

ICAR-NBAIR Scientists Receive Prestigious NRDC Societal Innovation Award for the Year 2015

Scientists from ICAR-NBAIR received the Prestigious NRDC Societal Innovation Award for the Year 2015. The scientific team comprised of Dr. S. K. Jalali (Team Leader), Dr. T. Venkatesan, Dr. R. Rangeshwaran, Dr. G. Sivakumar and Dr. S. Sriram. The 43rd Meritorious Invention Awards Ceremony organized by National Research Development Council (NRDC) and Department of Scientific and Industrial Research (DSIR) under Ministry of Science and Tehnology was held at Indian National Science Academy, New Delhi on 24.03.2017. **Dr. Harshvardhan, Honourable Union Minister for Science and Technology distributed the awards, the award comprised of Rs. 3.0 lakh in cash, a shield and certificate.**

The prestigious award was given for outstanding contribution in “Development and Utilization of Pesticide and Abiotic Stress Tolerant Natural Enemies for Crop Pest Management” – The studies led to the “Development of Abiotic Stress Tolerant Bioinsecticides”. The research work is the outcome of the World Bank funded NAIP project “Effect of abiotic stresses on the natural enemies of crop pests: *Trichogramma*, *Chrysoperla*, *Trichoderma* and *Pseudomonas*, and mechanism of tolerance to these stresses”.



Dr. S. K. Jalali (Team Leader) with members Dr. R. Rangeshwaran (behind), Dr. T. Venkatesan (middle) and Dr. G. Sivakumar (extreme left) receiving the award from Dr. Harshvardhan, Honourable Union Minister for Science and Technology

SALIENT FEATURES

- Developed strains of an egg parasitoid *Trichogramma chilonis* tolerant to multiple insecticides (5 classes) (MITS) and high temperature (up to 40°C (HTTS)).
- Field evaluation of the above strain in 524 acres in 7 states at 14 places in six crops showed reduction in insecticide usage by 10-65% and profit of 2300-20000 per acre.
- *Chrysoperla zastrowi silemi* (PTS-8) identified as high temperature tolerant strain (up to 38°C), tolerant to multiple insecticides.
- Field evaluations in cotton in 125 acres in 3 states showed efficacy *C. zastrowi silemi* against sucking pests, recorded increase in yield by 1.2 q and additional revenue of Rs. 9000 per acre, reduced usage of chemicals by 40%
- Salinity tolerant and carbendazim tolerant *Trichoderma harzianum* HAR-4B and GJ-16B strains were field evaluated in 100 acres in 6 states and 4 patents filed.
- *T. harzianum* HAR-4B and GJ-16B strains increased yield – 0.15q/ac in groundnut, 0.1 q/ac in tomato. Revenue generated- Rs. 12000 in groundnut per acre, Rs. 8000 in tomato per acre.
- *Pseudomonas fluorescens* (PFDWD) was selected as a stress tolerant plant growth promoter (can tolerate 45°C, salinity of 1.5M NaCl and also drought at -26.82 OP).
- Multilocational field evaluations of powder based formulation of *P. fluorescens* (PFDWD) were conducted in Karnataka, Gujarat and Tamil Nadu. Disease incidence was reduced by 50%. The yield increase was 11 to 22%. In paddy the incidence of bacterial leaf blight was reduced compared to untreated crops.
- Mechanism of tolerance to abiotic stresses in all the above natural enemies have been studied at molecular level and corresponding genes have been identified.
- All the natural enemies have been released as eco-friendly technologies and commercialized.



