

S. VENNILA

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Education: B.Sc.(Ag.), M.Sc.(Ag. Ent.), M. Phil. (Appl. Ent.), Ph. D. (Ag. Ent.)

B. Sc. (Ag.) Agriculture, Tamil Nadu Agricultural University, Coimbatore, India, 1984
M. Sc. (Ag.) Agricultural Entomology, Tamil Nadu Agricultural University, Coimbatore, India, 1987
M.Phil. Applied Entomology, University of Cambridge, England, United Kingdom, 1988
Ph. D. Agricultural Entomology, University of Agricultural Sciences, Bangalore, Karnataka India, 1991

Appointments:

08.05.2009 - till date : Principal Scientist, National Centre for Integrated Pest Management, New Delhi
22.04.1994 - 07.05.2009 : Senior Scientist (21.1.2001 to 7.5.2009); Scientist (Sr. Scale) (21.1.1997 to 20.1.2001);
Scientist (22.04.1994 to 20.01.1997), Central Institute for Cotton Research, Nagpur
11.01.1993 - 16.04.1994 : Scientist, Project Directorate of Biological Control, Bangalore (erstwhile Biological Control Centre, (Regional Station), NCIPM, Faridabad)
01.07.1992 - 29.12.1992 : Scientist, Sugarcane Breeding Institute, Coimbatore
21.01.1992 - 26.06.1992 : National Academy for Agricultural Management, Hyderabad

Technologies/ concepts developed

- Devised methodology for live larval sexing of key lepidopterans for use in *in vivo* multiplication of nuclear polyhedrosis viruses
- Established the predatory role of spiders on borers of sugarcane ecosystem using disc gel electrophoresis
- Repository of cotton entomofauna - established insect repository with type specimens for the documented species of insect pests and natural enemies of cotton production system (>50 nos.).
- Production and supply of trichocards: Supply of nucleus cultures to private entrepreneurs and direct sale to state departments and farmers with resource generation.
- Established field efficacy of NPV against *H.armigera*; worked out *Metarrhizium* & *Beauveria* as candidates for sucking pests.
- Quality control of nuclear polyhedrosis virus (NPV) Executed quality control tests of NPVs by being a part of the quality control consultancy team of CICR
- Expert System on Indian Cotton Insect Pest Management (ICOTIPM): Developed CD Rom to aid extension functionaries of state departments towards diagnosis of insect pests and recommendation of management options.
- Identified *Gossypium captis viridis* and *G.raimondii* as bollworm tolerant for use in introgression breeding from among wild species of cotton.
- Evaluated more than 5000 lines inclusive of germplasm, parents, segregants and hybrids for their reaction to sucking pests and bollworms. Promising lines (>125 nos.) have been utilized by breeders in hybrid development.

- Registration of genetic stock Raj-2006: Jassid tolerant of genetic stock of *G. hirsutum* ó registered with NBPGR, New Delhi. (INGR 08059).
- Registration of genetic stock JTHC-1104: Jassid tolerant, high compensating genetic stock of *G. hirsutum* ó submitted with NBPGR, New Delhi.(IC 563981).
- Evaluated all pre-release Bt hybrids of pvt. companies through station trial of AICCIP for target and non-target pests under protected and unprotected conditions for four years before their commercialisation.
- Developed and validated day degree model for *H. armigera*, empirical (aggregate, decadal and weekly) models and prediction criteria for forewarning pink bollworm severity.
- Integrated pest management on conventional & Bt cotton - Pest management recommendations involving symptom based sucking pest management for rainfed cotton have been developed and validated.
- Identified two pestiferous mirids; established increasing taxonomic diversity, multispecies associations and change in status of cotton entomofauna in post Bt era.
- Reported new alternate host *Hyptis suaveolens* of *Helicoverpa armigera*
- Brought out the influence of seed treatment, contact and systemic foliar insecticides on plant growth and development; elucidated cultivar-bollworm - parasitoid interactions to provide supportive information for IPM.
- Established the key mortality factors of three bollworms in rainfed cotton and worked out rate of population increase for prediction purpose.
- Effects and efficacy of IPM components were established, validated and demonstrated at farmer fields. Organized on farm days, developed educational tools and implemented IPM.
- Addressed cotton pest management from a systemø perspective through multidisciplinary team research.
- Research in insect taxonomy, biology and ecology & host plant resistance, and data base development, forewarning and farmer participatory integrated pest management have led to strategic and applied research prioritization and field recommendations.
- Innovation of new extension technologies: Concept of model farm, nucleus cum cluster villages, plant health polyclinics, on farm days, flip booklets with calendar possessing pictorial guide on cotton entomofauna, IPM record keeping in diaries, and educational tools for promotion of IPM.

Grants (Externally funded)

Principal Investigator: Studies on the effect of insecticides on cotton plants and their interactions with American bollworm *Helicoverpa armigera* (Hubner) and its parasitoid *Campoletis chloridae* Uchida (ICAR - (AP cess): 12.13 lakhs); 2001-2004.

Co operating center PI: Delineating efficient productive zones for cotton production systems using GIS based crop models (2000-2003) (National Agricultural Technology Project :45.27 lakhs); 2000-2003.

Co operating center PI: Evaluation of location specific IPM modules for ecofriendly and sustainable cotton production (Technology Mission on Cotton : 15 lakhs); 2000-2002.

Co PI : Identification of resistant sources for bollworms and sucking pests and their utilisation in the development of resistant hybrids and screening of hybrids (National Agricultural Technology Project :80.54 lakhs), 1999-2004.

Crop lead center PI: Development of weather-based forewarning systems for crop pests and diseases ó Programme no. 1-Cotton, (National Agricultural Technology Project : 70.61 lakhs); 2001 - 2005

Co operating center PI: Integrated pest management (IPM) at village level to produce cost effective quality fibre. (Technology Mission on Cotton: 20.00 lakhs); 2002-2007.

Co PI: Emerging and key pests: their characterization, taxonomy, genetic diversity and control. (TMC MM I 3.1) 2007-2009

Co PI: Development and validation of IPM/IRM strategies for Bt and conventional cotton under different ecosystems (TMC MM I 3.2) 2007-2009

Co PI: Development, validation, utilization and/or commercialization of biopesticides and bioinoculants (TMC MM I 3.3) 2007-2009.

Co PI: Awareness-cum-surveillance programme for management of major pests in Soybean-Cotton based cropping system in Maharashtra (Rastriya Krishi Vigyan Yagna, MoA, GOI) (2009-10)

Co PI: National Information System for Pest Management (Bt cotton), (DoCD, MOA, GOI) (2010-13)

Technical co coordinator: Crop Pest Surveillance Advisory Project (Maharashtra) (2011-12 : 10.4 lakhs; 2012-13 : 24.74 lakhs)

Consortium Partner PI: Development of Decision Support Systems for Insect pests of Major Rice and Cotton based Cropping System (National Technology Innovation Project: 20.32 lakhs) 2008 ó 2013.

PI : National Initiative on Climate Resilient Agriculture (Pest and disease dynamics *vis a vis* climate change) (2010-11: 155 lakhs 2011-12 : 436.92 lakhs; 2012-13 : 203 lakhs)

Publications:

Research papers: 50; Popular articles: 40; Presentations in conference/ seminar/ symposia :28; Book chapters :5; Research/ Extension Bulletins/ folders/leaflets: 23; Manuals/Teaching aid :7.

Selected publications (since 2006)

1. **Vennila,S.,** A.J. Deshmukh, D.Pinjarkar, M.Agarwal, V.V.Ramamurthy, S.Joshi, K.R.Kranthi and O.M.Bambawale. 2010. Biology of mealybug, *Phenacoccus solenopsis* on cotton in Central India. *Journal of insect science (ISSN 1536-2442)* 10:119 **available** online: insectscience.org/10.119.
2. **Vennila, S.,** Meenu Agarwal, Dharmendra Singh, Prasenjit Pal and V K Biradar 2011. Approaches to weather based prediction of insects: a case study on cotton pink bollworm *Pectinophora gossypiella*. *Indian Journal of Plant Protection*, **39**(3):163-169.
3. Dharmendra Singh, **S Vennila**, D.B. Ahuja and O.M. Bambawale. 2012. New record of *Aleurocanthus terminaliae* on Mango. *Annals of Plant Protection Sciences*, **20**(1): 230.
4. Das,D.K., Jitendra Singh and **S.Vennila**. 2011. Emerging crop pest scenario under the impact of climate change- A brief review. *Journal of Agricultural Physics*, **11**:13-20.
5. Sharma,O.P., P Laxmi Reddy, **S. Vennila** and Mobin Ahmed. 2011. Incidence of powdery mildew disease in pigeonpea in Anantapur District of Andhra Pradesh. *Indian Journal of Plant Protection*, **39**(3):247.
6. Kranthi K. R., Nagrare V. S., **Vennila S**, and Kranthi S (2011) Packages of Practices for Mealybug management. *The ICAC Recorder* **29**(1) 1.4.11.
7. Singh Niranjana, Jeyakumar P, Bambawale O. M., **Vennila S**, Kanojia A K, Bhagat S and Sathya Kumar S (2012). E-pest Surveillance System for Soybean (*Glycine Max*) and Cotton (*Gossypium Spp*) Crops. *Indian Journal of Agricultural Sciences* 82 (9): 8006807.
8. Singh Niranjana, Sharma O P, Bhagat S, and **Vennila S** (2012). A Web-based Tool for Pest Mapping in Chickpea & Pigeonpea. *Annals of Plant Protection Sciences*, 20(1): 260-262.
9. **Vennila, S.** 2008, Pest management for cotton ecosystem or ecosystem management for cotton protection? *Current Science*, 94(11): 1351-52.
10. Biradar, V.K. and **S.Vennila**, 2008. Pest Management on *Bt* Cotton: Need for Conservation Biological Control, *Current Science*, 95 (3):17-318.

11. **Vennila, S.,** V. K. Biradar and P. R. Panchbhai, (2007) Coccinellids and chrysopids as native predators of sucking pests in rainfed cotton production system. *Journal of Biological Control*. 21: 65-72.
12. P.Ramasundaram, **S.Vennila** and R.K.Ingle, 2007. Bt cotton performance and constraints in central India. *Outlook on Agriculture*, 36(3): 175-180.
13. **Vennila, S.,** 2006. Bt cotton for pest management or pest management for Bt cotton? *Current Science*, 91(12): 6

Honours:

- Panjabrao Deshmukh Woman Agricultural Scientist Award-2007 by ICAR, New Delhi, India in 2008
- Fellow of Cambridge Commonwealth Society, England since 1988
- First prize for poster presentation at International conference on "Plant Health Management for Food Security" at Hyderabad in 2012.
- Best poster awards (first prize at National Symposium on Bt cotton: opportunities and prospects in Nagpur and at National conference on plant protection in Agriculture at Jaipur, and second prize at National conference on plant protection in Agriculture) (2009-10)
- Best Institute Annual Report Award for CICR (Citation of ICOTIPM as a technology) by ICAR, New Delhi, India in 2003
- EID Parry Merit scholarship during BSc (Ag.); ICAR junior fellowship during MSc (Ag.Ent.); Overseas Development Administration fellowship, UK during M.Phil and ICAR senior fellowship during PhD.
- University first rank with 14 awards during BSc (Ag); First rank and medallist during MSc (Ag.); First rank and Merit Gold Medalist during Ph. D.
- ICAR Sports Award (Five prizes : 100 & 200m running, long jump, shot put and javelin throw) in 2002

Professional Activities:

- Resource person for the Short training course to field workers on IRM under TMC MMII; Model training course on IRM in cotton and Training on "IPM in cotton", National level training program on "Use of Biotechnology in Agriculture and awareness campaign in Bt cotton" (5 nos) at CICR, Nagpur ; Training course on "Bt cotton- A change in pest scenario and integrated management" organized by NCIPM, New Delhi at PDKV Akola and "Biopesticides for rural entrepreneurship" under the training programme "Production, quality assurance of bio-manures, biopesticides and dissemination of technology kits" at Mahatma Gandhi Institute for Rural Industrialization, Wardha (2007); Training course on "IRM orientation/familiarization programme" for KVK staff (2006); National Level training of Trainers on use of biopesticides in cotton, training on Integrated Pest Management in cotton at KVK, Model Training Course on "IPM in Cotton" on "Biological control of insect pests" and "Monitoring, sampling and thresholds of cotton pests" at CICR, Nagpur (2005); training course on "IPM & Organisation of FFS" at Vasantnao Naik Agricultural Extension Management Training Institute, Nagpur (2005); Model Training Course on "Production Technology for Bt Cotton with special focus on IPM" at CICR, Nagpur (2000, 2005, 2006); Training course on "Ecological and environmental considerations of IPM in cotton" for field functionaries of Bhatinda at CICR, Nagpur and Short course cum training on "IPM in cotton" at PDKV, Akola (1999).

- Member organising committees during on farm field days, Krishi Vigyan Kendra (KVK) trainings, Rashtriya Kapas Melas, Institute Village Level Programme (IVLP)/ Seed village/ Front line Demonstrations (FLD) (1994 ó 2009)
- Co-convenor for National Consultation meet on "Mealy bug Management" at CICR, Nagpur during 2008
- Member of Editorial Committee, Cotton Research and Development Association, Hisar, Haryana, India (2005-2011); Reviewer for Plant Protection Association of India, Hyderabad (2006); Reviewer, Indian Society for Biocontrol Advancement, Bangalore (2005 & 2008); Reviewer for Journal of Environmental Biology (2011 & 2012)
- Editor NCIPM Newsletters (2009-10), member of editorial committee Annual Report (NCIPM) 2008 & 10, author of NCIPM vision 2030 and co-author of vision 2050 documents, In charge of ARIS/AKMU of NCIPM (2010-2012), reporting officer for scientists and technical officers(2009).
- Chairperson of NCIPM DPC of supporting staff (2012); Member of selection committees of contractual staff under various projects within and other institutes (1994-2012)
- Attended various group meetings/steering committees/ annual and national workshops/brainstorm sessions/regional committee meets/review meets/research advisory committee meets in the capacity of resource person or rapporteur or participant (2000-2012)

Member of Professional Societies

1. Member of Plant Protection Association of India
2. Member of Cotton Development and Association
3. Member of Indian Society for Cotton Improvement
4. Member of Annals of Plant Protection Association of India
5. Member of society of bio control and advancement

On-going projects and activities

Projects:

NICRA: National Initiative on Climate Resilient Agriculture (Pest and disease dynamics *vis a vis* climate change ó (Rice, Pigeonpea, Groundnut and Tomato)) [Principal Investigator]

NAIP: Development of Decision Support Systems for Insect pests of Major Rice and Cotton based Cropping System [Consortium Partner PI]

CROPSAP: Crop Pest Surveillance and Advisory Project (Maharashtra) [Technical coordinator]

Institute: Changing scenario of cotton pests in relation to cropping systems and climate [Project Leader]

Salient Activities:

- Team leader for electronic networking, data base, climate change and forewarning group
- Member of Results Frame Work Document (RFD) committee
- Member Secretary of Research Advisory Committee (RAC) at NCIPM.