meters and renditta of 5.5. We have evaluated 50 x 150 (5 x 5 bivoltine single hybrid cross) (CSR-2/CSR) under authorized silkworm rearing and recorded an average cocoon yield of 60 kg/100 dfls and shell ratio of 22%. The 8 x 8 (MY1 x MY2) Cocoons (MSR) was evaluated under authorized silkworm rearing and recorded an average cocoon yield of 58 - 60 kg/100 dfls and fibre quality parameters. The improved parental (PM) breeds considered as MSR silkworm breeds (8 x 8) were also evaluated

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

फेरे के बाद का घर, सेमुहा के खर्रों में

सेमुहा विकास न्यायालय अनुविभाग की प्रशासनिक संरचना, जिसमें सेमुहा विकास खंड, तहसील मुख्यालय, न्यायालय परिसर और ग्रामीण प्रशासनिक केंद्रों के पारस्परिक संबंध शामिल हैं, सामान्य प्रशासन की दृष्टि से अत्यंत महत्वपूर्ण मानी जाती है। यह संरचना केवल कार्यालयों की सूची नहीं है, बल्कि यह दर्शाती है कि किस प्रकार विभिन्न स्तरों पर निर्णय लिए जाते हैं, आदेश प्रसारित होते हैं और जनता की शिकायतों का समाधान किया जाता है। सेमुहा विकास न्यायालय अनुविभाग का प्रशासनिक ढाँचा इस प्रकार विकसित किया गया है कि ग्रामीण क्षेत्रों में कार्यरत अधिकारियों को समय पर मार्गदर्शन और पर्यवेक्षण उपलब्ध कराया जा सके। इस संरचना में विकास खंड स्तर पर कार्यरत अधिकारियों को तहसील मुख्यालय और अनुविभाग से जोड़ने वाली एक स्पष्ट श्रृंखला बनाई गई है, जिससे सूचना का प्रवाह तेज़ और अपेक्षाकृत विश्वसनीय बना रहता है।

सेमुहा तहसील न्यायालय अनुविभाग की प्रशासनिक संरचना मुख्यतः तहसीलदार, उपतहसीलदार, राजस्व निरीक्षक, कानूनगो और ग्राम स्तर पर कार्यरत पटवारियों के इर्द-गिर्द संगठित है। इस संरचना में प्रत्येक पद की जिम्मेदारी स्पष्ट रूप से निर्धारित की गई है, ताकि एक ही कार्य के लिए कई अधिकारियों के बीच भ्रम की स्थिति उत्पन्न न हो। उदाहरण के लिए, भूमि विवाल, सीमांकन, नामांतरण, आय प्रमाण-पत्र, जाति प्रमाण-पत्र, निवास प्रमाण-पत्र, फसल क्षति आकलन और आपदा राहत जैसे कार्यों के लिए अलग-अलग स्तरों पर जिम्मेदारी तय की गई है। इस व्यवस्था के कारण नागरिकों को यह पता रहता है कि उन्हें किस अधिकारी से संपर्क करना है और किस कार्य के लिए किस कार्यालय में जाना है। इससे न केवल समय की बचत होती है, बल्कि अनावश्यक चक्कर लगाने की समस्या भी काफी हद तक कम हो जाती है।

तालिका	विकास खंड न्यायालय में उपयुक्त प्रशासनिक केंद्रों के बाद की परिचालनात्मक प्रवृत्ति
संकेत प्रशासनिक केंद्रों के बाद न्यायालय संबंधी कार्यों में वृद्धि, अनुविभाग में अपीलीय मामलों का बढ़ना, और ग्रामीण क्षेत्रों में शिकायत निवारण की माँग	संकेत • न्यायालय की दैनिक कार्यसूची में प्रशासनिक केंद्रों से जुड़े मामलों का हिस्सा • उपखंड और प्रशासनिक केंद्रों का पारस्परिक संबंध • अपीलीय मामलों का रुझान • प्रशासनिक केंद्रों के न्यायालय से अपेक्षित स्तर से अनुपालन में अंतर न्यायालय सहायक • अधिवक्ता • अनुपालन अधिकारी का पद जिसे जुड़े मामलों के प्रति सजग रखना • न्यायालय प्रशासन का अनुपालन • केंद्र पुनर्संतुलन पर पुनर्विचार

प्रशासनिक संरचना का विश्लेषण

सेमुहा विकास न्यायालय अनुविभाग का प्रशासनिक न्यायालय, जैसा कि ऊपर के विकास न्यायालय अनुविभाग विश्लेषण में उल्लेख किया गया है, एक व्यवस्थित श्रेणीबद्धता का पालन करता है। जिसमें सबसे ऊपर उपखंड अधिकारी (एसडीएम) का कार्यालय है, जिसके नीचे तहसीलदार, नायब तहसीलदार, कानूनगो, राजस्व निरीक्षक और अंत में ग्राम स्तर पर कार्यरत पटवारी होते हैं। अनुविभाग न्यायालय में नियमित अनुविभाग की दिशा में यह पहल है। विशेष प्रशिक्षण सत्र जारी किया गया है जो विभिन्न न्यायालयों में व्यवस्थित न्यायालयों की संख्या का भी उल्लेख करना है। न्यायालय, अनुविभाग न्यायालय का मुख्यालय और विभाग, न्यायालय और उसके अधिकारी के अनुविभाग के विभाग, अनुविभाग न्यायालय की अधिकारी को भी न्यायालय के

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

ABOUT CSRTI-MYSURU

The Central Sericultural Research & Training Institute (CSRTI), Mysuru was established under the aegis of Central Silk Board, Ministry of Textiles, Govt. of India. The Institute started functioning at Hesaraghatta in the year 1951 after taking over the farm and training facilities of erstwhile Mysore government and later shifted to Mysuru in the year 1962. With the inclusion of training components, the Institute was renamed as 'Central Sericultural Research & Training Institute (CSRTI), Mysuru' in the year 1966. The Institute has completed more than 60 years of dedicated service for the development of sericultural industry in the country.

The Institute has the distinction of being governed by Institute Research Council (IRC) and Institute Management Committee (IMC) which are chaired by Director, Central Silk Board, Bengaluru and Director, CSRTI, Mysuru respectively. The Institute has the distinction of being governed by Institute Research Council (IRC) and Institute Management Committee (IMC) which are chaired by Director, Central Silk Board, Bengaluru and Director, CSRTI, Mysuru respectively. The Institute has the distinction of being governed by Institute Research Council (IRC) and Institute Management Committee (IMC) which are chaired by Director, Central Silk Board, Bengaluru and Director, CSRTI, Mysuru respectively.

Vision	
To achieve excellence in applications oriented research on mulberry sericulture, tasar (oak tasar) sericulture, industry from the silkworm's host, of production to a efficient, competitive commercial sericulture sector	Objectives • Research on enhancing productivity, protecting and quality of mulberry silk • Development of packages of practices for mulberry and silkworm rearing • Commercialization of products and technologies • Transfer of technology • Collaborative studies of research activities with Universities and Institutes • Training • Strengthening collaborative research to address various issues • Work on seasonal farmers study • Disease forecasting and management • Publication of R&D results in peer reviewed journals • Collaborative research activities with ICAR Institutes/Universities/Industries/Abroad

Organisational Setup

CSRTI-Mysuru is the largest and most diversified institution engaged in sericulture R&D in the country, supported by about 150 scientists of various disciplines apart from agricultural engineers, technologists and technicians. Since pioneering working in close coordination for the development and upgradation technologies and their transfer through the multi-locations and in tandem with concerned line states of Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Kerala (upto August 2014), Maharashtra and Madhya Pradesh. R&D activities and technology development are carried out in four major divisions viz. Host Plant Protection & Physiology, Silkworm Genetics & Breeding, Seri-chemical Biology and Biotechnology, Silkworm Pathology, Post-cocoon Technology, Extension and Training. CSRTI-Mysuru also utilizes the scientific and technical skills of technical and administrative staff in undertaking the mandated activities. The Director is the overall in charge of R&D activities of Institute and is assisted in this regard by Planning, Monitoring, Coordination and Evaluation cell. The Institute is also having two nominal units viz. Pilot Silk Reeling and Silk Throwing Unit supporting the R&D activities and providing employment to the local people.

Over 70 books have been brought out so far in addition to a large number of technical and research papers published in leading national and international journals. The institute has the distinction of publishing Indian Journal of Horticulture, Asian Horticulture and Tree Improvement and Genetic Resources, the only journals in horticulture and forestry.

Extension Network

CSSRI-Regional Centre has a three tier system of extension network. Regional Centre, Krishi Vigyan Kendra (KVK), Research Extension Centers (REC) and Technology Week (TW) to facilitate validation and transfer of technology relevant to the area. KVKs are located in major semi-arid/sub-humid zones of southern states and cater to location specific adaptive and applied research. Technology Weeks are also conducted to suit the regional requirements besides providing training to farmers and grassroot level extension staff. RECs and subcentre share the major responsibility of technology transfer in the beneficiaries and also provide technological inputs and support services. CSSRI-Regional Centre, Krishi Vigyan Kendra, Research Extension Centre and Farmer FIRST Centres for the promotion of Rainfed Horticulture in Southern States along with Maharashtra and Madhya Pradesh. Effective transfer of technologies is undertaken in close coordination with technical personnel of State Departments of Horticulture.

Training Facilities

CSSRI-Regional Centre encompasses the objectives for generation of trained human resource in the area of horticulture at international and national level. CSSRI-Regional Centre also conducts training programmes sponsored by DST, DST and Ministry of Tourism, Govt. of India for young scientists and technological empowerment of the horticulture growers, traders and entrepreneurs. Besides catering to the R&D needs of the state departments of agriculture in the country, CSSRI-Regional Centre also conducts training programmes for International students/personnel through various organizations such as ICAR and Ministry of External Affairs, Govt. of India (ITEC). The training has been well equipped classrooms and the entire environment managed by qualified faculty. The valuable knowledge base is accumulated in the form of [illegible] volumes.

Infrastructural facilities

- Well equipped laboratories, museum, green house and training classrooms and a well planned research farm
- Campus also serving as the technology validation and demonstration site
- Model Orchard (Horticulture Park) to showcase the concept of CSSRI
- Engineering Division with excellent facilities to support designing, development and fabrication of machines/implements
- Water Evaluation Facility to assess water resource sites and efficient transfer of technology for effective interactions with research units, NGOs and other organizations
- Computer center (network) and net connectivity in all Divisions with provision for Internet support
- Biotechnology Center (NRCB) and ICAR-CSSRI provides guidance and technical support
- Library services [illegible] books, [illegible] journals, [illegible] periodicals, [illegible] dissertations, [illegible] technical reports and [illegible] databases (AGRIS)

अनुशीलन व विमर्श: विमर्श एवं परीक्षित दोषज्ञ के गुणधर्म

मूलग्रन्थानुसारी

1. अनुशीलन व विमर्श:

[illegible] व्याख्या व्याख्या [illegible], व्याख्या एवं [illegible]

- [illegible] [illegible] [illegible] – व्याख्या व्याख्या व्याख्या [illegible]– [illegible] व [illegible] व्याख्या [illegible], व्याख्या, व्याख्या [illegible], व्याख्या, व्याख्या [illegible], व्याख्या,

[illegible]

- [illegible]

पेन्सिलीय : स्थलाकृति, अन्तर्वेशन तथा परिवहन

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]

- [illegible]
- [illegible]

[illegible]

- [illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

HIGHLIGHTS OF RESEARCH & DEVELOPMENT, EXTENSION AND TRAINING DIVISION

The AICRP programmes undertaken in mulberry and silkworm breeding, crop production and protection, transfer of technology extension and training activities are related to developing technologies suitable for the needs of mulberry sericulture farmers of the states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Telangana, Maharashtra and Madhya Pradesh. The salient achievements of CSRTI Mysuru are as follows:

1. **BREEDING & IMPROVEMENT**

   Mulberry Crop Improvement, Production and Protection

- Eight mulberry elevator mutant mulberry accessions viz., MI (MGC) 08-0128, MI (MGC) 08-0163, MI (V.S.) MI-0146, MI-0169, MI-0192 and MI-0240 with high leaf and nutritive leaf efficiency were identified to develop promising mulberry varieties.
- Optimized whole plant regeneration protocol for shoot growth with efficient transgenic mulberry development using cotyledon and hypocotyl explants of V1 mulberry cultivar.
- Developed putative transformed and tested mulberry plantlets containing NPTII, MNYFV genes and Cry gene (anti-feeding towards higher silkworm biotic efficiency).
- The light utility values of V1 hybrid were analysed through PSII studies (chlorophyll fluorescence) that showed the existing ability and photosynthetic related traits almost to foliage yield potential under optimal and fully controlled irrigated conditions.
- The experiment using Agrobacterium mediated genetic transformation on cotyledon explants of V1 mulberry using RUNX1&1d-HEARRT gene construct has been developed.
- Anthracnose a product developed for control of leaf rot disease of mulberry has been popularized among the sericulturists of southern states. The technology has been transferred to entrepreneurs through MoU for its commercial production.
- About 10 mulberry germplasm were evaluated against root knot disease caused by *Meloidogyne incognita*. Identified eight resistant germplasm accessions (S6-6, Kanva-2-1, S6-6-1, Chinese White (C-1), Kajalee Kokate, Tipsy, Goldenia, Tiruchanthi-8 (TCR-1)).
- Application for registration of Chlorfenapyr, Indoxacarb and Emamectin Benzoate (EB) mixture as a high yielding mulberry variety-S. Virus tested and acceptable PPR 2016.
- An improved Chlorfenapyr, Indoxacarb and Emamectin Benzoate toxic mixture is being established at Central Sericultural Research & Training Institute, Berhampore, West Bengal to test mulberry varieties developed in North and North Eastern states.
- New germplasm viz. MR2 and Goshala were identified for alkaline tolerance. Crosses were made using these germplasm with susceptible genotypes V1 (MR-2 X V1 & Goshala X V1) for microscopic and staining expression to identify QTL governing alkalinity tolerance in mulberry.
- Out of 96 F1 progenies evaluated against Cbl viable leaf disease germplasm, 31 resistant (11 VR) were found suitable for diversity analysis and 21 identified as resistant to Cbl by using resistant polymorphic bands.
- Established 211 F1 (V1 hybrid) progenies and 10 control clones in mulberry germplasm with 3 replications under RBD design in the orchard to exploring the genetic potentiality of yield through Marker Assisted Breeding (MAB).
- 200 DNA leaf samples from different clusters were analysed and promising 100 unit specific 10 bases primers/oligonucleotides for the selected farmers. The leaf quality values of silkworm cocoon with farmer's choice is documented and maintained, which is to be used for future research mapping/genotyping the experts.
- Conducted quality analysis of 144 germplasm / varieties which are used in sericulture and got received from 60 N. farmers different regions/districts and shared the experts.
- Cocoon embryo bits method for resistance and viability assay techniques in mulberry were developed based on additional CO2 (200 CO2 by freeze staining method). These methods have wider utility in quantifying the larvae, intensity and density among the species and it also provides information on resistance level of the variety.
- Identified two germplasm highly tolerant to alkalinity stress [MR-2(Yercaud), Goshala (MR-9 Vishal), Manasa dwarf (MR-

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

- Published research articles [illegible] from silkworm breeders and [illegible] (Bivoltine hybrid) [illegible].
- Validated the [illegible] assay for [illegible] with [illegible] (CV) and [illegible] (CV). The results were [illegible] after the commercial testing. The specific [illegible] from the local [illegible] were purified and the DNA was isolated from it. The primers [illegible] and [illegible] were used for the amplification. In this PCR reaction with the sequence obtained shown 11 [illegible] similarity to that of [illegible] (Japan) sequence was submitted [illegible] and released as accession number [illegible].
- Tested 124 samples of mulberry and non-mulberry silkworm samples which include egg sheets and worms using [illegible] assay at different seed multiplication levels. [illegible] Pebrine [illegible] Grasserie [illegible] Flacherie [illegible] Muscardine [illegible] and [illegible] diseases and [illegible].
- Resulted in [illegible] pebrine, grasserie, flacherie diseases and advised for proper disease management.
- 11 quality analysis reports for the different institutions and field stations were issued.
- Demonstration and popularization of pheromone trap against silkworm moths have conducted with 130 farmers from Karnataka and Tamil Nadu. One day awareness programmes were conducted at Kollegal, Ramanagara and Hirehalli, Tamil Nadu.
- 6,250 pouches of Nuvalure (lepto) supplied to over 4,170 [illegible] covering for the management of silkworm pebrine disease. 47 [illegible] (pebrine positive moths (31,750 moths)) supplied to about 21 acres of mulberry plantation farmers also [illegible] by [illegible].
- 2.8 crore of egg production [illegible] (Crossbreed silkworm) and 20 crore of larval parasitoid (Exorcista chrysosperma) were supplied to mulberry farmers from Karnataka, Tamil Nadu and Andhra Pradesh to manage the host moths (Diaphania pulverosalis). For the biological control of mulberry pyralids (Pseudonoorda minimalis) supplied 25 crore of [illegible] and 1000 grubs/acre/day of [illegible] predators to Karnataka and Tamil Nadu farmers. Subsequent to the introduction of the predators, the larval incidence was reduced from 34 per cent to less than 5 per cent.

Technology Demonstration at Farmers' Fields

- Two [illegible] were obtained. Further, 4 multi-nutrient formulated and customized for preparation and foliar application [illegible]. A pilot test for the same is being [illegible] at two locations.
- Two multivoltaic [illegible] Cocoon Harvester for [illegible] [illegible] and Mulberry Leaf Chopping machine were commercialized to M/s [illegible] Laboratories Pvt. Ltd., [illegible], Maharashtra. Five [illegible] for production and supply to [illegible] farmers.

Training

- 2030 farmers [illegible] were trained under Capacity Building and Training programmes through Technology Dissemination Programmes (TDP) and Farmers' Field Training (FFT).
- A total of 13 [illegible] staff from CSB and its [illegible] were trained under [illegible] programmes.
- Need based Training Programmes (NBT) were conducted for 140 beneficiaries (farmers, entrepreneurs, officials and students) to disseminate [illegible] technology, [illegible] training, awareness programmes, [illegible] and [illegible].
- 24 [illegible] participants undergone one month training at CSRTI, Mysuru under [illegible] programme sponsored by [illegible] Ministry of Textiles, Govt. of India.
- Thirty [illegible] were trained under [illegible] training for a month at CSRTI, they on-roll were [illegible] different states.
- Twenty nine post graduate and nine graduate students completed dissertation work their M.Sc. [illegible] as a part of partial [illegible] CSRTI, Mysuru.
- The Central Pilot Rearing Centre received and supplied [illegible] of [illegible] dfls to 149 [illegible] and [illegible] [illegible] dfls to 20 [illegible].

[illegible]

- A record quantity of [illegible] MT [illegible] raw silk was produced through Bivoltine Cluster Promotion Programme [illegible] in [illegible] mega clusters ([illegible]) in Andhra Pradesh, Karnataka, [illegible], Tamil Nadu, Telangana, Maharashtra [illegible] with an average [illegible] of [illegible].
- [illegible] were sensitized with new technologies through [illegible] programmes in bivoltine rearing, mulberry and silkworm disease management and quality cocoon production.
- [illegible] Workshops were organized at [illegible] (Andhra Pradesh), [illegible] (Tamil Nadu), [illegible] (Telangana) and [illegible] farmers were enlightened with improved sericulture technologies.
- [illegible] were trained under various training programmes [illegible] CSRTI, Mysuru [illegible] (Andhra Pradesh), [illegible] (Uttarakhand).
- Under [illegible] portal [illegible] messages were sent to [illegible] registered farmers [illegible] Karnataka, Andhra Pradesh, Telangana, Tamil Nadu, Maharashtra and [illegible].
- Around [illegible] visitors [illegible] students [illegible] visited the Institute.
- One Farmer Producer Organization (FPO) was organized under [illegible] Karnataka.
- Training on "Formation of Farmer Producer Organization" was organized on [illegible] July [illegible] at CSRTI, Mysuru [illegible].
- [illegible] was published and released on [illegible] August [illegible] at CSRTI, Mysuru. The book has the collection of [illegible] farmers [illegible] sericulture [illegible].
- A series of [illegible] sericulture technologies were disseminated in local language (Kannada) through [illegible] from January [illegible] to [illegible] February [illegible].

व्यवसाय व्यवस्थापन सम्बन्धी परिभाषाहरू

यस नियमावलीमा प्रयोग गरिएका शब्दहरूको अर्थ देहायबमोजिम हुनेछ, विषय वा प्रसङ्गले अर्को अर्थ नलाग्ने भएमा यस नियमावलीमा प्रयोग भएका शब्दहरूको अर्थ सम्बन्धित ऐन, नियम, विनियम वा उपविधिमा दिइए बमोजिम हुनेछ, र सो नभएमा सामान्य प्रचलनमा रहेको अर्थ लगाइनेछ।

(क) **व्यवसाय** भन्नाले नाफा वा सेवा प्रवर्द्धनको उद्देश्यले वस्तु वा सेवाको उत्पादन, खरिद, बिक्री वा वितरण गर्ने कार्यलाई सम्झनु पर्छ।

(ख) **नियमन गर्ने निकाय** भन्नाले व्यवसाय दर्ता, अनुमति, नवीकरण, निरीक्षण वा नियमन गर्ने अधिकार प्राप्त गरेको सरकारी वा अर्ध-सरकारी निकाय सम्झनु पर्छ।

(ग) **दर्ता प्रमाणपत्र** भन्नाले कुनै व्यक्ति, फर्म वा कम्पनीलाई व्यवसाय सञ्चालन गर्न दिइएको लिखित अनुमतिपत्र सम्झनु पर्छ र सो शब्दले नवीकरण गरिएको प्रमाणपत्रलाई समेत जनाउँछ।

(घ) **व्यवसाय व्यवस्थापन समिति वा निकाय** भन्नाले यस नियमावली बमोजिम गठन भएको व्यवसाय व्यवस्थापन समिति, कार्यालय वा सो कार्य गर्न तोकिएको अन्य निकायलाई सम्झनु पर्छ र सो शब्दले समितिको तर्फबाट अधिकार प्रयोग गर्न तोकिएको पदाधिकारी वा कर्मचारीलाई समेत जनाउँछ।

(ङ) **दर्ता शुल्क** भन्नाले व्यवसाय दर्ता गर्दा वा नवीकरण गर्दा तिर्नुपर्ने शुल्क, दस्तुर वा अन्य रकम सम्झनु पर्छ र सो शब्दले विलम्ब शुल्क र जरिबाना समेत जनाउँछ।

(च) **व्यवसाय विवरण** भन्नाले व्यवसायको नाम, ठेगाना, सञ्चालक, पुँजी, कर्मचारी सङ्ख्या, मुख्य कारोबार र अन्य आवश्यक विवरण समावेश भएको निर्धारित ढाँचाको फाराम सम्झनु पर्छ।

(छ) **नवीकरण** भन्नाले म्याद समाप्त भएको दर्ता प्रमाणपत्रलाई निर्धारित अवधिभित्र पुनः कायम गराउने प्रक्रिया सम्झनु पर्छ।

(ज) **व्यवसाय निरीक्षण अधिकृत** भन्नाले व्यवसाय व्यवस्थापन समिति वा नियमन गर्ने निकायले व्यवसायको निरीक्षण, परीक्षण वा लेखापरीक्षण गर्न खटाएको कर्मचारी वा अधिकृत सम्झनु पर्छ।

(झ) **दण्ड, जरिबाना र पुनरावेदन समिति** भन्नाले यस नियमावली बमोजिम उजुरी परेका विषयमा सुनुवाइ गरी निर्णय गर्न गठन गरिएको समिति सम्झनु पर्छ र सो शब्दले समितिको सचिवालय समेत जनाउँछ।

(ञ) **सेवाग्राही वा ग्राहक** भन्नाले व्यवसायले दिने सेवा वा उत्पादन प्राप्त गर्ने व्यक्ति, संस्था वा उपभोक्तालाई सम्झनु पर्छ र सो शब्दले सम्भावित ग्राहकलाई समेत जनाउँछ।

(ट) **व्यवसाय परिसर** भन्नाले व्यवसाय गर्ने मुख्य भवन, पसल, गोदाम, कार्यालय, उत्पादन एकाइ वा अन्य स्थायी संरचनालाई सम्झनु पर्छ र सो शब्दले अस्थायी स्टल, मेला, प्रदर्शनी, विज्ञापन, सवारीसाधन वा अन्य चल सम्पत्तिलाई समेत जनाउँछ।

ACTIVITIES REGARDING OFFICIAL LANGUAGE IMPLEMENTATION

During 2019-20 Official Language policy was implemented successfully at [illegible] Research and Training Institute, [illegible]. [illegible] compliance of important Official Language Provisions i.e. Section 3(3) of Official Language Act and Official Language Rules [illegible]. The progress in implementation of Hindi was reviewed regularly by conducting quarterly meeting of the Official Language Implementation Committee and the progress regarding the Official Language was reviewed [illegible] Hindi Workshop and Noting Drafting [illegible] Hindi.

The details of the activities [illegible] Official Language Implementation [illegible] during the year under report is as follows:

1. **Compliance of Section 3(3):** [illegible] under section 3(3) of the Official Language Act 1963 were issued bilingual.
2. **Compliance of Rule 11:** [illegible] bilingual. [illegible]
3. **Hindi Correspondence:** [illegible]
4. **Organisation of Meetings of the Official Language Implementation Committee:** The progress of implementation of the Official Language [illegible] conducting OLIC meeting in every quarter. During the year 2019-20 Official Language Implementation Committee meetings were organised [illegible]
5. **Organisation of Hindi Workshops:** Hindi workshop was organised in every quarter for the employees of the Institute [illegible]
6. **Implementation of Noting Drafting Incentive Scheme:** [illegible]
7. **Publications in Hindi:** [illegible]
8. **Notification of the subordinate offices under 10(4) of the Official Languages Rules:** [illegible]

9. **Organisation of Hindi Day / Fortnight:** Official Language Fortnight was organised from [illegible] to [illegible] during in which Hindi competitions were organised. The winners of the competitions were awarded with First, Second, Third and Consolation prizes. Hindi Day was celebrated on [illegible] with full enthusiasm.

10. **Work on Computers in Hindi:** Compilation of [illegible] forms, Standard drafts, quarterly progress report, [illegible] reports of works related to [illegible] are carried out [illegible] on computers. Unicode system has already been installed in all computers which facilitates employees to do work in Hindi, English and other Indian languages.

11. **Official Language Inspection:** [illegible] Official Language Policy and necessary suggestions & guidelines were submitted accordingly. Besides, an Official Language Implementation Committee comprising of [illegible] members has been constituted for inspecting the Official Language work [illegible] of the Institute.

12. **Hindi Books:** amounting to Rs. [illegible] was purchased for library of the institute during the year. Apart from this [illegible] (Hindi-English) were purchased and distributed to all the [illegible] of the Institute.

13. **Training:** [illegible] trainees from [illegible] states [illegible] were trained on various topics of [illegible] different [illegible] Training Programmes.

14. **Official Language Desk Training:** Official Language Desk Training was imparted to [illegible] working [illegible] at their workplace for their convenience.

PROGRESS OF RESEARCH PROJECTS AND PROGRAMMES
MULBERRY BREEDING AND GENETICS

Concluded Research Project

[illegible]

[illegible]

Objectives

- [illegible]
- [illegible]
- [illegible]

[illegible]

[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Based on the new size analysis of data, we not assessors were identified for 3 different groups and the group, which was chosen as particular items pertaining to the specific circumstances

No formation of accessors for possible and credible Duties exists the chief which 123 and Amerika											

[illegible]	
Trait	[illegible]
No. of branches	[illegible]
Plant height (cm)	[illegible]
Biomass (g)	[illegible]
Shoot wt. (g)	[illegible]
Leaf wt. (g)	[illegible]

Correlation analysis revealed a significant positive correlation of [illegible], shoot weight and leaf weight with number of branches ($p < 0.001$). Leaf weight had a significant positive correlation ($p < 0.001$) with shoot weight.

Plant height also had significant ($p < 0.05$) positive correlation with number of branches, biomass, [illegible] shoot weight and leaf weight also had significant positive correlation ($p < 0.05$) with plant height. [illegible] analysis revealed 9 accessions ranking at the top based on the performance of growth and yield attributes.

Correlation analysis of [illegible]					
	No. of branches	Plant height (cm)	[illegible] (g)	Shoot wt. (g)	Leaf wt. (g)
No. of branches	1.00				
Plant height (cm)	[illegible]*	1.00			
[illegible] (g)	[illegible]***	[illegible]*	1.00		
Shoot wt. (g)	[illegible]***	[illegible]*	[illegible]***	1.00	
Leaf wt. (g)	[illegible]***	[illegible]*	[illegible]***	[illegible]***	1.00
***, * significant [illegible]					

[illegible]		
[illegible]	No. of traits	Plant height (cm)
[illegible]	5	Biomass, shoot wt., leaf wt., no. of branches, plant height
[illegible]	5	Biomass, shoot wt., leaf wt., no. of branches, plant height
[illegible]	5	Biomass, shoot wt., leaf wt., no. of branches, plant height
[illegible]	4	Biomass, shoot wt., leaf wt., no. of branches
[illegible]	4	Biomass, leaf wt., no. of branches, plant height
[illegible]	4	Biomass, leaf wt., no. of branches, plant height
[illegible]	3	Biomass, leaf wt., plant height
[illegible]	3	Biomass, shoot wt., leaf wt.
[illegible]	3	Biomass, no. of branches, plant height

Conclusion

[illegible] promising exclusive identified for different yield attributing traits could be utilized in breeding programme for next quality improvement via [illegible] in mulberry. The experimental trees viz., Guamaka and Rayo activity identified to thought tolerance was positively correlated to dormant shoot weight and leaf weight. Hence, it could be used as a good marker for identifying elite germplasm with fundamental knowledge with respect to efficiency, fortitude, and genetic variation of [illegible] traits. Considering higher biomass with less water requirement, can also contribute to climate resilience. Emerging morning genotypes viz., RS-1041, RS-1042, RS-1043, MR-2019, MR-2042, MR-2082, RS-1083 and MR-2028 were identified with fundamental traits associated with climate resilience could be utilized in breeding programme targeted to develop climate resilient mulberry varieties. The protocol developed for estimation of leaf activity, photosynthetic and water use efficiency parameters were optimized and could also be utilized for similar studies in future.

Ongoing research projects

PC(S&T): Elucidating photosynthesis in mulberry for resilience to climate change, 4 Dr (Mahesh Gangaiah, Shivakumar, Sowmya, Ramesh)

Survey tenure as a beginning [illegible] and Mulberry Germplasm Conservation, Survey 2021-22, Tenure 1.4. Jun to Sep 2021 and Period Survey from September 2021

Plant Genetics: To develop transgenic mulberry with Cry1Ab/Ac insect-fungus protein conferring resistance for shoot rot disease

Genetic database

- Construction of data sheet with [illegible] viz., MR-2019 and suitable marker gene in trans-resistant evaluation of mulberry [illegible] to cytoplasmic complexes
- Genetic transformation and molecular characterization of transgenic [illegible] and release as [illegible] Mulberry suitable for [illegible]
- [illegible] and multiple transformation of the gene [illegible] by expressing [illegible] gene and screenable marker gene

In this study, protocol for in vitro regeneration of whole plants from callus and hypocotyl explants of the mulberry has been optimized. It was observed that synergistic effects of plant growth regulators, silver nanoparticles and Rasul extract additives significantly influenced in vitro regeneration potential of mulberry explants. Usage of hygromycin (1.5 mg/L) was optimal for selection of transformed mulberry shoots. Protocols for genetic transformation and hygromycin based selection of transformed mulberry and release shoots containing [illegible] and Cry1Ab gene constructs. Two days cultivated Agrobacterium mediated genetic transformation of callus explants by hygromycin selection of mulberry using nanoparticles and co-cultivation with [illegible] and [illegible] were [illegible] in hygromycin containing selection medium. Three Rayo (RS-1042) and Kanva-2 transformed shoots were subjected to hygromycin screening and [illegible] and [illegible] were [illegible] for further work studies. For the selected 121 [illegible] were [illegible] and [illegible] in hygromycin containing selection medium.

Regeneration of shoots of mulberry (a) transformed with pBI121-[illegible] gene (b) transformed with Cry1Ab gene (c) after [illegible] of hygromycin resistant shoots from [illegible] callus (d) and Cry1Ab gene (e) in culture medium

Regeneration of [illegible] (a) and [illegible] (b) transformed shoots of mulberry and in vitro root induction [illegible] (c) and [illegible] (d) shoots in hygromycin medium

TITLE: Primary yield evaluation for identification of superior mulberry hybrids with drought adaptive traits under polyculture-irrigated conditions [year: 2024 – ref. 2024]

[author block: Laxmi Devi, A. K. [illegible] et al. [illegible] Gouda [et al.], [illegible] [year: e.g. 2024] and Partha Pratim [illegible] [year: 2024]]

Objectives:

- To identify superior genotypes with drought adaptive traits under sub-optimal irrigation scenarios
- Evaluation of [illegible] [illegible] [illegible]

TRI 2025: Evaluation of maternal inbred genotypes for yield and adaptability under normal sown irrigated conditions (rabi / Oct.–Feb.)

Locations: Jalgaon (Kumar Agricultural Research Station), Latur (Oilseeds Research Station), Parbhani (Cotton Research Station), Nanded (Agricultural Research Station), Akola (Cotton Research Station)

Objectives:

- To identify high-yielding maternal inbred genotypes with desirable plant type, oil content and resistance to major biotic stresses for use in hybrid development.
- To evaluate the performance of newly developed maternal lines in comparison with standard checks under timely sown irrigated conditions.

A total of 24 maternal inbred genotypes, including 20 test entries (TRI-1 to TRI-20) and 4 standard checks (TRI-21 to TRI-24), were evaluated in a randomized block design with three replications. Each plot consisted of two rows of 4 m length, spaced 45 cm apart, with a plant-to-plant distance of 15 cm. Recommended agronomic practices and plant protection measures were followed uniformly across all locations. Observations were recorded on days to 50% flowering, plant height, number of capsules per plant, 1000-seed weight, seed yield per plot, and oil content. Data were analysed using standard statistical procedures, and genotypes were ranked based on seed yield and oil content.

Performance of hybrid maternal genotypes under normal sown irrigated conditions at Akola (rabi 2024–25)											
Genotype	Days to 50% flowering	Plant height (cm)	No. of capsules/plant	Seed yield/plot (g)	1000-seed weight (g)	Oil content (%)	Seed yield (kg/ha)	Oil yield (kg/ha)	Rank (yield)	Rank (oil)	Remarks
TRI-1	52	168.4	312	1,412	4,706	38.6	3,528	1,362	7	5	Tall, late
TRI-2	49	154.2	284	1,286	4,512	39.1	3,214	1,257	11	3	Good oil
TRI-3	47	149.8	301	1,358	4,628	38.9	3,392	1,319	9	4	Stable
TRI-4	51	162.0	268	1,204	4,390	37.8	3,008	1,137	14	9	Lodging
TRI-5	48	151.6	296	1,331	4,580	39.4	3,326	1,310	10	2	Early
TRI-6	50	158.3	289	1,298	4,655	38.2	3,241	1,238	12	6	Shattering
TRI-7	53	171.5	322	1,447	4,802	37.5	3,615	1,356	6	10	Tall, late
TRI-8	46	144.9	276	1,239	4,471	39.6	3,094	1,225	13	1	Best oil
TRI-9	49	152.7	291	1,309	4,598	38.4	3,268	1,255	8	7	Good
TRI-10	52	165.1	305	1,371	4,744	38.0	3,423	1,301	5	8	Tall
TRI-11	48	147.3	279	1,254	4,533	39.2	3,132	1,228	15	11	Good
TRI-12	50	156.0	294	1,322	4,617	38.5	3,301	1,271	4	12	Stable
TRI-13	47	142.6	268	1,196	4,420	39.8	2,989	1,190	16	13	Early
TRI-14	51	159.4	298	1,339	4,689	38.1	3,344	1,274	3	14	Tall
TRI-15	49	153.8	287	1,288	4,566	38.7	3,218	1,245	17	15	Lodging
TRI-16	54	174.2	318	1,428	4,815	37.2	3,566	1,327	2	16	Tall, late
TRI-17	48	148.5	281	1,262	4,548	39.3	3,152	1,239	18	17	Good
TRI-18	50	157.1	296	1,327	4,633	38.3	3,315	1,270	19	18	Stable
TRI-19	47	145.2	272	1,221	4,498	39.5	3,052	1,206	20	19	Early
TRI-20	52	166.8	309	1,386	4,760	38.0	3,461	1,315	21	20	Tall
TRI-21 (check)	49	151.3	290	1,301	4,612	38.6	3,252	1,255	22	21	Check
TRI-22 (check)	50	154.7	293	1,315	4,625	38.4	3,288	1,263	23	22	Check
TRI-23 (check)	48	146.9	275	1,233	4,510	39.0	3,081	1,202	24	23	Check
TRI-24 (check)	51	160.2	301	1,352	4,702	38.2	3,378	1,290	1	24	Check

Abbreviations: DFF = days to 50% flowering; PH = plant height (cm); CPP = capsules per plant; HSW = 1000-seed weight (g); SY = seed yield per plot (g); OC = oil content (%); OY = oil yield (kg/ha); SR = seed rot incidence (%); WC = wilt incidence (%); AB = alternaria blight score (1–5); LS = lodging score (1–5); GY = seed yield (kg/ha).

Locations: Jalgaon, Latur, Parbhani, Nanded, Akola

KVK 2025 (X): Varietal achievement of multiple crop genetic stocks/lines + multilocational project

Sub-component centre: Development of new generation transgenic resilient for drought stress tolerance and characterization of existing transgenic resilient for combined field trial (Dec. 2020 – Aug. 2024)

Venue: Central Farm, Krishi Vigyan Kendra, Jalgaon (Jamod), Dist. Buldana, Maharashtra (20° 51′ N, 75° 47′ E, 428 m above MSL)

Year: Rabi season, 2023–24 (sown on 12 Dec. 2023; harvested in the first week of May 2024)

Objectives:

- To evaluate the performance of transgenic resilient lines for drought stress tolerance under rainfed conditions.
- To characterize the physiological and biochemical traits associated with drought tolerance in the transgenic lines.
- To compare the yield and yield attributes of transgenic lines with the recommended non-transgenic check variety.
- To assess the stability of transgenic lines across different locations in the region.

Materials and Methods:

- Development of new generation transgenic resilient germplasm for drought stress tolerance in rainfed

[illegible]

- [illegible]
- Development of [illegible]

[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	
Test Locations	State
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	Andhra Pradesh
[illegible]	Andhra Pradesh
[illegible]	Telangana
[illegible]	[illegible]

[illegible]			
Mulberry variety	Designated Code	Respective Institute	Experiment Code
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

the guidelines of ICAR have been followed and the experiments and packages are adhered strictly. The progress of all the crop projects of work have been monitored to ensure the availability of basic seeds and planting materials to cultivators in the adopted villages and farmers.

The experimental plantation has been completed at 3 test centres at South Garo during July – Dec 2014-15 with 3 test varieties (mid late, mid-early and mid-late) along with local variety (1 year old) in mini plots (area 20 cm spacing with 6 replications and 100 (1) plants in each replication).

Maintenance, Breeder seed Production

Maintenance of multiplying germplasm, mother culture and characterization plots

1. Garo Hills, Tura, Meghalaya, 2. Jaintia Hills, Jowai, Meghalaya, 3. Khasi Hills, Shillong, Meghalaya

A breeding germplasm of 22 accessions were maintained in cold storage and characterization of germplasm was also undertaken in the current year. Besides the above germplasm, 3 test varieties (mid late, mid-early and mid-late) were also maintained in the farmers' field in the adopted villages of Garo Hills, Jaintia Hills and Khasi Hills of Meghalaya. Seeds of 3 test varieties were also maintained in the farmers' field in the adopted villages of Garo Hills, Jaintia Hills and Khasi Hills of Meghalaya. Seeds of 3 test varieties were also maintained in the farmers' field in the adopted villages of Garo Hills, Jaintia Hills and Khasi Hills of Meghalaya.

MULBERRY MOLECULAR BREEDING LABORATORY

Consolidated Research Projects

Title (Title): Identification of replacement mulberry germplasm for rainfed tract maximizing silkcocoon productivity (Crop Year 2014 – Dec 2014)

B.J. Mukherjee and D. Bandyopadhyay

Objectives: Identification of mulberry germplasm resistant to rainfed tract maximizing silkcocoon productivity

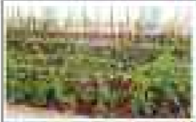
Rainfed tract maximizing silkcocoon productivity is a major problem in mulberry sericulture in hilly tract. Due to unavailability of irrigation facilities in the hilly tract, the mulberry plantation suffers severely during the dry season (December to March) every year. Due to unavailability of irrigation facilities in the hilly tract, the mulberry plantation suffers severely during the dry season (December to March) every year. Due to unavailability of irrigation facilities in the hilly tract, the mulberry plantation suffers severely during the dry season (December to March) every year.

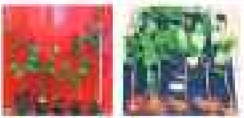
i. Screening of mulberry germplasm and identification of promising varieties for rainfed tract maximizing silkcocoon productivity in the hilly tract.

A total of 44 mulberry germplasm including popular varieties were collected from different parts of India and maintained in the germplasm block of the Mulberry Molecular Breeding Laboratory, Central Sericultural Research and Training Institute, Berhampore. The germplasm were planted in the field in a randomized block design with 3 replications. Each germplasm was planted in a plot of 10 m x 10 m with a spacing of 1 m between plants and 1 m between rows. The plants were maintained according to the standard agronomic practices. The leaf samples were collected from the 3rd to 5th leaf from the top of the shoot at 60 days after pruning. The leaf samples were dried in an oven at 60°C for 24 hours and then ground to a fine powder. The powder was used for the estimation of total phenolics, flavonoids, and antioxidant activity.

Germplasm accessions categorized under different maximizing silkcocoon productivity		
Categories	No. of germplasm	Name of germplasm
Resistant	10	S1, ...
Moderately resistant	15-20	S2, ...
Moderately susceptible	21-30	S3, ...
Susceptible	31-40	S4, ...
Highly susceptible	>40	S5, ...
	Total	44

[illegible]



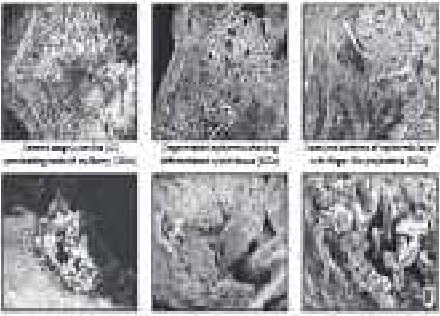


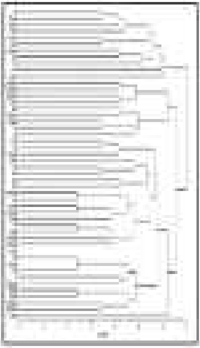
[illegible]

[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

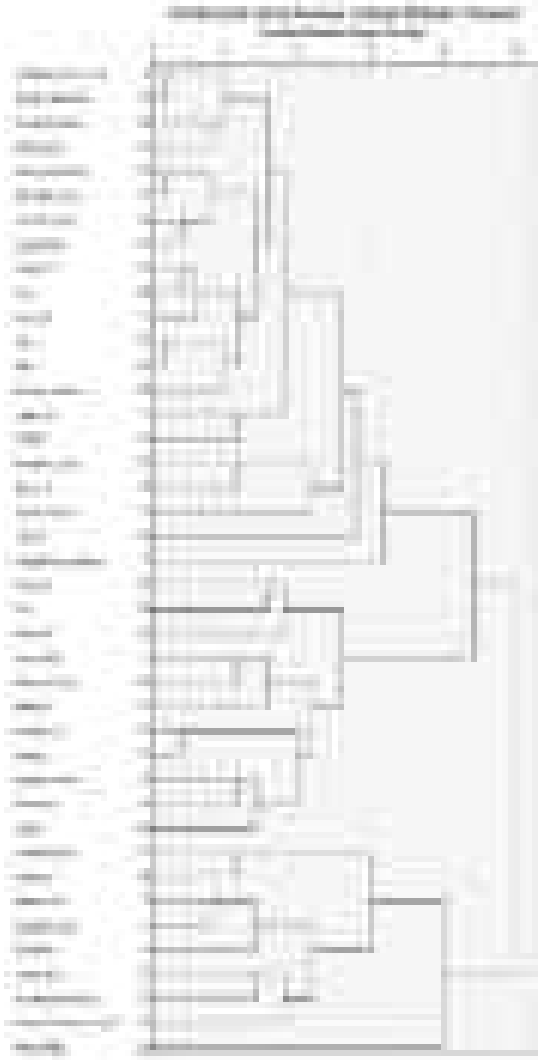




...

...

...



[illegible]

[illegible]

Breeding Research Projects

FIG 2022: Development of high-yielding and widely adapted medium-duration rice germplasm for Northern India

K. S. Anand, M. Singh and R. P. Sharma

Objectives:

1. To develop high-yielding rice lines with resistance to [illegible] and tolerance to [illegible] stress
2. To identify high-performing and adaptable lines for [illegible]

A total of nine different crosses were undertaken using parents [illegible]. Hybrid seeds were bulked and advanced to the F2 generation. Approximately 1,200 F2 plants were raised in a [illegible] design. Selection was practiced for [illegible] and grain quality traits. Single-plant harvests were made from [illegible] plants.

Details of trial sites
[illegible]

Seedlings at transplanting stage in the experimental field

FIG 2023: Phasing [illegible] for [illegible] tolerance in Mulberry (Morus spp.) [illegible]

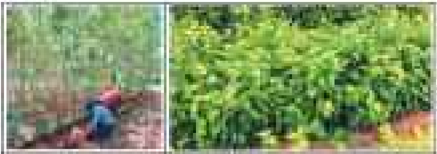
M. K. Sharma, T. Upadhyay, S. K. Bansal, N. Kumar and [illegible]

Objectives: To [illegible] the response of [illegible] to [illegible] stress and [illegible] of [illegible] population

[illegible] [illegible] [illegible] [

- Construction of scientific linkage map using SSR markers
- QTL mapping by marker-trait association and linkage mapping using phenotypic data for different traits

Identification of a desirable marker system is one of the basic requirements for assessing genetic diversity in various germplasm collections, breeding lines and varieties. Total of 287 accessions were found with good quality DNA and were selected for further use in the study. A total of 84 accessions were used for genotyping using 118 SSR markers. Among these 82 were successfully amplified and 57 (71.2%) markers revealed polymorphism with the allelic variation of 2 to 5 across the accessions. A total of 164 alleles were detected and the number of alleles per locus ranged from 2 (RM6100, RM6166, RM6207, RM6211, RM6217, RM6221, RM6223, RM6224, RM6225, RM6226, RM6227, RM6228, RM6229, RM6230, RM6231, RM6232, RM6233, RM6234, RM6235, RM6236, RM6237, RM6238, RM6239, RM6240, RM6241, RM6242, RM6243, RM6244, RM6245, RM6246, RM6247, RM6248, RM6249, RM6250, RM6251, RM6252, RM6253, RM6254, RM6255, RM6256, RM6257, RM6258, RM6259, RM6260, RM6261, RM6262,



Centre and Other Activities

- [illegible] Establishment of Plant Phenomics Centre (CAS)
- [illegible] construction of basic infrastructure of crop breeding platform and high-throughput
- [illegible] development and demonstration of mapping molecules for novel resistance genes against stripe rust in wheat cultivars. Hebei Natural Science Foundation (C2021[illegible])

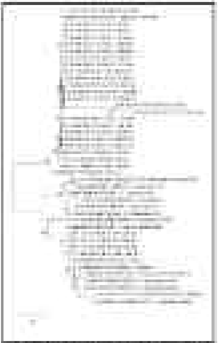
Xuexi Leader Bldg., CAS Research Fellowship, Genome tools for molluscs improvement (May 2020 – Dec 2021)

[illegible]

Objectives

- Fast and precise assessment of genome size and genetic variation using [illegible] methods in molluscan species
- Molecular identification of Nucella species as samples and Nucella morph-[illegible] associated variations in the new set of markers

Genome survey and genetic variation using [illegible] methods in molluscs Studying genetic differentiation and genome content variation is important for [illegible] Pre-knowledge of the size of the genome is helpful [illegible] study. In this present study, we measured the nuclear DNA amounts in 26 indigenous and exotic molluscs [illegible] representing eleven different species using fluorescence [illegible] (FCM) method of flow cytometry. The genome size of each species was estimated by referring to the standard genome size of insect species [illegible] cricket Acheta domesticus (2C = 2.23 pg). The [illegible] was smaller than the [illegible] species, a wide range of interspecific 2C DNA values were observed, i.e. the triploid oyster mollusc Crassostrea [illegible] (2C = 1.23 pg) [illegible] which was the smallest genome size detected in this study. In contrast, the [illegible] Mytilus coruscus [illegible] (2C = 2.23 pg) showed a genome size of more than [illegible] representing an approximate 2-fold difference. Intraspecific variation in nuclear DNA amounts in molluscs varied from 0.02 – 0.12 pg, which was similar to earlier reports. Most of the species showed stable genome size [illegible] but assessments of some species also revealed [illegible] variations. Results of genome size variation in this study [illegible] information to use in the assessment of fitness [illegible] and adaptive responses of genome variability. Nucella spp. genomic [illegible] gene and mitochondrial [illegible] sequencing patterns with sequence [illegible] and structural polymorphism in selected ST genotypes of molluscs. A total of [illegible] [illegible] [illegible]



MATERIALS AND METHODS

Study site description

[illegible] classification of Indian dry climate zones [illegible] with spatial reference to moisture and aridity zones [illegible]

[illegible] [illegible] [illegible]

Objectives

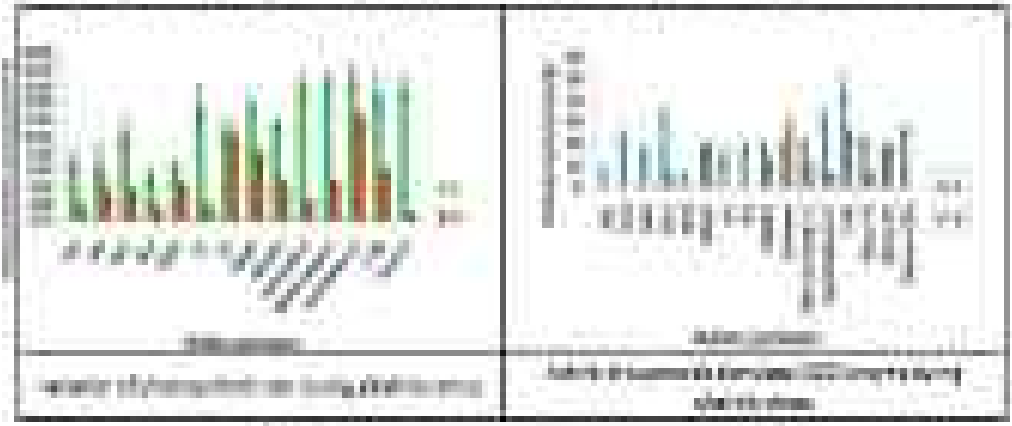
- [illegible] physio-biochemical responses [illegible] of [illegible]

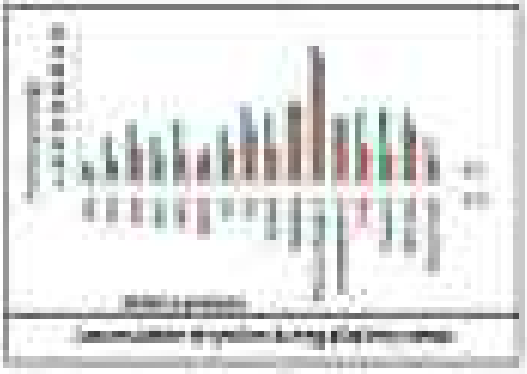
[illegible] genotypes were evaluated under [illegible] and salinity stress conditions to identify physio-biochemical traits of [illegible]

Moisture stress experiments. [illegible] were [illegible] and [illegible] [illegible] [illegible]

Results

...

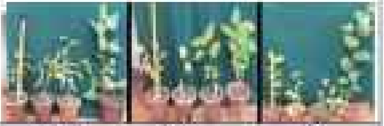


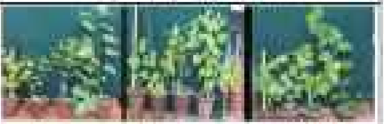


...

...	...
...	...
...	...
...	...
...	...
...	...

...	
...	...
...	...
...	...





[illegible]

Objectives

- [illegible]
- [illegible]

[illegible]

[illegible]

Objectives

- [illegible]

State wise number of soil samples analysed	
State	Number of soil samples analysed (2019-2020)
Karnataka	[illegible]
Tamil Nadu	[illegible]
Andhra Pradesh and Telangana	[illegible]
Maharashtra and Madhya Pradesh	[illegible]
Total	[illegible]

[illegible]

SOIL SCIENCE & CHEMISTRY

[illegible]

[illegible]

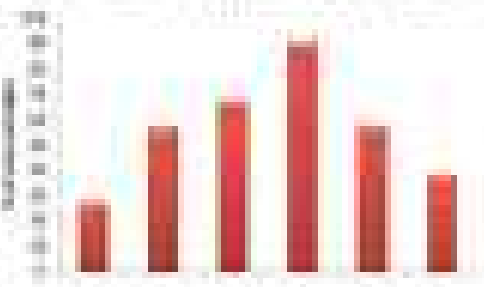
[illegible]

Objectives: To create the farmers awareness about the importance of soil fertility and the evaluation of available nutrients (macro) by means of soil health cards.

A total of 30000 soil samples were collected and analysed from various farmers of the states Tamil Nadu, Andhra Pradesh, Telangana, Maharashtra and Madhya Pradesh in accordance with GPS point, village, block and state soil testing laboratories. The plots were taken a number of soil samples at the depth of 15 cm with the help of a spade. These soil samples were analysed for pH, electrical conductivity, organic carbon, major nutrients and micronutrients following the standard procedure.

Soil pH and micronutrient status

Soil pH was measured in soil suspension as 1:2.5 using a digital pH meter. The electrical conductivity was measured in the same soil suspension using a digital conductivity meter. The soil pH values ranged from slightly acidic to moderately alkaline. In the study area of Andhra Pradesh and Telangana the soil pH values ranged from neutral to moderately alkaline. Although Tamil Nadu soil pH values ranged from neutral to moderately alkaline, the soils were considered as slightly alkaline. Multiple cropping and irrigation practices were considered as the major factors responsible for increasing the soil pH. The soils were found to be non-saline in nature (<1 dS/m) in Andhra Pradesh and Telangana and slightly saline (1 dS/m) in Tamil Nadu. The soil samples analysed for micronutrients revealed that 85%, 82%, 87%, 81%, 83% in Tamil Nadu, Andhra Pradesh, Telangana, Maharashtra and Madhya Pradesh respectively. Nearly 85% of soil samples were analysed for available micronutrients. Maximum soils with adequate micronutrients were observed in Tamil Nadu, where most of the soil samples analysed were found to be in adequate range (>0.6). The deficiency percentage of soil samples analysed with adequate micronutrients (<0.6) were given in below figure. Out of the total soil samples analysed in the study area, it was found that the zinc, followed by copper, manganese, iron and boron were deficient. 82% of the soil samples of coastal districts of Andhra Pradesh were found slightly alkaline in nature. In Tamil Nadu more than 80% of the soil samples of Coimbatore, Dharmapuri, Erode and Tiruvannamalai districts were found to be moderately alkaline in strength while the remaining districts were slightly alkaline in nature. In Maharashtra, all the soils of Nashik district were found to be moderately alkaline in strength while the remaining districts were slightly alkaline in nature. In Madhya Pradesh most of the soils were found to be slightly alkaline in nature. Majority of the samples analysed in all the states were found to be normal in organic carbon content. More than 80% of the soil samples analysed in all the states were found to be normal in organic carbon content.



Percentage of soil samples deficient with respect to micronutrients (Average of all states)

Electrical conductivity and organic carbon

Electrical conductivity is a measure of soil fertility or salinity. The organic carbon content in the soil samples ranged from 0.05% to 1.2%. The organic carbon content was found to be in the range of very low percentage of samples which was in Tamil Nadu, Andhra Pradesh, Telangana, Maharashtra and Madhya Pradesh. The organic carbon content was found to be 0.5%, 0.6%, 0.5%, 0.5%, 0.6% in soil samples respectively. The analysis of available phosphorus in the soil samples in all the states varied from low to medium levels. Available nitrogen was found to be very high in the soil samples of Karnataka, coastal samples of Tamil Nadu, coastal districts of Andhra Pradesh, 80% soil samples of Telangana, 80% soil samples of Maharashtra and 87% soil samples of Madhya Pradesh.

In the present study, available phosphorus ranges vary from 0 kg/ha to 150 kg/ha. In Karnataka, 87% of soil samples analysed, show low phosphorus content. High proportion of soil samples of Tamil Nadu (70%), Andhra Pradesh (coast), Telangana (60%), Karnataka (70%) and Madhya Pradesh (60%) are with low available phosphorus status. The available potassium content was varied from 108 to 1200 kg/ha. The potassium content in majority of the soil samples analysed was medium to very high. The results showed that more than 80% of the soil samples analysed in all the states are having sufficient levels of available K and in ranges from medium to high values.

The available sulphur status of the soil samples analysed in Sonnalika Sulphur Project and Kalyanchak Project varied from low to high ranging from 0.2 to 0.6 ppm of available sulphur. Based on the ranges, 0.60 ppm is taken as the critical limit for sulphur. Out of the 100 soil samples analysed in all the districts of Bihar, 60 samples showed low status (0.2 to 0.6 ppm) of available sulphur and 40 samples showed high status (0.6 to 1.0 ppm) of available sulphur.

Average nutrient status of soil samples analysed in Sonnalika Sulphur Project and Kalyanchak Project

Name	Available N			Available P			Available K			Available S			Available B		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Based on the soil test results, recommendations of fertilizers & manure application were provided to the farmers as per the principle of site specific nutrient management in order to promote balanced use of fertilizers and to avoid over and under use of fertilizers.

Ongoing Research Projects

PC (S.S.D.) Dr. Revised scheme of Multilocation Trial Research was carried out in Multi Environment Research Institute

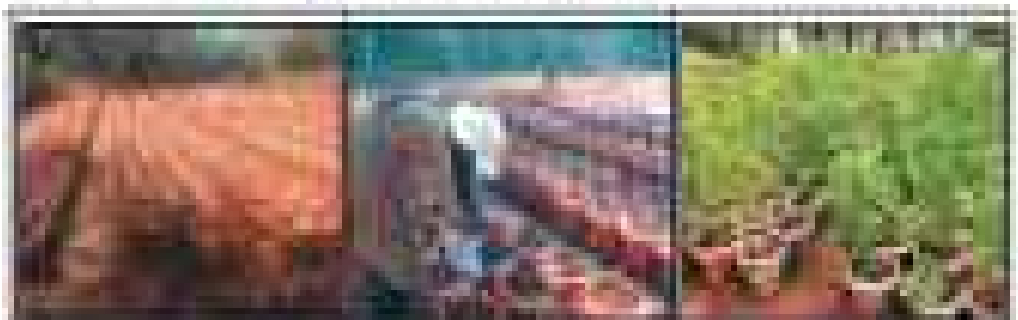
Varietal Evaluation Identification of Rice for Northern Low Plateau Zone (Bihar, Jharkhand)

Varietal testing and characterization

Objectives :

- To evaluate the agro-morphological characters of diverse mutant genetic resources for uniform and adaptation efficiency of Rice (Oryza sativa L.) in Northern Low Plateau Zone and Bihar.
- To identify [illegible] efficient and economically viable [illegible] varieties for [illegible] genotypic data on the panel to be provided by Cicla of the mutant research programme).

250 diverse mutant genotypes were developed and collected from CSSRI, Karnal. They were sown in rows in nursery bed with 2 replications. After 4 months, the single plant selected and transplanted in the plot using single seedling per hill to maintain the uniform population. The different fertilizer treatments were imposed in the form of fertilizer dose as recommended dose of fertilizer (RDF) (120 kg N, 60 kg P2O5 and 40 kg K2O per ha) and 50% of recommended dose of fertilizer. The experimental plots were maintained as per the schedule.



Proposed Recommendations

a b c

Preparation of soybean leaf through cold water leach mass. a) Soybean seedlings are grown in pots until 8 [illegible] b) Seedlings with roots washed away

Different varieties of soybean seedlings grown in containers

Treatments / Samples analyzed	Total
Soil samples from farmers and [illegible]	[illegible]
Irrigation water	12
Fertilizer	18
Soil fertilizer	30
Soil fertilizer supplement	12
Pesticide	12
Chemical	18
Chemical control	12
Herbicide	12
Fungicide	18
Weed control	24
Soil Soil	30
Fertilizer	12
Pesticide	12
Total	204

Questionnaire administration

Quality testing of soybean seeds, products and different farm inputs used in agriculture

Objectives: To analyze the seed and other samples and assess their suitability for agriculture activities

As mentioned in the title of the research, soybean is the main [illegible] farmer had conducted quality analysis of various pesticides, [illegible] fertilizers of these which are used in farmers fields as per the rules below by providing technical and extension support to the [illegible] of agriculture research for the promotion.

AGRONOMY

Ongoing Research Projects

RRL(N)1: Evaluation of improved multiberry genotypes for yield, water-fruit, nutrient uptake and nitrogen use efficiency under varied multivariate practices (Feb. 2014 - Dec. 2016)

- Dhananjaya Pathak, Udaipur Ganj, Chandrapur, R. Bhuvaneshwari and S. Thangadurai

Objectives

i. To evaluate physiological nutrient uptake efficiency of new multiberry genotypes under varied levels of irrigation and fertilizer inputs

ii. To evaluate new multiberry genotypes cultivation under varied conditions for their efficacy in alleviation studies

iii. To determine changes in soil efficiency level due to nutrient translocation

An experiment was conducted to evaluate the improved multiberry genotypes for yield, water-fruit, nutrient uptake and nitrogen use efficiency under varied cultivation practices.

The experiment consisted of two levels of irrigations (I1: 100% and I2: 80%) and three levels of fertilizer doses (F_1: 120, 140, 160 kg/ha; F_2: 100, 120, 140 kg/ha) and F_3: 80, 100, 120 kg/ha) along with recommended package of practices for the multiberry genotypes viz. AGB-2, AGB-3, AGB-4 and AGB-5 and 50 individuals in each unit which were replicated three times.

During the period, 5 crops were harvested for the first year and the growth and yield parameters were recorded. Soil samples were analysed for biochemical and chemical properties for different seasons. Statistical data of crops for the first year revealed that water-fruit irrigations by 100 per cent (I_1) (Pooled) recorded the highest yield of berry fruit by 10000-12000 kg/ha/yr as compared to 80 per cent irrigation (I2) and 120 kg/ha/yr followed by 10000-12000 kg/ha/yr as compared to 80 per cent irrigation (I2) and 120 kg/ha/yr respectively (Fig.). Whereas yield was computed across the treatments, AGB-4 recorded highest followed by AGB-3 and AGB-5 under 100% irrigation. Above which decline in soil moisture at all the crop growth stages in the order of 5-7 per cent in the soil for the evaluation of fertilizer inputs at recommended. Conversely, the decrease of soil pH for all the genotypes under treatment showed the magnitude of 0.2 to 0.4. Soil analysis revealed that there was no significant difference in the physical and chemical properties among the different treatments across the first year.

Ongoing Projects (Collaborative Projects)

CRP-RRL(N)-01: Seed treatment and recycling of discarded silk materials/ wastes for sustainability (Oct. 2013 - Dec. 2015)

Dr. Anushka, I.C. (Co-Principal Investigator), Assam Agricultural University, Jorhat, Assam, India

Objectives

i. To study the effect of seed treatment from pre and post cocoon silk wastes and chemicals on their germination and growth

ii. To prepare value added products like silk sericin gel and silk powder from silk worm fibres and its preservation application

iii. To study the recyclability of discarded silk wastes and its utilization by combined methods

[illegible]

Continuous/Other activities

[illegible]

MULBERRY PATHOLOGY

Concluded Research Project

[illegible]

[illegible]

Objective: [illegible]

[illegible]

Methodology: [illegible]

[illegible]

[illegible]

$$\text{Efficacy}(\%) = \frac{\text{Number of plants revived}}{\text{Total number of plants treated}} \times 100$$

Patenting and Commercialization [illegible]

[illegible] A total of [illegible] farmers were covered in the project in four states. Maximum number of farmers was covered in Tamil Nadu [illegible] followed by Andhra Pradesh [illegible], Karnataka [illegible] and Telangana [illegible], where [illegible] demonstrations were conducted to the farmers on identification of the [illegible] disease and application of the formulation, [illegible] was distributed to the farmers of four states. Maximum quantity [illegible] was distributed in Tamil Nadu followed by Karnataka [illegible] and Andhra Pradesh [illegible].

[illegible]				
State	[illegible] (No.)	Demonstrations (No.)	[illegible] distributed (kg)	Avg. [illegible] (%)
Andhra Pradesh	[illegible]	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]	[illegible]
Telangana	[illegible]	[illegible]	[illegible]	[illegible]
Karnataka	[illegible]	[illegible]	[illegible]	[illegible]
Total	224	129	1884	75.03

The data on the performance was collected from selected farmers of [illegible] villages. Among [illegible] villages of Andhra Pradesh, the highest control of the disease was found [illegible] and lowest [illegible]. The average data of [illegible] villages showed an average disease control of [illegible] in terms of [illegible].

[illegible] in selected farmers' fields of Andhra Pradesh							
Name of the village	No. of farmers	Area (ac)	Variety	[illegible] (No.)	[illegible] (kg)	[illegible] (No.)	[illegible] (%)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total / average	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]

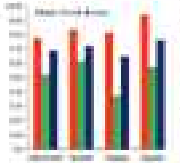
In Tamil Nadu, among the farmers of [illegible] villages, the highest control of disease was observed [illegible] and lowest [illegible]. The average disease control was found [illegible] in terms of [illegible] after the application of [illegible]. In case of Telangana, [illegible] of the villages showed the highest control of [illegible] and lowest [illegible]. The average disease control was [illegible]. Similarly in case of Karnataka, the highest disease control was [illegible] and lowest was [illegible]. The average disease control of the farmers of [illegible] villages was [illegible].

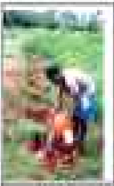
[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]

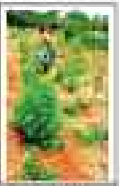
[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

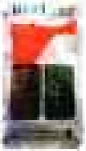
Name of the village	No. of farmers	Area (ac)	Variety	[illegible] planted plants (No.)	[illegible] supplied (kg)	Plants survived (No.)	Survival (%)
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1	1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total / Average	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]							
Name of the Village	No. of farmers	Area (ac)	Variety	[illegible] (No.)	[illegible] supplied (kg)	Plants survived (No.)	Survival (%)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]









Recommendations:

- [illegible]
- [illegible]

[illegible]

Concluded projects

[illegible]

[illegible]

Objectives

- [illegible]
- [illegible]

[illegible]

Materials and Methodology

[illegible]

[illegible]

[illegible]

[illegible]

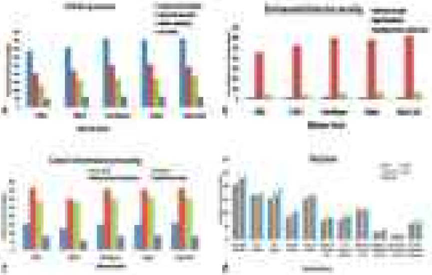
[illegible]

[illegible]

[illegible]

[illegible]

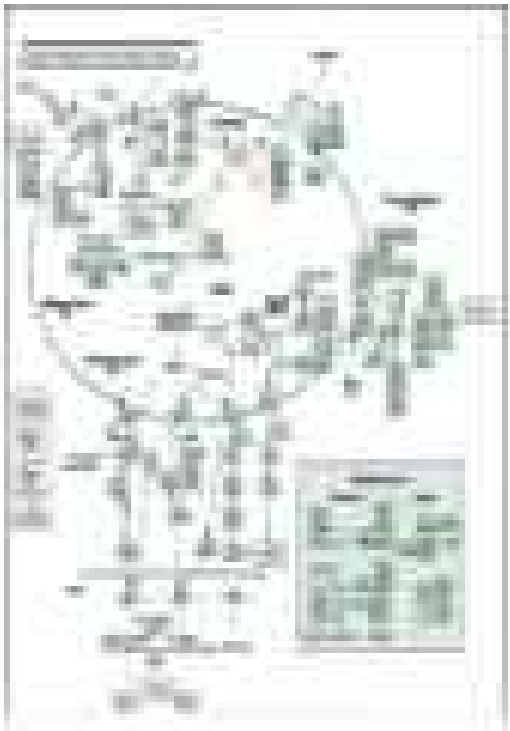
[illegible]



[illegible] a membrane and transmembrane [illegible] as potential regulators for cell polarity, along with the five orthologs transcripts [illegible], transmembrane, [illegible]. Wild-type, [illegible] glucose-induced [illegible] as [illegible] saccharomyces cells fluorescence [illegible] [illegible] to cell polarity. However, these results [illegible] further studies to understand the complexity of cell polarity and how multifactorial, the identified regulators [illegible] the cell polarity can be utilized for [illegible] [illegible] [illegible] for [illegible] to [illegible] [illegible] [illegible].

[illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]



[illegible] [illegible] [illegible] [illegible] [illegible] [

[illegible]

[illegible]

[illegible]

Objectives

- [illegible]
- To identify [illegible] India and Bulgaria

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

A total of 12 [illegible]

[illegible]

[illegible]

Sample	Test (No.)	Yield (2000 series) (m³)	Yield (2000 series) (m³)	[illegible] (g)	[illegible] (g)	[illegible] (%)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible] (No.)	[illegible] (m³)	[illegible] (m³)	[illegible] (g)	[illegible] (g)	[illegible] (%)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible] (No.)	[illegible] (m³)	[illegible] (m³)	[illegible] (g)	[illegible] (g)	[illegible] (%)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Inter Institutional Collaborative Project

[illegible]

[illegible]

[illegible]

Objectives

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible]						
[illegible]	[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]	Sig.	[illegible]	Sig.	[illegible]	Sig.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

i) [illegible]

ii) [illegible]

[illegible]					
[illegible]	[illegible]	No. of [illegible]	No. of [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Karnataka	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maharashtra	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Average/Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Control					
Karnataka	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maharashtra	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Average/Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]: Assessment of [illegible] variation in silkworm (*Bombyx mori* L.) by Genotyping by Sequencing and [illegible]

[illegible]

Objectives: [illegible]

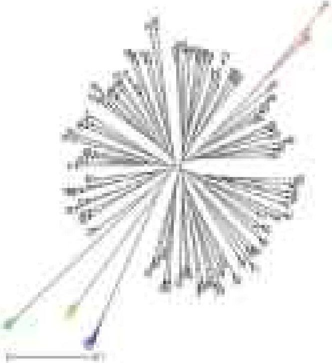
Results

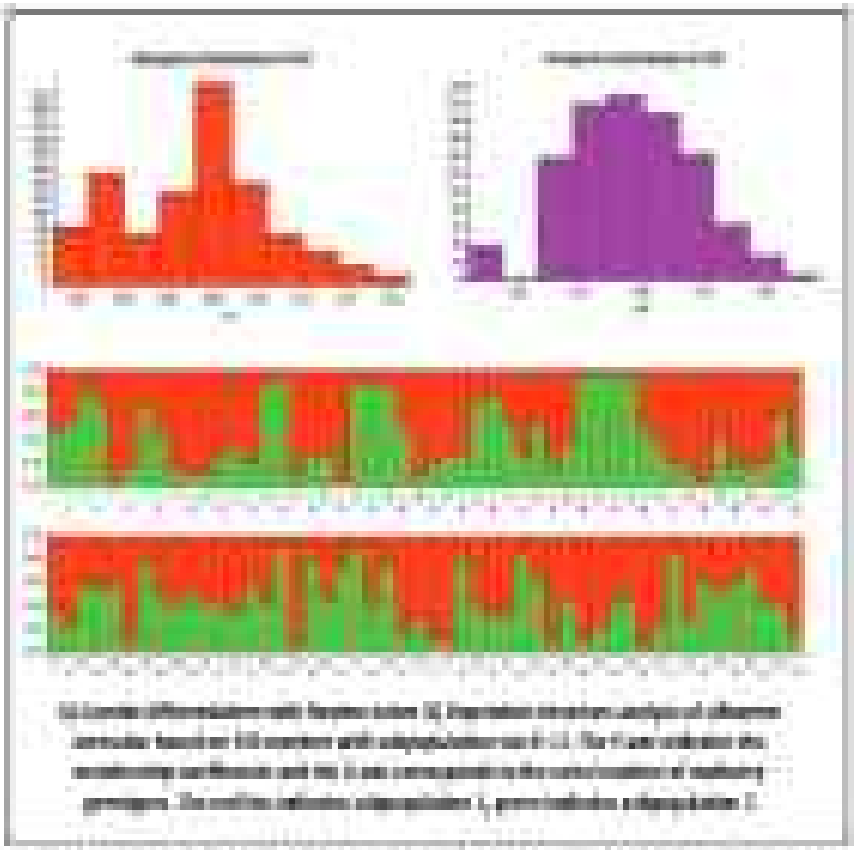
[illegible]

[illegible]

Genotyping

[illegible]





(a) Locate differentiations with factors value. (b) Separation structure analysis of alkaline extracellular based on 100 markers with adaptpopulation size k = 3. The K-axis indicates the membership coefficients and the Q-axis corresponds to the various numbers of inhabiting genotypes. The red line indicates subpopulation 1, green indicates subpopulation 2.

...ed with the subpopulation of the ISL-2nd Disease resistant variety and control) Modeling discovered associated with of Bacillus subtilis L through marker-assisted selection. Stub. 2014 – Res. 2018

) Genetic, economical, and sensitivity, and many possible

Objectives

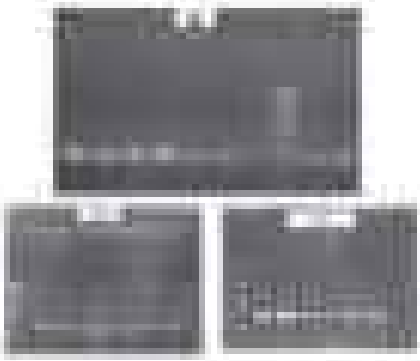
- Identification of the study [primary research and lessons] adverse locations shown using molecular markers.
- Development of multi-trial disease tolerance breeding efficient in locals/farmers through screening of [illegible]
- [illegible] use of identified markers [illegible]

Bacillus main Bacillus subtilis strain (BmPP) and Bacillus main isolate pathogenic race (BmPP) are the primary host pathogens that cause [illegible] resistance to the former and the more virulent pathogen are screening and molecular marker-assisted breeding [illegible] Bacillus affects in locals from different European [illegible] of host many varieties and cultivars individually with varying [illegible] and diseases [illegible] [illegible] [illegible] Tolerant/resistant populations were sampled and recorded for susceptible [illegible] are through locations collected the layings were prepared and screened using molecular marker-the [illegible] markers for identification of necessary resistant for disease. Accordingly, the strains from the isolates in BmPP01, BmPP02, and BmPP03 were identified using race-specific [illegible] [illegible] [illegible]

[illegible] study of [illegible] soil-borne [illegible] and [illegible] presence in [illegible] tomato. The [illegible] sequence, [illegible] and [illegible] of [illegible] SSR markers are presented in Table. Based on this study SSR markers could be used in [illegible] studies involved in the development of [illegible] for [illegible] resistance/tolerance. The [illegible] characters were [illegible] and [illegible] [illegible] were also analyzed. Based on this study the [illegible] [illegible] [illegible] and [illegible] were developed for further [illegible] in [illegible] [illegible].

Details of SSR markers used in screening and [illegible]													
Primer	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]
	Type	Sequence	Type	Sequence	Type	Sequence	Type	Sequence	Type	Sequence	Type	Sequence	Type	Sequence
[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]
[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]
[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]
[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]	R	[illegible]	F	[illegible]

Structural information of SSR markers					
Primer	Motif	Forward primer (5'—3')	Reverse primer (5'—3')	Size (bp)	Product
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]



[illegible] of [illegible] [illegible] by [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] of [illegible] [illegible] in [illegible] [illegible] [illegible]

[illegible]

[illegible] of [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible]

[illegible]

[illegible]

Objectives

- [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Karnataka	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total/Average	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

Objectives

- [illegible]
- Characterization of Chitosan
- [illegible]

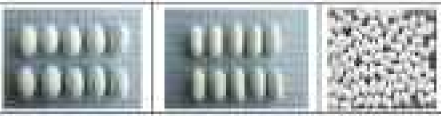
[illegible]

Recovery of chitin from 10g of prawn sources		
Chemical Combination	Chitin recovered (g)	Recovery %
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible] crop activities

Maintenance of breeding genetic resources

[illegible] [illegible] [illegible] [



Training performance of modelling silkworm germplasm clusters

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]					
Breed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible]

[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

[illegible]

...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...

...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...
...	...	...	...	...	...	...

...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...
...	...	...	...	...	...

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Overall grade	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Ongoing Projects

[illegible]

Objectives

- [illegible]
- [illegible]

[illegible]

[illegible]

Objective

- [illegible]

[illegible]

[illegible]

[illegible]	[illegible]							
	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]								
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
	value	Grade	value	Grade	value	Grade	value	Grade
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
Major Traits								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Auxiliary Traits								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Overall grade		[illegible]		[illegible]		[illegible]		[illegible]

[illegible]

[illegible]

[illegible]

Objective: [illegible]

[illegible]

[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

...

...

...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...

...

...

...

Training performance of the Campaign

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SILKWORM PHYSIOLOGY

Concluded Projects

[illegible]

[illegible]

Objectives: i) [illegible]

ii) [illegible]

Work carried out at CSRTI-Mysore

[illegible]

[illegible]		
[illegible]	[illegible]	
	[illegible]	[illegible]
Chemical extraction	[illegible]	[illegible]
Enzymatic extraction	[illegible]	[illegible]
Solid state fermentation	[illegible]	[illegible]
[illegible]		

[illegible]

Work carried out at [illegible] Bangalore

[illegible]

[illegible]

[illegible] source of [illegible] protein in the diet of cattle and sheep. The [illegible] showed that [illegible] can be used to replace conventional protein of soybean in beef production diet by [illegible] and can [illegible] in any diet without any detrimental effect and without compromising the growth and nutrient utilization in sheep [illegible].

[illegible] effect of incorporation of different levels of [illegible] on [illegible] from different [illegible] digestibility of nutrients and growth rate in sheep

[illegible] were [illegible] and [illegible] were [illegible] with supplementation of different levels of [illegible] from different [illegible] (T1 = 0%, T2 = 5%, T3 = 10%, T4 = 15% and T5 = 20%) for [illegible] days. The T3 and T4 [illegible] were significantly higher ($p<0.05$) than [illegible] in other [illegible] and other groups. The digestibility of [illegible] was [illegible] significantly [illegible] than [illegible] and other [illegible] with [illegible] T3 [illegible] ($p<0.05$) greater than other [illegible] and other groups. [illegible] and [illegible] [illegible] of [illegible] in the feed [illegible]. The [illegible] [illegible] [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						

[illegible]						
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
Dry Matter (DM)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Organic Matter (OM)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						

[illegible]

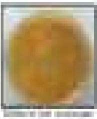
[illegible]

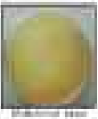
[illegible]

[illegible]

1. [illegible]
2. [illegible]

[illegible]





[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]										
	[illegible]				[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]										

[illegible] Experiment at [illegible] Farm

Agricultural Research Station

Title of Trial: Identification of released and farmers' [illegible] hybrids suitable for different regions of high temperature and high humidity conditions (Kharif, 2020 – Rabi, 2020-21)

Name of Cooperator(s): [illegible]

Objectives:

1. To evaluate released and farmers' hybrids under high temperature and high humidity
2. To identify the best performing hybrids for [illegible] conditions

In the progeny of [illegible] [illegible] [illegible] were developed for the [illegible] of double hybrids and [illegible] [illegible] double hybrids with all possible combinations. All the hybrids were subjected to [illegible] high temperature and high humidity conditions at [illegible] during Kharif 2020. Analysis of variance revealed significant differences among the hybrids for all the characters studied. Considering the [illegible] and yield, [illegible] double hybrids were found tolerant to high temperature and high humidity based on the [illegible] and [illegible] performance.

Performance of [illegible] hybrids / [illegible] at [illegible]

Hybrid	[illegible] (%)	[illegible] (cm)	[illegible] (cm)	[illegible] (%)	[illegible] (%)	[illegible] (kg)	[illegible] (kg/ha)	[illegible] (%)	[illegible] (cm)	[illegible] (kg/ha)	[illegible] (q/ha)	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Based on overall performance of double hybrids tested at different locations, [illegible] hybrids [illegible] ([illegible] × [illegible]), [illegible] ([illegible] × [illegible]), [illegible] ([illegible] × [illegible]) and [illegible] ([illegible] × [illegible]) are recommended for further evaluation. These hybrids can be

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

TECHNOLOGY VALIDATION & DEMONSTRATION CENTRE

[illegible]

[illegible]

[illegible] [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					[illegible]	[illegible]	[illegible]	[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]			[illegible]	[illegible]							

[illegible]	[illegible]	[illegible]		[illegible]
		[illegible]	[illegible]	[illegible]
[illegible]	[illegible], Ramanagaram	26,700	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
[illegible]	[illegible], Ramanagaram	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
[illegible]	[illegible], Ramanagaram	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
[illegible]	[illegible], Ramanagaram	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]
Total			[illegible]	

- [illegible]

PEST MANAGEMENT LABORATORY

Ongoing Projects

[illegible]: Demonstration and popularization of pheromone trap against [illegible]

[illegible]

Objectives

- [illegible]
- [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] "Development of Integrated Pest Management (IPM) module for leaf roller [illegible]" [illegible]

[illegible]

Objectives:

- Evaluation of [illegible] for the management of leaf roller in mulberry.
- Evaluation of [illegible] for the management of leaf roller in mulberry.
- [illegible] safety to silkworm.

[illegible]

[illegible]

[illegible]

[illegible]

Objective: [illegible]

[illegible]

Production of biocontrol agents [illegible]		
Biological control agents	Quantity produced	Quantity sold
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

SUPERVISION PROGRAMME

1 Vitreous Disease Monitoring in South Indian States- Continuous programme

Objectives

- to estimate the prevalence of vitreous diseases in selected study rural areas and Community Development Blocks in the South Indian states.
- To analyse microbial invasion in the eye to find the factors in causing the vitreous diseases and to prevent diseases outbreak.

Disease monitoring was conducted in the 33 districts (75% of the states Tamil Nadu and Andhra Pradesh and 14 mega districts and ten non-weighted rural areas of Kanchipuram, Tiruvallur, Vellore, Krishnagiri, Nilgiris, Erode, Madurai and Dharmapuri from Jan 2019 – Dec 2020. In the 60% of the selected eye hospitals, 30 patients' data were collected every month. The survey data was uploaded in the website "Survi 247" created for Vitreous Disease Monitoring.

The average vision was reduced in rural areas (14%, Madurai 12.9% and Kanchipuram 10.9%) during the survey period.

In 60% of the eye hospitals, the diabetic retinopathy was up to 20.5% (average 12.9%), Retinopathy of prematurity (up to one year) average 4.6%, and myopic degenerative changes noticed up to one year (average 10.6%), in rural areas. 60% the rural communities of Madurai disease recorded up to 3.2% with an average incidence of 0.7%, and in peripheral eye up to 2.1% with an average incidence of 0.6%. Cataract operations was not reported in any of the 33% during this survey.

Following are the diseases monitoring in the study area in the Madurai, Tamil Nadu, and the results are

In Kamakshi Eye Hospital, Kanchipuram, the glaucoma was noticed up to 2.1% with an average of 0.7% and Retinopathy noticed up to 0.3% with an average of 1.3%. In Tamil Nadu, studies the pterygium prevalence of glaucoma was noticed up to 0.3% with an average of 0.2% in Tamil Nadu it was noticed up to 2.1% with an average of 0.7%. In Maharashtra, in survey the pterygium of Retinopathy was noticed up to 2.1% with an average of 1.3%.

The disease incidence data collected after the camera harvesting from the farmers in Kanchipuram (1.3%), Krishnagiri (1.0%), Madurai with an incidence of 0.3% and 0.2% respectively in Tamil Nadu patients in incidence rarely up to one year, with an average incidence of 0.1% and Retinopathy incidence was noted up to one year with an average of 0.2%. In Madurai in Vellore district, maximum of 20.5% Retinopathy with an average incidence of 0.3% was reported.

Methodology (Data collection will be carried out by the trained investigators in the selected study villages and eye hospitals using a questionnaire, slit lamp, ophthalmoscope, camera, audiovisual aids, interviewing, counseling, training, and other tools.

Duration: 3 years (Jan 2020-Feb 2023)

Objectives

- To develop a knowledge base on different vitreous diseases and their management
- To develop a risk based vitreous disease and vision diagnosis system as a decision tool for the vitreous diseases and post vitrectomies in south India.
- To develop a model for forecasting and forewarning of vitreous diseases and to issue the forecasting reports.
- To develop a virtual information platform for the participants and counselors on the vitreous diseases and cases and management of vitreous diseases and peels.

Based on the study outcomes the investigators have suggested many guidelines and recommendations to the society on the basis. Vitreous diseases and its management more effective and cost-effective to various

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

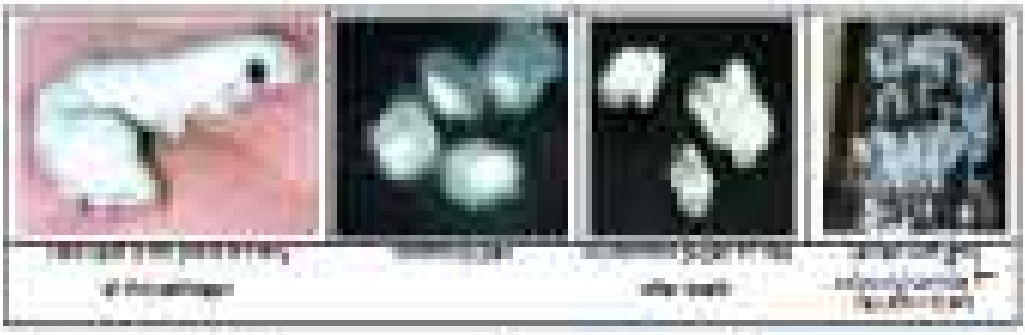
[illegible]

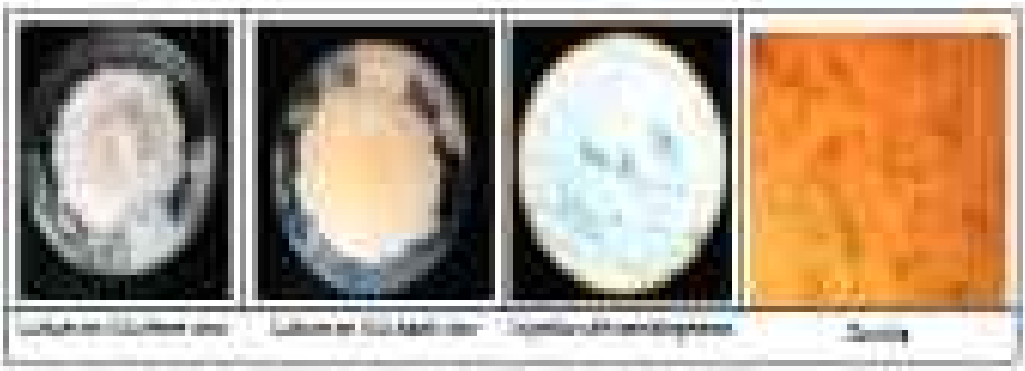
[illegible]

[illegible]

[illegible]

[illegible]





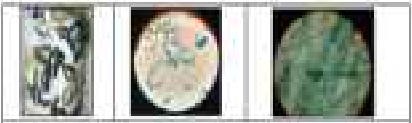
Phylogenetic tree constructed with sequences of the ITS1-5.8S-ITS2 rDNA region of entomopathogenic fungus (and common isolates) from silkworm at most [illegible] and specimens of native species from [illegible] (Maximum likelihood analysis using the neighbor-joining method and using p-distance for nucleotides) with [illegible] bootstrap [illegible]

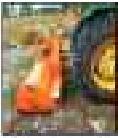
3. Molecular characterization of Beauveria bassiana isolated from silkworm during the rearing

[illegible] Beauveria bassiana isolated from silkworm [illegible] from the different rearing of [illegible] insects was the entomopathogenic fungi and most prominent as brown color fast-growth colonies [illegible] of the fungus white fungi are observed accurately number of [illegible] these colonies was observed as [illegible] of Beauveria bassiana [illegible] (Table 1 and Figure 1).

4. Pathogenicity of Beauveria bassiana isolated from silkworm (Bombyx mori)

Mean mortality of [illegible] in bioassay [illegible] Beauveria bassiana was observed in silkworms from [illegible] and also in the rearing conducted at [illegible]. Mycelia, Beauveria bassiana [illegible] and [illegible] Muscardine fungi were active on the pathogenic fungi of silkworm samples, an emerging fungal pathogen in silkworms. The [illegible] of infection and pathogenicity studied in insect and the molecular characterization of the pathogen was [illegible] carried out. Specimens of [illegible] were submitted to [illegible] and got the accession numbers [illegible] and [illegible] (Table 1). [illegible] the Beauveria bassiana [illegible] on silkworm





[illegible]

[illegible]

[illegible] (DPP) [illegible] [illegible] [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible] [illegible] [illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible] [illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] [illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible]
[illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible]
[illegible]	[illegible] [illegible] [illegible] [illegible]	[illegible]
[illegible]		
[illegible]	[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]	[illegible] [illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]

Nominal roll of army		
Cadres	Unit	Rank
Commander (Permanent)	...	Shri. R. Lalita, Asst. Director, Deptt. of horticulture and sericulture, Jangir district, HP
Member (Technical)	Sh. A. L. Pandit, Sub Divisional Officer	Shri. L. L. Sharma, Extension Officer, Kullu
Head (Medical)	Shri. S. L. Gupta, Sub Divisional Officer	Shri. L. L. Rana, Extension Officer, Kullu
Members (Horticulture)	Shri. S. S. Raghuvanshi, Sub Divisional Officer	Shri. Sanjiv K. Sharma, Sericulture Development Officer, Solhara
Member (Sericulture)	Shri. S. S. Raghuvanshi, Sub Divisional Officer	Shri. J. L. Lakra, Extension Officer Sericulture Development Officer, Kullu
Manager (Plant Nursery)	Shri. L. Chandra Pandit, Sub Divisional Officer, Banjar	Shri. Krishnan, Jat, Horticulture
Personal Assistant	Smt. L. Sarita, Sub Divisional Officer	Shri. Sri Ram Lal, Assistant Sericulture Officer, Kullu
Technical Assistant	Shri. A. S. K. Rao, Sub Divisional Officer, Kullu	Shri. Ajay Singh Thakur, Horticulture Development Officer, Kullu Shri. Kailash Chandra Sharma, Horticulture Development Officer, Kullu Shri. Subhash Chand, Horticulture Development Officer, Kullu
Accountant	Shri. L. L. Jadhav, Sub Divisional Officer, Banjar	Shri. S. S. Thakur, Horticulture Development Officer, Dharamshala

Performance of Clusters

Year 2016 Production: During the year under study academic institutes achieved high production of 2004.60 MT of tricolore raw silk production (26.84%) against the target of 1000.00 MT with an annual increment of 2004.60 MT. Raw silk production in the clusters during the 31 Jan. 2017 is presented below:

Raw silk production in south zone clusters (Oct. - Dec.)			
Year	Target (MT)	Production (MT)	Achv. (%)
2000-01	4000.00	3200.00	80.00
2001-02	4000.00	3321.60	83.04
2002-03	4000.00	3777.00	94.43
2003-04	4000.00	3988.77	99.72
2004-05	4000.00	3800.00	95.00
2005-06	4000.00	4781.11	119.53
2006-07	4000.00	3761.60	94.04

[illegible]

[illegible]			
[illegible]	[illegible]		
	[illegible]	[illegible]	[illegible]
Karnataka	[illegible]	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]	[illegible]
Telangana	[illegible]	[illegible]	[illegible]
Maharashtra	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]
Other States	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]				
State	[illegible]	[illegible]	[illegible]	[illegible]
Karnataka	[illegible]	[illegible]	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]	[illegible]	[illegible]
Telangana	[illegible]	[illegible]	[illegible]	[illegible]
Maharashtra	[illegible]	[illegible]	[illegible]	[illegible]
Tamil Nadu	[illegible]	[illegible]	[illegible]	[illegible]
Other States	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] following table.

State	[illegible]							
	[illegible]							
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]								[illegible]
Average	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Performance of [illegible] in the year [illegible]									
[illegible]	[illegible] Target [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
								[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total/Avg.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Performance of [illegible]									
[illegible]	[illegible] Target [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
								[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total/Avg.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	48.70	37.18	102.86	1,451.70	72.10	180.00	8.1	150.00
[illegible]	72.20	57.10	89.00	1,178.00	64.50	240.00	9.5	1,200.00
[illegible]	[illegible]	51.60	95.40	980.40	58.40	195.00	7.2	780.00
[illegible]	40.00	30.20	88.00	2,000.00	78.00	300.00	6.0	2,400.00
[illegible]	55.40	42.00	110.00	760.00	70.00	210.00	5.5	975.00
[illegible]	[illegible]	[illegible]	96.00	4,000.00	71.40	360.00	10.0	3,600.00

[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	33.00	4.20	70.00	300.00	55.00	270.00	1.0	300.00
[illegible]	41.00	6.10	65.00	340.00	60.00	330.00	0.0	0.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	61.00	45.00	118.00	1,980.00	75.00	150.00	12.0	1,800.00
[illegible]	58.40	43.10	120.00	1,847.00	73.20	180.00	11.5	1,725.00
[illegible]	29.00	21.00	75.00	2,000.00	80.00	240.00	0.0	0.00
[illegible]	47.00	33.00	81.00	1,650.00	62.00	210.00	4.0	1,320.00
[illegible]	52.00	38.00	105.00	1,900.00	70.00	195.00	9.0	1,350.00
[illegible]	66.00	49.00	130.00	2,100.00	76.00	165.00	14.0	1,950.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...

...

...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...
...	...	...

...

[illegible]

One District - One Product scheme [illegible]

[illegible]

[illegible]

Extension Communication programmes (ECP)

[illegible]

Student Services: [illegible]

Category	No. of Students visited
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
Total	[illegible]

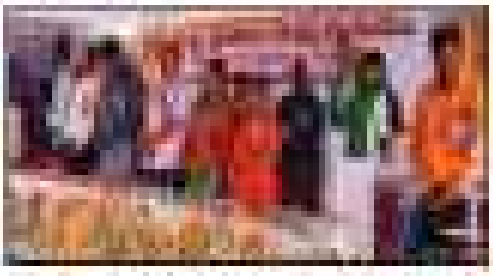
[illegible]

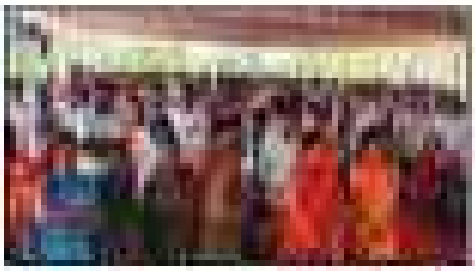
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...

...			
...	...		...
...	...		...
...	...		...
...	...		...
...	...		...
	...		...
...	...	...	...
...	...		...
...	...		...
...	...		
...	...		

...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...
...	...

Nuchem Conference:





Andhra Pradesh, 2020 (Nuchem): organized Nuchem Conference and Farmers' Workshop on Nuchem technology for sustainable income in southern region — technologies for enhancing productivity of horticultural crops in accordance with Quality. 414 farmers participated in the programme benefited from the technologies and exhibition on various aspects of: intercropping, drip and mulching, improved medium varieties, rice cultivation, recommended varieties of vegetable for multiple cultivation, IPM, IWM, IDM, plantations of coconut, cocoa, cashew nuts, silkworm rearing and crop protection measures including rearing and use for successful quality cocoon harvest. Dr. Kamal Tewary, Director, CIRT, Nuchem addressed the gathering and informed the various measures by CIRT, mainly for a strengthened evaluation of the farmers and stated that farmers must fully utilize the opportunity to obtain more income by creating gainful employment.

Tamil Nadu: Nuchem organized a workshop on technical services and training in connection with Nuchem Seeds at Kanyakumari on 05.08.2020. 276 Participating farmers participated in the trials. A booklet on "Value Enhancement technologies" was released on the occasion. Dr. Tewary, Director, CIRT, inspired the farmers and also informed that Quality Promotion Programme in Tamil Nadu in association with DOA is undertaking and covering all operations (Quality) which are also recognized by Nuchem Seeds and Government.

Telangana, 2020: Nuchem conducted a Nuchem Krishi ki Sampoorn Pehla Technical Workshop in coordination with commissioner of horticulture and Nuchem Seeds on various aspects of cotton cultivation mainly Bhoj Technology. Various Scientists/experts delivered lectures on the occasion and interacted in sessions with farmers on utilization of new technologies in Cotton and other vegetables.

Activities of FPOs started in 2019 (Source: DAY Mission in Karnataka, Maharashtra and Madhya Pradesh)

Name	Area Mobilized		Office Bearers	Avg. Annual Turnover (Rs. in Lakhs)	BOD	Experts	PIP	Core Team	PIA	Annual Audit	Status of Business Plan	Others
	Farmers (Nos.)	Area (Ac.)										
[illegible]	500	500.00	[illegible]	11.11	11	–	01	–	1	–	–	4
[illegible]	150	150	[illegible]	11.11	01	–	11	1	–	–	–	04
[illegible]	1000	500	[illegible]	50.11	11	1	1	1	–	1	1	4
[illegible]	500	150	[illegible]	16.11	11	–	1	–	1	1	–	1
[illegible]	500	150	[illegible]	16.11	11	–	1	–	1	–	–	–
[illegible]	500	150.00	[illegible]	11.11	11	–	11	–	1	1	1	–
[illegible]	50	50	[illegible]	11.11	11	–	11	1	–	–	–	01

(Including formation and membership and commencing)

Farmers Producer Organization (FPO) is aimed to improve the status of small/marginal farmers socially and economically by doubling their income and also to reach large number of beneficiaries efficiently and effectively so as to make them sustainable in agriculture activities. A Farmers Producer Organization (FPO) was formally inaugurated by the Honble Governor, Shri Vajubhai Vala, on 19th January 2019 at Kalaburagi in the presence of Dr. C. D. Mayee, Chairman, Agricultural Scientists Recruitment Board, Bengaluru, Dr. S. V. Sankaranarayana, Registrar, CAB, Dr. A. S. Halepyati, Director of Extension, and Dr. S. B. Patil, Director, Agro-Climate Research Centre, UAS, Dharwad, Dr. Ashok Alur, Vice-Chancellor of horticultural university, Bagalkot, Dr. M. V. Dangi, Chief Executive Officer, DAY, Bengaluru, Dr. K. S. Nadig, Director, DAY-I, Mysuru and Smt. Sharada Gopinath, Project Director, Agriculture, RKVY, were present on the occasion. Nearly 500 farmers from Jewargi Taluk of Kalaburagi District, Karnataka, have benefited by forming the FPO.

Training-cum-Awareness Programme on Farmers Producer Organization (FPO)

In view of the formation of large number of FPOs in the recent past in the country, it was felt that there is a need to train the stakeholders in the process of promotion and management of FPOs. Accordingly, a training programme was organized on 1st Jan 2019 at DAY, Mysuru. Nearly 30 participants from 15 FPOs, 2 Agricultural Officers and 1 Horticulture Officer from Chamarajanagar District participated in the training programme. The training facilitated the participants to learn the principles and processes of the implementation of agriculture value chain activities. The training inputs were from experts in the field of farmers producer organizations, Local resource persons from DAY, Mysuru.

Stakeholders Officers' Meeting: Discussion Officers meeting was conducted to review the progress of DAY-NRLM activities in Karnataka and Maharashtra and Madhya Pradesh. A total of 30 officers (DAY-NRLM, Mysuru, Karnataka and Maharashtra) participated in the meeting. Discussions were held on formation of new FPOs, progress of FPOs, training programmes and other issues. Suggestions and recommendations were made for the smooth functioning of the FPOs.

Publication of Sericulture Success Stories: [illegible]

Broadcasting of Technologies through All India Radio Mysuru: [illegible]

Institute Village Linkage Programme (Seri Model Village)

[illegible]

State	Cluster	Scientist
Karnataka	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
	Chamarajanagar	[illegible]
Tamil Nadu	[illegible]	[illegible]
	[illegible]	[illegible]
Andhra Pradesh	[illegible]	[illegible]
	[illegible]	[illegible]
Maharashtra	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

Objective: Transfer of technology through Institute Village Linkage Programme (IVLP) for sustainable stable livelihood [illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]
	Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible] such as Technology Orientation Programme (TOP), [illegible] Skill Training ([illegible]), Need Based Training ([illegible]) [illegible]

Programme	[illegible]	[illegible]
Technology Orientation Programme	[illegible]	[illegible]
	[illegible]	[illegible]
National Skill Training	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]
Need Based Training (Officials, Students)	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]
Rural Based Training Services	[illegible]	12
	[illegible]	10
	[illegible]	1
	[illegible]	10
	[illegible]	11
	[illegible]	1
	[illegible]	1

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]									[illegible]
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]		[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]		[illegible]	[illegible]									
[illegible]	[illegible]		[illegible]									
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]	[illegible]	[illegible]									
[illegible]	[illegible]		[illegible]									
[illegible]	[illegible]		[illegible]									

[illegible]

[illegible]

[illegible]			
Unit	[illegible]	[illegible]	Total
[illegible]	–	–	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	–	[illegible]
[illegible]	[illegible]	–	[illegible]
Total	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

	Programme	Duration (days)	[illegible]						Total
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	–	–	–	–	–	[illegible]	[illegible]
	[illegible]	[illegible]	–	–	–	–	–	[illegible]	[illegible]
	Total		–	–	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	–	–	[illegible]
	[illegible]	[illegible]	–	–	[illegible]	[illegible]	–	–	[illegible]
	[illegible]	[illegible]	[illegible]	–	–	–	–	–	[illegible]
	[illegible]	[illegible]	–	–	–	[illegible]	–	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]	–	–	[illegible]
		[illegible]	[illegible]	–	–	–	–	–	[illegible]
	Total		[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
	Total		[illegible]	[illegible]	–	–	–	[illegible]	[illegible]

Subject	Name of the College / University	No. of students	
		UG	PG
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	Total	[illegible]	[illegible]

[illegible]

[illegible]			
Month	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
Total / Avg	[illegible]	[illegible]	[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Revenue Generation during the year [illegible]						
Month	Course fee	Regn. Fee	Sale of [illegible]	Sale of [illegible]	[illegible]	Grand Total
Apr. [illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
May [illegible]	[illegible]	0	0	[illegible]	[illegible]	[illegible]
Jun. [illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Jul. [illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
Aug. [illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Sep. [illegible]	0	0	0	[illegible]	[illegible]	[illegible]
Oct. [illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]
Nov. [illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Dec. [illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]
Jan. [illegible]			[illegible]	[illegible]		[illegible]
Feb. [illegible]				[illegible]		[illegible]
Mar. [illegible]				[illegible]		[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

FARM MANAGEMENT SECTION

[illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

mental simulation sequencing experiments, identification of an uncharacterized transcriptional factor, classification and confidence metrics in the model, and by the performed. Whereas Bacillus model a representative based a demonstrated model organism and sigma factor for the production of natural flavobacteria. The identification and classification of 24 gene families that are considered regulatory were many cellular processes and fundamental, but cannot be fully known play. In this project study, 42 strains identified from the 1928 protein database and 214 proteins from a bacterial (database) belongs to 14 new groups such as ABC, CRISPR, DNA, mutant, 478, Mus, 11 and 14 respectively. Recently, certain identification and classification algorithms have not difficult to identify and the presence of sequence motifs and basic domains, while different proteins was identified in this study are usually not validated for functional role and to understand their relationship to cellular functions. This will also light on understanding the fundamental differences of protein folding in different model organisms and their evolutionary relationships.

Functional annotation of transcriptome, differential expression of genes related to growth and identification of putative gene IDs, traits and values.

Growth is a complex trait associated with multiple, but not all, contributing environmental factors. In this study, we have explored the molecular basis underlying growth using transcriptome profiling of contrasting genotypes. A total of forty-eight (48) primary transcriptomes from high growth (fast-growing) and low growth (slow-growing) (LGR) individuals were harvested for sequencing. A total of 24,000, 27,000, 23,000, and 22,000 Illumina-derived reads were obtained, respectively. Out of the 24,000 paired-end reads, 22,000 (or 92%) were successfully mapped onto the reference genome. The mapped reads were assigned to 21,000 transcripts and 12,000 genes using the Ensembl annotation database. Functional annotation results in the categorization of all 21,000 transcripts into 3 main ontology (gene) terms and 120 sub-categories (Figure 1). Cellular component analysis was dominated by cell (GO:0005623), cell part (GO:0044464), and organelle (GO:0043226) terms, while binding (GO:0005488) and catalytic activity (GO:0003824) were the most abundant molecular function terms. Biological process was represented by cellular process (GO:0009987), single-organism process (GO:0044699), and metabolic process (GO:0008152) terms. Differentially expressed genes (DEGs) between the two groups were identified using the edgeR package in Bioconductor (Robinson et al. 2010). Using a false discovery rate (FDR) of 5% and a minimum fold change of 2, we identified 1,200 DEGs between the two groups. Of these, 800 were up-regulated and 400 were down-regulated in the high growth group relative to the low growth group. Hierarchical clustering of the DEGs revealed a clear separation between the two groups (Figure 2). Gene ontology (GO) enrichment analysis of the DEGs revealed that genes involved in cell cycle, DNA replication, and mitosis were significantly enriched among the up-regulated genes. Conversely, genes involved in metabolic processes, such as oxidation-reduction and lipid metabolism, were enriched among the down-regulated genes. These results suggest that the high growth group exhibits increased cell proliferation and decreased metabolic activity relative to the low growth group. Pathway analysis using the KEGG database further supported these findings, revealing that the cell cycle and DNA replication pathways were significantly enriched among the up-regulated genes (Figure 3). Conversely, pathways related to oxidative phosphorylation and fatty acid metabolism were enriched among the down-regulated genes. These results suggest that the high growth group exhibits increased cell proliferation and decreased metabolic activity relative to the low growth group.

Conclusion and Future Directions

In conclusion, this study has provided a comprehensive transcriptomic analysis of high and low growth genotypes, revealing differential gene expression patterns related to cell cycle, DNA replication, and metabolic processes. The identification of these DEGs and their associated pathways offers valuable insights into the molecular mechanisms underlying growth variation. Future studies could focus on validating the expression of these DEGs using quantitative PCR and investigating their functional roles through gene knockout or overexpression experiments. Additionally, exploring the interactions between these genes and environmental factors could provide a more holistic understanding of growth regulation. Ultimately, this knowledge could be leveraged to develop strategies for improving growth in agricultural species.

References (Abbreviated)

1. Author A, Author B, Author C. Title of the first reference. Journal Name. Year;Volume(Issue):Pages.
2. Author D, Author E. Title of the second reference. Journal Name. Year;Volume(Issue):Pages.
3. Author F, Author G, Author H. Title of the third reference. Journal Name. Year;Volume(Issue):Pages.
4. Author I, Author J. Title of the fourth reference. Journal Name. Year;Volume(Issue):Pages.
5. Author K, Author L, Author M. Title of the fifth reference. Journal Name. Year;Volume(Issue):Pages.
6. Author N, Author O. Title of the sixth reference. Journal Name. Year;Volume(Issue):Pages.
7. Author P, Author Q, Author R. Title of the seventh reference. Journal Name. Year;Volume(Issue):Pages.
8. Author S, Author T. Title of the eighth reference. Journal Name. Year;Volume(Issue):Pages.
9. Author U, Author V, Author W. Title of the ninth reference. Journal Name. Year;Volume(Issue):Pages.
10. Author X, Author Y, Author Z. Title of the tenth reference. Journal Name. Year;Volume(Issue):Pages.

REGIONAL SERICULTURAL RESEARCH STATION (RSRS)

Regional Sericultural Research Stations (RSRS) are established to address the regional problems of [illegible]

RSRS [illegible]

Command Area	Scientific Staff	
	Incharge Officer	Dr. [illegible] (from [illegible] 2020)
Sanctioned	Scientists	[illegible]
	Technical Staff	[illegible]
	Administrative Staff	[illegible]

RSRS-Research	Farm/Extension Units		
	Unit	Total area (Acres)	Mulberry (Acres)
RSRS	RSRS [illegible]	15.00	11.35
Technology	REC [illegible]	7.50	5.57
Research	REC [illegible]	7.00	4.91
	REC [illegible]	8.00	3.29
Finance	REC [illegible]	8.00	6.29
	Total	[illegible]	[illegible]

[illegible]

Crop	Parameter	Target	Ach.
[illegible]	No. of dfls (lakhs)	82.40	79.47 (96.44%)
	Yield / 100 dfls (kg)		67.72
	Rate (Rs.)		380.24
[illegible]	No. of dfls (lakhs)	93.10	93.31 ([illegible])
	Yield / 100 dfls (kg)		55.40
	Rate (Rs.)		525.58
Total	No. of dfls (lakhs)	175.5	159.72 ([illegible])
	Yield / 100 dfls (kg)		62.57
	Rate (Rs.)		488.82

[illegible]

[illegible]

[illegible]

1. **Rearing performance of improved [illegible] breeds [illegible]**

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

2. **Rearing performance of improved [illegible] breeds [illegible]**

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

3. Rearing performance of improved [illegible] breeds [illegible]

[illegible]

Name of breed	Fecundity	Hatching (%)	ERR by		Yield/100 dfls	Cocoon wt (g)	Shell wt (g)	SR (%)
			By no.	By wt.				
[illegible]	400	97.0	8980	18.880	79.30	2.20	0.397	20.62
[illegible]	400	90	3549	5.540	33.35	1.89	0.350	20.71
[illegible]	400	98	7700	13.390	80.10	1.79	0.385	21.44
[illegible]	410	96	7750	13.100	60.00	1.60	0.400	21.17
[illegible]	400	22	8600	8.000	33.00	1.66	0.333	20.00
Mean	383.8	83.8	6805	12.053	47.88	1.758	0.3758	21.61
SD	24.59	2.797	2902.75	5.214	22.42	0.080	0.0277	0.986

4. Rearing performance of [illegible]

[illegible]

Name of breed	Fecundity (no.)	Hatching (%)	ERR by		Yield/100 dfls	SCW (g)	SSW (g)	SR (%)
			By no.	By wt.				
[illegible]	407	90	8513	14.000	37.70	1.85	0.330	20.33
[illegible]	480	94	9390	8.480	40.00	1.51	0.371	20.29
[illegible]	440	90	4740	5.600	28.40	1.66	0.344	24.61
[illegible]	442	97	4880	16.443	60.00	1.66	0.344	20.47
[illegible]	408	97	7740	27.333	88.32	1.73	0.333	19.68
[illegible]	487	90	8280	20.853	93.90	1.62	0.371	20.34
[illegible]	440	90	9090	99.230	27.31	1.73	0.342	20.33
Mean	437.50	93.11	7000.3	13.440	30.11	1.65	0.33	20.83
SD	31.088	3.330	2983.3	88.300	33.20	0.117	0.007	1.789

5. Rearing performance of [illegible]

[illegible]

Name of breed	Fecundity	Hatching %	ERR by		Yield/100 dfls	SCW (g)	Shell wt (g)	SR%
			By no.	By wt.				
[illegible]	489	97	3271	5.80	39.95	1.73	0.333	20.35
[illegible]	383	97	3353	5.50	39.67	1.89	0.333	20.37
[illegible]	395	98	3584	4.81	37.50	1.77	0.405	21.50
[illegible]	411	88	3500	3.60	50.41	1.54	0.390	20.08
[illegible]	411	41	3480	4.60	35.55	1.69	0.333	21.80
[illegible]	400	88	8355	20.55	55.44	1.65	0.355	21.67
[illegible]	487	38	8271	14.23	88.75	1.72	0.333	17.81
Mean	455.45	87.25	4234.35	8.023	38.56	1.73	0.337	20.74
SD	31.37	3.75	[illegible]	4.8	28.67	0.093	0.034	1.543

b. Seasons performance of improved Bambara breeds (Dec.–Mar. 2020)

Planting performance of 20 bambara varieties did result differences in yield and season determination. The seasons yield ranged from 40 to 1400 kg/ha and the highest yield was recorded in [illegible].

Breeding	Assembly (no)	Germination (%)	100 Gs		Yield/100 plots	50 m (g)	50 m (s)	Oil (%)
			Germ.	Germ.				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]

Continuous Bambara assembly:

Irregular bambara assembly breeding research and multiplying samples in the field. A total of [illegible] (%) of bambara single, double rhizhoids and improved ones storage were kept confined with [illegible] farmers. Similarly new multiplying activity of [illegible] and [illegible] seedlings / cuttings were supplied to the farmers from [illegible], Kolokani and Sikasso zones.

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]

Results centre of non-mobility in seasons 2019/Kolokani		
Partners	Quantity	Amount realized in Rs
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	Total	[illegible]

Extension Communication Programmes: Various [illegible] were conducted in the [illegible] and the market units for the benefit of [illegible], agriculture and [illegible] supported by the [illegible] and are [illegible]. Several [illegible] farmers were sensitized under [illegible] programmes.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Name of the cluster	Date	Place	No. of farmers	Topic
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	Identification of rearing house
[illegible]	[illegible]	[illegible]	[illegible]	Identification of rearing house
[illegible]	[illegible]	[illegible]	[illegible]	Disinfection of rearing house
[illegible]	[illegible]	[illegible]	[illegible]	Composting technology for effective utilization of sericulture waste
[illegible]	[illegible]	[illegible]	[illegible]	Identification of rearing house
Total			[illegible]	

[illegible]

Name of the Cluster	Name of the Farmer	Place	Topic
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	[illegible]
[illegible]	[illegible]	-	[illegible]

Name of the Cluster	Name of the Farmer	Place	Topic
[illegible]	[illegible]	-	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

1. [illegible]

2. [illegible]

3. [illegible]

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

4. [illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	
	[illegible]	[illegible]	
[illegible]			
[illegible]	[illegible]	[illegible]	

[illegible]

1. [illegible] [illegible]
2. [illegible]
3. [illegible]

[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	

[illegible]	[illegible]	
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
	[illegible]	[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]								
[illegible]	[illegible]		[illegible]		[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]								

Inference/Recommendation

The results obtained strongly recommend not to use inorganic fertilizers and pesticides. Emphasis on precision management in the nursery, transplanting in clump mode is useful to sustain the soil fertility in the long run. Re-alternation, the use of biofertilizers viz., neem, pungam oil and bio-soil aerial control activities, adopting IPM strategies including timely soil sampling and application of organic inputs may be necessary to maintain the soil health and productivity.

Established: Soil health Cards for agricultural farmers in states of the studies Tamil Nadu, Andhra Pradesh, Telangana, Kerala, Maharashtra and Madhya Pradesh (Jul. 2016 - Jun. 2018)

6. Photographs:

Photographs:

- To monitor the soil fertility status of multiple gardens of Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Kerala, Maharashtra and Madhya Pradesh to recommend balanced fertilizers and improve soil crop productivity.

During the period 2017 soil samples from studies of Tamil Nadu and Kerala under studies promotion programme, other agriculture farmers from different parts of Tamil Nadu and 2018 farm samples have been analysed by [illegible] available phosphorus, available potassium, boron and sulphur.

Soil test crop wise fertilizer recommendations and suitable soil amendments were also given to the farmers and 2018 farms in the form of soil test crop wise recommendations in the local language. A total of 2017 samples were processed and carried out 2017. Results for available nitrogen, P, K, Fe and Zn, Mn, Cu and B for farmers profile and results of the parameters analysed as very, below and moderately were printed in the 500 soil health individual farmers and were sent to soil samples were printed and distributed to farmers. Analysis of soil samples analysed per cluster and location wise of samples analysed during the year are presented below:

Details of cluster wise and samples received and analysed	
Name of the cluster	No. of samples
[illegible]	111
[illegible]	111
[illegible]	88
[illegible]	227
[illegible]	78
[illegible]	88
[illegible]	55
[illegible]	88
[illegible]	111
[illegible]	11
[illegible]	333
[illegible]	333
Total	1557

Fertility ratings of soil samples			
Parameters	[illegible]		
pH	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
EC (dS/m)	[illegible]	High	Toxic
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Objectives

- Evaluation of [illegible] genotypes for the development of superior variety with high yield and suitable for [illegible] conditions
- [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Objectives

[illegible]

Details of the experiment:

No. of varieties	:	6
No. of replications	:	3
Experimental Design	:	RBD
Spacing	:	90 cm x 90 cm
No. of plants/plot	:	10

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]						
Optimal input plot				Sub optimal input plot		
Name of the [illegible]	No. of plants planted	No. of plants survived	Survival %	No. of plants planted	No. of plants survived	Survival %
Mp - 1	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 4	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Optimal input plot				Sub optimal input plot		
Name of the [illegible]	No. of plants planted	No. of plants survived	Survival %	No. of plants planted	No. of plants survived	Survival %
Mp - 6	144	67	46.5	[illegible]	[illegible]	[illegible]
Mp - 9	144	100	69.5	[illegible]	[illegible]	[illegible]
Mp - 10	144	[illegible]	[illegible]	[illegible]	[illegible]	
S - 1	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						

[illegible]						
Optimal input plot				Sub optimal input plot		
Name of the [illegible]	No. of plants planted	No. of plants survived	Survival %	No. of plants planted	No. of plants survived	Survival %
Mp - 1	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 4	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 6	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 8	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 9	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mp - 10	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S - 1	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	144	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Name of the [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]							
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Communication Programme. [illegible] as a result of [illegible] were introduced in [illegible] and to reduce costs in the specific technologies shown [illegible] by this main indicator.

[illegible] Communication programmes introduced by [illegible] sector and by market units								
[illegible]	technology demonstration		Group Discussion		Awareness Prog. / Exhibition		[illegible]	
	No.	Exp.	No.	Exp.	No.	Exp.	No.	Exp.
[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	Technology demonstration		Group Discussion		Awareness Prog. / Exhibition		[illegible]	
[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]						
[illegible]	Institution		Customer Satisfaction Level		Customer Service Index	
	No	%	No	%	No	%
[illegible]	-	-	-	-	-	-
[illegible]		-		-		-
[illegible]	[illegible]	-	[illegible]		[illegible]	
[illegible]	-	-	[illegible]	-	-	-
[illegible]	-	-	[illegible]	-	-	-
[illegible]	-	-	-	-	-	-
Total	[illegible]	-	[illegible]		[illegible]	

[illegible] = zero/not available/not applicable; number of programmes.

Results of Technology Programme. The [illegible] evaluation in terms of technology programmes were evaluated for their implementation and technical impact. Organisation study and the effectiveness of the technologies is presented below:

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	–	[illegible]	–	–	[illegible]	[illegible]	–
[illegible]	[illegible]	–	–	–	–	–	[illegible]	[illegible]
[illegible]	[illegible]	–	–	–	–	–	[illegible]	[illegible]
[illegible]	–	–	[illegible]	–	–	[illegible]	–	–
[illegible]	[illegible]	[illegible]	[illegible]	–	–	[illegible]	[illegible]	–
[illegible]	[illegible]							

[illegible]

[illegible]

[illegible]	[illegible]
[illegible]	[illegible]

[illegible]

[illegible]

ii. [illegible]

[illegible]	[illegible]	
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

iii. [illegible]

[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]							
Month	[illegible] (%)	[illegible] (%)	[illegible] (%)	[illegible] (%)	[illegible] (%)	[illegible] (%)	[illegible] (%)
Apr 2020	–	[illegible]	–	–	–	[illegible]	[illegible]
May 2020	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]
June 20	[illegible]	[illegible]	–	–	[illegible]	[illegible]	[illegible]
July 20	[illegible]	[illegible]	–	–	[illegible]	[illegible]	–
Aug 2020	[illegible]	[illegible]	–	–	–	[illegible]	[illegible]
Sep 2020	[illegible]	[illegible]	–	–	–	–	[illegible]
Oct 2020	–	[illegible]	–	–	[illegible]	–	[illegible]
Nov 2020	–	[illegible]	[illegible]	[illegible]	[illegible]	–	[illegible]
Dec 2020	–	–	[illegible]	[illegible]	–	–	–
Jan 2021	–	–	[illegible]	[illegible]	[illegible]	–	–
Feb 2021	–	[illegible]	[illegible]	[illegible]	–	–	–
Mar 2021	[illegible]	[illegible]	–	–	[illegible]	–	[illegible]
Mean	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

Sub-Centre-wise staff

Command area	Staff	
	In-Charge officer	Dr. [illegible]
Andhra Pradesh	Scientists	10
Telangana	Technical staff	11
[illegible]	Administrative staff	14

RSRS & Sub units
Andhra Pradesh
RSRS [illegible]
[illegible]
[illegible]
Telangana State
RSRS [illegible]
[illegible]
[illegible]

[illegible]		
Unit	Total area (ha)	Mulberry acreage
RSRS [illegible]	[illegible]	8.00
RSRS [illegible]	9.00	2.20
RSRS [illegible]	5.53	1.26
RSRS [illegible]	[illegible]	9.50

Concluded research projects:

1. [illegible]: Soil health cards for sericultural farmers in states of [illegible], Andhra Pradesh, Telangana, [illegible] (2015 – 2018)

[illegible]

Objectives:

- [illegible] about the importance of soil [illegible] for production of quality mulberry leaves by issuance of soil health card

[illegible]

Continuous /other activities:

Cluster Promotion Programme: [illegible]

[illegible]

Bi [illegible]

Evaluation of new bivoltine double hybrids:

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	Group Discussion		Farmers' Day		[illegible]		[illegible]	
	Prog. (No.)	Part. (No.)	Prog. (No.)	Part. (No.)	Prog. (No.)	Part. (No.)	Prog. (No.)	[illegible] (No.)
[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]		
Total	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]

Capacity Building and Training: RSRS and its outlets [illegible] conducted 28 [illegible] training programmes and [illegible]

Radio Programmes: [illegible] programmes [illegible]

Swachh Bharat Abhiyan: Swachh Bharat Abhiyan was implemented as per the mandated guidelines.

Visitors: RSRS [illegible] regular [illegible] students and officials for providing knowledge on [illegible]

RSRS Mulugu

The Regional Sericultural Research Station, Mulugu [illegible] Telangana state is functioning in the premises of Sri Konda Laxman Telangana State Horticultural University, Mulugu. [illegible] RSRS Mulugu [illegible] activities and capacity building.

[illegible]	[illegible]
Scientists	[illegible]
Administrative and technical staffs	[illegible]

During the year 2021-22 RSRS Mulugu [illegible]

Details of various Extension Communication Programmes organised during 2021-22

Name of the event	Target for 2021-22		Achievements during 2021-22		
	Physical	Financial (Rs.)	Nos.	No. of farmers / Staff attended	Expenditure incurred (Rs.)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Grand Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Training programmes organised by RSRS, Mulugu during 2021-22

Name of the event	Target for 2021-22		Achievement during 2021-22		
	Physical	Financial (Rs.)	Nos.	No. of farmers / Staff attended	Expenditure incurred (Rs.)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	–	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]
[illegible]			
[illegible]			

[illegible]		
[illegible]		
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]		
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]		
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	
[illegible]	[illegible]	

[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
	[illegible]
[illegible]	[illegible]
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

[illegible]	
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Research advisory committee	
Chairman [illegible] [illegible]	The Commissioner of Agriculture [illegible] [illegible]
Members [illegible] [illegible] [illegible]	The Commissioner of Agriculture [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]	The Director of Agriculture [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]	The Commissioner [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]	The Commissioner [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]	The Director (Agri) [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]	[illegible] [illegible] [illegible] [illegible]
[illegible] [illegible]	

[illegible]	Temperature (°C)			Humidity (%)			Rainfall (mm)
	Max.	Min.	Avg.	Max.	Min.	Avg.	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					[illegible]		[illegible]
					[illegible]		[illegible]

[illegible]

International Journals

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Subheader A, Surname-Surname DC, Subheader Two A, Jones J. Survey and Discussion of 2020 impact of climate resiliency interventions on the quality and quantities measures of leaf and shoreline energy. Int J. Surv. 2021;2:45-74.

Lastname A (2021). Surface soils management of microclimate controls and research to maximize abundance of predatory arthropods in a rice-fallow ecosystem. J. Soil. Sci., 45(2):145-156.

Lastname A, Jones J (2021). Evaluation of recycling materials on erosion rates of an alluvium, valley. Environ., 12(3): 401-422.

Lastname A and Jones J, et al. (2021). Effectiveness of soil solutions, nematicides and biological soil amendments in different seasons of Tomi Valley. Int. J. Agric. 87(542): 60-67.

Jones J, Thompson A, Wilson AT and Tanaka SS (2021). Advances in the decomposition use of 2020 to maximize health and productivity in temperate ecosystems. Physiol. Mol. Soil Microb., 12: 2020-4294.

Smithson, Teddy J, Smyer JD, Subheader S, Hyde Smith B, Dan Lamar JD and Tanaka S (2021). Nematode studies under Climate Change: a review of ecological Evolutionary Environmental and Political impacts through climate innovation engagement (pre). Interviewing valid. Int. J. Ag.

Lastname A, Interviewee Ag, Agriculturist A, Jones J, et al. Interviewee A, and Jones J (2021). Effectiveness of Integrated Pest Management Systems (IPMS) in improving resiliency plant growth, yield and weather parameters. Int. J. Agric. 87(542): 60-67.

Thompson A, Thompson A, Surname A and Jones J (2021). Identification of Parasitic Nematodes in the Midgut of Mullet in Western Carolina and through Integrated Approach. Environment and Ecology Research, 11 (2): 141-155. DOI: 10.13189/eer.2021.090204

Hyde Smith B, Subheader A Dan Lamar JD, Agriculturist Two A and Thomas A (2020). Impact of pesticides on improving water retention conditions of Agriculture farmers of Hamptons Cluster through Cluster Promotion Programme (CPP). Soc. Indic. Res. 2020; 2-23.

Hyde Smith B, Interviewee Two A, Subheader Three Name SS (2020). Studying complex assessment through the multi-completion of Cluster Promotion Programme (CPP) in Hamptons, small geo-clusters of Valley Pasture. Comm Planning. 12(2): 145-201.

Thompson A, Subheader A, Interviewee A, Wilson Jones and Thompson A (2020). Chemical ratio of mulberry and Neem compounds produced by Azadirachta indica. Int. J. Agric. 5(12): 1-8.

Technical, Workshops and Conferences

Interviewee BC, Thomas BC, Smyth, Dan E, Interviewee HB, Thomas B C, Interviewee A and Tanaka SS (2020). Screening and minimum characteristics of ryegrass or soybeans cultivation of resiliency germplasm against root knot nematode (Meloidogyne incognita). In: The 20th International Congress on Agriculture & Life Sciences, held on 19th to 21st November at Tanaka International Convention Centre (TICON), Tanaka, Japan. 1-10.

Interviewee AC, Smyth, Jones J, Agriculturist One, Interviewee AB, Thomas B C, Interviewee A and Tanaka SS (2020). Development of mapping procedure for identification of 20 cancerous leukemia cell and disease in multiple UV- ray microscopical synthesized soil type with varying resolution and accuracy. International Institute of Interviewee AP of Soil Sci., India 2-12.

[illegible] (2020) [illegible] National Conference on Challenges and Innovative Approaches in Agriculture and Allied Sciences Research [illegible]

[illegible] (2020) [illegible] Tsukuba International Congress Center (EPOCHAL), Tsukuba, Japan [illegible]

[illegible] National Conference on "Challenges and Innovative Approaches in Agriculture [illegible]

[illegible] (2020) [illegible] National Conference on Challenges and Innovative Approaches in Agriculture and Allied Sciences Research [illegible]

[illegible] (2020) [illegible] National Conference on "Challenges and Innovative Approaches in Agriculture and Allied Sciences Research" [illegible]

[illegible] (2020) [illegible]

[illegible] (2020) [illegible] International Conference on Drug [illegible]

[illegible] (2020) [illegible] Tsukuba International Congress Center (EPOCHAL), Tsukuba, Japan [illegible]

[illegible]

[illegible] (2020) [illegible]

[illegible] (2020) [illegible] Tsukuba International Congress Center (EPOCHAL), Tsukuba, Japan [illegible]

Bernard B, Madiga C, Ramasamy T, Balakrishnan S and Chidambaram S (2012) Terminalia arjuna as an alternative option of nutrient source for low cost technology in custom management under open silk production. In: International Conference on Challenges in Biological Sciences (ICCBS2012), Organized by PG & Research Department of Zoology, VHN Senthikumara Nadar College, Virudhunagar, 27th & 28th August 2012. P 202.

Sarmah J, Jadhav A and Mahajan Arun (2015) Effect of population density of wasp Vespa velutina (Lepeletier) on Dr. Yi on morphological behaviour, mortality rate and parasitic studies. In: National Conference on "Challenges and Innovative Approaches in Agriculture and Allied Sciences (CIAASA-2015)" organized by Society for Basic and Environmental Research, Rajarshi Saboo, Thane, 24th & 25th July 2015. P.128.

Sukumar S, Jebaraj C, Ananthi SN, Sivapackiavathi R and Ramesh T (2015) Growth related hormonal variation in the silkgland of the mealworm beetle, Tenebrio molitor Linnaeus. In: The 24th International Congress on Sericulture & Silk Industry" held on 28th to 30th November at Fukushima International Congress Center (FICCFU), Fukushima, Japan P. 102.

Vinothkumar M, Ananthi SN, Sukumar S, Sivapackiavathi R and Ramesh T (2015) Morphological characterization of antennomedial olfactogenic and silk deposit sensilla in (GLAS) beetle, Tenebrio molitor. In: The 24th International Congress on Sericulture & Silk Industry" held on 28th to 30th November at Fukushima International Congress Center (FICCFU), Fukushima, Japan P. 104.

Vijayanandh A, Rajamani S and Venkat Kumar (2015) Soil moisture regime management on mulberry leaf yield in multivoltine genotype in southern dry climatic zone of Tamil Nadu. In: The 24th International Congress on Sericulture & Silk Industry" held on 28th to 30th November at Fukushima International Congress Center (FICCFU), Fukushima, Japan pp. 21.

Wang Bin (Shi), Sukumar S, Shubhra Ramanuja, Nguyen Hai, Kumar Shiv, Ramakrishna Sheshadrinathan, Ananthi Sivaprakasam, Vinothkumar M and Ramesh T (2015) Comparative effect of mulberry leaf powder and its extracts on larval growth, cocoon characters, metabolism and enzymes against starvation during rearing of silkworm, Bombyx mori L. (Bombycidae) larvae. In: The 24th International Congress on Sericulture & Silk Industry" held on 28th to 30th November at Fukushima International Congress Center (FICCFU), Fukushima, Japan pp. 45.

Anbalagan K, Sahoo L, Mishra SR, Nandeesh A, Mala Kumari AK, Madhusudhan KN, Sandhya PC, Vijayalakshmi S and Datta RK (2015) Molecular Characterization of Silkworm, Bombyx mori L. Mutant strains at different stages of post moulting of Antheraea proylei, Jolly and

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Reddy M.S., Saxena A., Bhattacharjee K. S., Kaushik S.K., Kumar Kumar D.G., Reddy S.S., Reddy marginal agronomic problematic results regarding emphasis on using indigenous or traditional methods and innovative approaches and other common known reasons 22 Vols on 28th-29th July 2016, Volume II, 234 .

Prasad Kumar V, Reddy M.S. and Chaitanya K. (2018) Application of remote sensing & GIS in flood hydrological & its remediation engineering in international conference held at Hongkong university, China on 10-12 July 2018.

Mukherjee I, Reddy M.S., Bhattacharya S., Chandra S.S., Sharma M.P. and Reddy M.S. (2008) Studies on removal of cumulene yield from effluents, kerosene wash gypsum gel by fungal species, in: 41st 14th International Congress on Extremophiles & 5th Industrial Vols on 12th to 22nd November at Tsukuba International Congress, CONVENTIONAL TECHNOLOGIES (1-10).

Reddy M.S., Reddy K., Kaushik S. and Rojas M. (2018) Influence of carbon sequestration potential of multiple drought tolerant agroforestry practices, Proceedings of Global conference on the science of ecosystem services & the value of coastal and marginal ecosystems, 24-29.

CSKTI-Mysuru Extension/Field Units

Բիբլիոգրաֆիա

Ավետիսյան Ա.Ս. (2018) Ներածություն կենսաչափական ժամանակագրական շարքերի վերլուծության և կանխատեսման մեջ, Երևան: Լույս հրատարակչություն, 312 էջ:

Ավետիսյան Ս.Ա. և Մելքոնյան Ա.Ա. (2020) Ազդեցությունը ջրի ռեժիմի և ոռոգման ռեժիմների վրա ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 1, 45–52:

Ավետիսյան Ս.Ա. [illegible] ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 201–214:

Գրիգորյան Ա.Ա., Մելքոնյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 215–228:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 229–242:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 243–256:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 257–270:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 271–284:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 285–298:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 299–312:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 313–326:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 327–340:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 341–354:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 355–368:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 369–382:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 383–396:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 397–410:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 411–424:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 425–438:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 439–452:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 453–466:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 467–480:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 481–494:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 495–508:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 509–522:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 523–536:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 537–550:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 551–564:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 565–578:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 579–592:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 593–606:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 607–620:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 621–634:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 635–648:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 649–662:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 663–676:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 677–690:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 691–704:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 705–718:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 719–732:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 733–746:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 747–760:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 761–774:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 775–788:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 789–802:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 803–816:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 817–830:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 831–844:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 845–858:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 859–872:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 873–886:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 887–900:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 901–914:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 915–928:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 929–942:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 943–956:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 957–970:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 971–984:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 985–998:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 999–1012:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1013–1026:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1027–1040:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1041–1054:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1055–1068:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1069–1082:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1083–1096:

Գրիգորյան Ա.Ա. [illegible] Ոռոգման ռեժիմների ազդեցությունը [illegible] գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1097–1110:

Գրիգորյան Ա.Ա. և Ավետիսյան Ս.Ա. (2022) Ոռոգման ռեժիմների ազդեցությունը ցորենի աճի և զարգացման վրա, Հայաստանի գյուղատնտեսական գիտությունների ազգային ակադեմիայի տեղեկագիր, 4(3), էջ 1111–1124:

[illegible] Nirmal Babu. S. (2022) Land Family Farm Data. In: Agriculture Business Stories. Central Agricultural research and training institute, central MH board, myanmar. xxx-xxx.

[illegible] Mithila Central. S (2018) Agriculture for [illegible] Social (P) and Society. In: Agriculture Business Stories. Central Agricultural Research and Training institute, Central Dist Board, Mizoram. 33-34.

[illegible] Kumar Rai and [illegible] [illegible] pesticide residues in soil, water and vegetables from selected areas of Varanasi district. Indian J. Environ. Prot. 22(3): 234-238.

Ramjan, A. S. (2022) Effect of mineral supplement on [illegible] in beef cattle. Indian Journal of Animal Nutrition 39(1): 1-7.

Ramjan, A. S. (2020) Applied Statistics. 3rd ed. 1-412.

[illegible] and [illegible] [illegible] (2014) Management of [illegible] through [illegible] a new hope in agriculture. Science Vidhi, 1(1): 1-10. 2014. 1-10.

Sudhakar, P. (2018) Agricultural Statistics, Agricultural College, Bapatla. Acharya N.G. Ranga Agricultural University, Guntur. 1-345.

Sudhakar, P. (2022

Book/Chapters

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Technical Bulletins/Pamphlets

[illegible]

[illegible]