

### Prof. Swapan Datta joins as Deputy Director General (CS), ICAR



Prof. Swapan Datta has taken over as the Deputy Director General (Crop Sciences) ICAR on 18<sup>th</sup> June, 2009. Prof. Datta was serving at the

University of Calcutta as Rashbehari Ghosh Chair Professor prior to his present position. He has served as Associate Professor at Vishwa Bharti University (1979-86), DAAD Fellow at Germany (1986), Research Manager at ETH-Zurich (1987-1993) and PBGB and Harvest Plus Rice Crop Leader at IRRI, Philippines (1993-2005). His outstanding contributions include the research and development in golden indica rice, high iron rice and Bt rice, Xa-1 rice and PR- rice for plant protection.

Prof. Datta is recipient of several awards and recognitions including Tata Innovation Fellowship from the Govt. of India and Fellow of the National Academy of Agricultural Sciences and National Academy of Science. His vast and rich experience in research management and molecular biology with international exposure will provide an impetus for reorientation of crop science research. NCIPM looks forward to his guidance and motivation to move ahead in all its future endeavors.

### Dr. H.S. Gupta takes over as Director, IARI, New Delhi



Dr. H.S. Gupta, has joined as Director, IARI on April 1, 2009. He was previously Director at Vivekananda Parvatiya Krishi

Anusandhan Sansthan (VPKAS), Almora from 2000 to 2009. Dr. Gupta transformed VPKAS, Almora into a vibrant institution of the ICAR that won Sardar Patel Outstanding Institution Award twice during his tenure in the years 2001 and 2008.

Dr. Gupta has developed 34 varieties of cereals, pulses and oilseeds and led the development of country's first short duration Quality Protein Maize hybrid through Molecular Marker Assisted breeding. Dr. Gupta's research contributions have been well recognized at National as well as at International level. He has been the recipient of ICAR's Team Award for Outstanding Multidisciplinary Research twice, for the triennium 1994-1996 and for the biennium 2006-07. He was also conferred with the Societal Innovation Award of NRDC with his group. Dr. Gupta is the recipient of Dr. Rajendra Prasad as well as Hari Om Ashram Trust Award of ICAR. NCIPM welcomes the new Director.

### Dr. K.D. Kokate assumes the charge of DDG (Agri. Extension), ICAR



Dr. K. D. Kokate has joined as Deputy Director General (Agri. Extension), ICAR on 8<sup>th</sup> April, 2009. He initially worked at CAZRI, Jodhpur

from April 1985, followed by CPRI, Shimla (1989-94). In 1994 he was selected as Professor of Agri. Extension at MPKV, Rahuri. He was then selected to the post of Head, Deptt. of Extension Education, Dr B. S. Kokan Krishi Vidyapeeth, Dapoli in Oct. 1996 and as Director of Extension Education in July 2001. He shifted in the same position to MPKV, Rahuri in Dec. 2005. Dr. Kokate is the recipient of several awards viz., four awards from Maharashtra Society of Extension Education for best paper and use of best audio-visual aids, Dr. G.S. Vidyarthi Memorial Award -2005 of the Indian Society of Extension Education, New Delhi, Late Shri Vasantrao Naik Krushi Puraskar-2007 and Late Shri Vilasdada Kore Krushi Tantrandyna Puraskar-2008. The Planning Commission, Govt. of India, appointed him as a member of working group of Agricultural Extension for the XI Five year Plan. NCIPM looks forward to his guidance and motivation for IPM dissemination and extension in various States through the network of KVVs.

## From the Director's Desk

### Integrated Surveillance cum Advisory for Mitigating Pest Outbreaks- a Pathbreaking Venture

Changing crop production system spurred by changes in cropping systems, cultivation practices and climate individually and interactively, is the order of the day along with the technological advancements in the arena of agriculture. Recognition of their impacts gains focus at a time only when positive actions alone can mitigate the effects of these changes for ensuring food security and sustaining quality life.

For many of the pests of epidemic stature, we have the basic knowledge on biology, ecology and management strategies. However, unexpected onslaught at times of unpreparedness at institutional and farm levels often results in enormous anxieties and losses. The case of *Spodoptera litura* outbreak that occurred in Maharashtra during 2008 season on soybean is a classic case of deficient co-ordination of information for knowing the cause or for efficient pest advisory. The losses were quite high (> Rs 1000 crore at a conservative estimate) and the State government had provided financial support to the affected farmers to the tune of Rs 401.53 crore (Shetkari, 10:1,

June 2009, pp 3-4). In a region where cotton and soybean are equally dominant over space and grown simultaneously, the niche for the polyphagous pest is still unknown. Cultivation of Bt cotton, still overwhelmed by hybrids with Cry IAc, does not preclude the chance of *S.litura* shifting to cotton. With information technology at the forefront, the need of the hour is integrated surveillance cum awareness through national information networks for regions across crops.

The launch of "Awareness cum surveillance programme for management of major pests in soybean-cotton based cropping system in Maharashtra for 2009-10" detailed in this issue, is in collaboration with three other ICAR institutes (Directorate of Soybean Research, Indore, Central Institute for Cotton Research, Nagpur and Central Research Institute for Dryland Agriculture, Hyderabad), three SAUs (Dr PDKV, Akola, MAU, Parbhani & MPKV, Rahuri) with full support of the State Agriculture Department, covering 28 Districts with a total area of about 30 lakh hectares each of soybean and cotton. Positioning of pest scouts, pest monitors and data entry operators at the village, taluka and district levels, along with provision of training for pest

diagnosis, data collection using standardized sampling methods in prescribed formats from geo referenced farms, and mobile computer systems incorporated with customized software for data upload and advisory download marks an unaccomplished task of crop protection to take off in the 2009 season. The programme would not only give real time pest situations of soybean and cotton on the NCIPM's website ([www.ncipm.org.in/soybean/project.pdf](http://www.ncipm.org.in/soybean/project.pdf)) for individual locations by click of a button but would also be able to assess the spread of the pest and the possibilities of outbreak in addition to delivering the farmers on pest management in the given context.

NCIPM foresees continuation of such an integrated surveillance and advisory system on a regular basis in subsequent years and its extension over large areas/ other States that would serve as platform for assimilation and filtering of pest scenarios besides risk of spread for a pest across crops or for a crop across pests thus allowing flow of knowledge on the pests and issues of pest management to planners, researchers and extension functionaries instantly and simultaneously.

## Award / Recognition

### Swami Sahajanand Saraswati extension Scientist/worker Award



Dr. P. Jeyakumar of NCIPM has been selected for the extension scientist award of ICAR for the biennium 2007-

2008 for his innovative research in developing extension education programmes, adopting extension methodologies and impact of the programme on the farming community. He initiated a pragmatic approach of IPM including IRM

principles on a massive scale in Sirsa district and implemented nationwide Bt IPM training programme in cotton. The award will be given on 16<sup>th</sup> July, 2009, the foundation day of ICAR at New Delhi.

### Parasitoid species of Mealy bug named after Director, NCIPM

*Aenasius* sp. (Chalcidodea: Encyrtidae) recorded as a new parasitoid by Tanwar *et al.*, 2008 (*Indian Journal of Entomology*, 70(4);404-05) on mealy bug, *Phenacoccus solenopsis* infesting *Parthenium hysteropus* (Congress grass), *Xanthium strumarium* and



by Mohammed Hayat in his recent

*Achyranthes asper* in Delhi, has now been described as *Aenasius bambawalei*

research article 'Description of a new species of *Aenasius* Walker (Hymenoptera: Encyrtidae), parasitoid of the mealy bug, *Phenacoccus solenopsis* Tinsley (Homoptera: Pseudococcidae) in India' published in *Biosystematica* (2009), 3(1): 21-26.

# New Initiatives/Projects

## Awareness-cum-Surveillance Programme for Management of Major Pests in Soybean-Cotton based Cropping System in Maharashtra (2009-10)

Area under soybean crop has increased phenomenally in Maharashtra in the recent past and reached to the tune of 30 lakh ha as the farmers could reap good average yields per ha and command good market prices. The crop suffered a setback in 2008 due to epidemic of *S. litura* and other pests causing heavy yield losses up to Rs 1,000 crores. The event warrants a strong pest monitoring and advisory mechanism in place. To cater to this requirement, a series of meetings were held (19<sup>th</sup> March, 01<sup>st</sup> & 21<sup>st</sup> April and 06<sup>th</sup> May, 2009) with different partners to develop an appropriate programme. In the first two meetings, the modalities of the project and area of operation were discussed. During the third meeting, project document prepared and submitted by NCIPM to the State Agriculture Department was presented to Shri Nanasahab Patil, Principal Secretary (Agriculture & Horticulture), Government of Maharashtra. In the fourth meeting, the responsibilities of different stake holders were earmarked and the time line for project implementation was



drafted. The project is financed under Rashtriya Krishi Vikas Yojana with a total outlay of Rs 12.79 cr for one year by the Commissionerate of Agriculture, Government of Maharashtra.

The major area of operation of the project is in the 28 districts growing cotton and soybean crops in an area of 30 lakh ha each. In this programme, the main emphasis would be placed on soybean as well as cotton as these are common hosts for the major pests such as *S. litura* and *H. armigera*.

The programme consists of two parts i.e., i) awareness creation and ii) pest monitoring-cum-surveillance based advisory system. To achieve these objectives, the responsibilities were earmarked to all the stake holders as per their area of operation and specialization. The following flow chart explains about achieving the above mentioned objectives in the project area.

### 1. Awareness creation through trainings

#### Coordinator

(One Sr. Officer at district level from State Agriculture Department)

- As facilitators between the Department Officers and Steering committee
- To coordinate the overall training programme of Master Trainers, Field Staff Training and Elite farmers' training

#### Master Trainer

(Ten per district and all Sub divisional Agriculture Officers from State Agric. Department)

- To get trained by respective SAUs

and to train field staff of the Department

- To assist in organizing taluka level elite farmers' training



#### Field Staff

(400 per district from State Agriculture Department)

- To get trained by the Master Trainers and to train elite farmers
- To disseminate the weekly pest advisory system to farmers



#### Elite Farmers

(Five/village with own mobile phone, already selected by the SAD)

- To train the fellow farmers on soybean / cotton pests and crop management practices
- To pass on the pest based advisory information to fellow farmers through village boards

### 2. Pest Monitoring

#### Coordinator

(Sub Divisional Agricultural Officer from State Agriculture Department)

- As facilitator between the surveillance team and the Steering Committee
- To monitor the duties of pest monitor and ensure the online feeding of the data in time

(One representative from State Agricultural University in each district will give technical assistance to SDAO while executing this duty)



#### Pest Monitor

(One per 10±4 scouts (B.Sc. Agri.) to be engaged on contractual basis for 10 months)

- To assist and monitor the scouts in proper data collection
- To gather the data from scouts and

enter it online during the crop season

- To conduct roving survey during the season on crops and on alternate hosts in off season

### Data Entry Operator

(One Per Pest Monitor to be engaged on contract (Matric with computer knowledge, for 5 months)

- To feed the data online on Wednesday and Saturday.
- To extract pest advisory and pass it on to SDAO and other Agricultural Officers for dissemination

### Pest Scout

(One / 8000 ha of soybean+cotton area to be engaged on contract (Diploma in Agriculture) for 5 months)

- To scout cotton / soybean fields @ four fields per village and two villages per day for four days i.e., Monday, Tuesday and Thursday, Friday

- To report the data to Pest Monitor at a fixed place on Wednesday and Saturday

### Awareness Campaign

Shri Uday Deshmukh, Dy. Director of Agriculture (Information), Commissionerate of Agriculture, Pune is the Co-ordinator for the programme's massive campaign with a total outlay of Rs 56 lakh within the programme.

The media plan includes printing and distribution of Folders (one lakh), Posters (50,000), Display Boards (1,000), Audio Spots and Jingles on Farmers' Field Schools and IPM through 19 All India Radio Centres and 38 Bus Stands throughout the season, TV spots of 60 seconds duration on two popular TV channels, printing of the programme activities and time-to-time popular articles by SAD and SAU officials in the local press, release of Advisories, Phone-In Live programme and news stories, etc. The Agriculture Department is also planning the biweekly advisories through SMSs to the 5 elite farmers

of each village who in turn would educate the farmers, and through detailed advisories in the form of Boards in each village.

### Steering Committee

Since this programme is the first of its kind in India and unique one, the specified set of guidelines are not available for implementing this programme. So, a Steering Committee consisting of the following members was formulated.

**Chairman**-Sh. Prabhakar Deshmukh, IAS, Commissioner of Agriculture, Govt. of Maharashtra

**Co-Chairman**-Dr. O.M. Bambawale, Director, NCIPM, New Delhi

### Members

Sh. Ashok Lokande, Joint Director of Agriculture (Extn), State Agriculture Department, Pune

Dr. Ajit Chandele, Head, Deptt. of Entomology, MPAU, Rahuri

Dr. B.B. Bhosle, Head, Deptt. of Entomology, MAU, Parbhani

Dr. U.P. Barkhade, Head, Deptt. of Entomology, Dr. PDKV, Akola

Dr. V.S. Nagrare, Sr. Scientist, Entomology, Central Institute for Cotton Research, Nagpur

Dr. Amarnath Sharma, Principal Scientist, Directorate of Soybean Research, Indore

Dr. G.G.S.N. Rao, PC (ACRIPDA), Central Research Institute for Dryland Agriculture, Hyderabad

**Member Secretary** - Sh.Arjun Phule, Deputy Director of Agriculture (Plant Protection), State Agriculture Department, Pune.

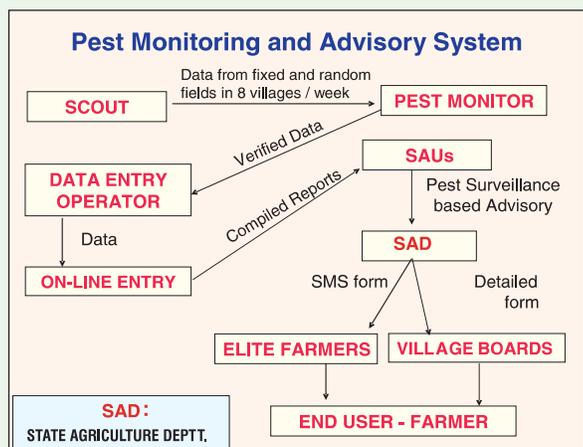
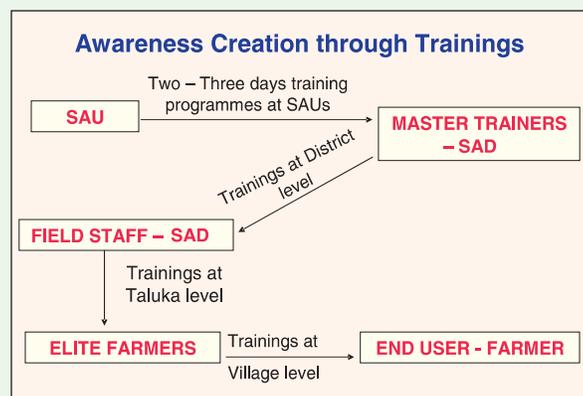
**Technical Coordinator** - Dr.P. Jeyakumar, Senior Scientist, National Centre for Integrated Pest Management, New Delhi

The responsibilities of the steering committee are:

- To coordinate the overall programme through periodic meetings
- To assign the work to different stake holders of the programme and to supervise proper implementation

### Status of implementation of the programme

The programme has been taken up from the first week of June and time lines for various activities are in place. In awareness creation part around 354 Master Trainers were trained during first fortnight of June by SAUs viz., Panjabrao Deshmukh Krishi Vidyapeeth-Akola, Marathwada Agriculture University-Parbhani and Mahatma Phule Krishi Vidyapeeth-Rahuri. The field staff trainings were completed by the end of June and the elite farmers' trainings are in progress. In pest monitoring and surveillance



based advisory system part, all contractual staff – Scouts (780), Data Entry Operators(82) and Pest Monitors (82) have been engaged by the end of June. The trainings for Pest Monitoring Units (Pest Monitors, Scouts and Data Entry Operators) on pest identification and management aspects and online data feeding are slated to be held in the first fortnight of July. The first data records from around 7000 villages are expected to be on line by July end on the NCIPM's web site. It is hoped that early detection of the egg masses / cluster of early instar larvae of *Spodoptera* in villages by name and GIS location would help to gear up the plant protection activities well in time to avert further spread from such foci and prevent development of epidemic situation in Maharashtra. Further details of the project document and progress can be seen on [www.ncipm.org.in/soybean/project.pdf](http://www.ncipm.org.in/soybean/project.pdf).

### White grub Menace in Sugarcane - a Collaborative Programme Initiated for its Management

White grub has recently emerged as a serious problem in western Uttar Pradesh especially in Modi Sugar Mills (Modinagar) command area. Because of the white grub there is decline in average yield of sugarcane from 67 t/ha to 45 t/ha. In the beginning during May with some pre-monsoon rains, the beetles of white grub start emerging and aggregate on host plants, especially neem, for mating. Emergence continues in June-July and August. After mating,



Adult and larva of white grub, *Holotrichia consanguinea*

the beetles disperse for oviposition. Management of white grub requires collective efforts on community basis. NCIPM in collaboration with Modi Sugar Mills, Modinagar has initiated a collaborative programme on “Management of white grubs in western U.P. on a community basis” with the aim to collect information on species composition of white grubs in sugarcane and to develop, validate and disseminate IPM strategy for area wide management of white grub. Initial efforts made on collection of specimens from different locations indicated that *Holotrichia consanguinea* is the predominant species prevailing in most of the villages. Out of 150 villages under Modi Sugar Mills command area, 40 villages have moderate to severe infestation of white grub in sugarcane whereas 30 villages have mild infestation. White grub campaign has been initiated by the Sugar Mill in 40 villages with the help of their Cane Development Staff employed in different villages and by involving farmers under the overall supervision of NCIPM. In each village about 100 neem trees have been selected randomly near or around the field crops. All these trees in the entire 40 villages are being provided with aggregating pheromone (Methoxy benzene) and are being sprayed with chlorpyrifos.

Meetings are being organized in different villages to bring about awareness about the biology and management of white grub. NCIPM has also adopted Issapur village for development, validation and fine tuning of IPM technology in 150 ha. This village was severely affected in 2008 by white grub and is about 8 km away from Modinagar. Under the project, the evaluation of bio-pesticides (*Metarhizium anisopliae*, *Beauveria bassiana*, EPN and *Bacillus* sp.) will also be carried out in the selected village. Initial campaign for destruction of the adult beetles would obviously help in substantially reducing the population of the pest.



### IPM in Protected Cultivation- NCIPM Joins as Core Partner under NAIP Project

The NAIP project on ‘Protected cultivation of high value vegetables and cut flowers – a value chain approach’ sanctioned by Indian Council of Agricultural Research, New Delhi was launched in March 2009. Centre for Protected Cultivation Technology, Indian Agricultural Research Institute, Pusa, New Delhi is the consortium leader with three consortium partners viz., G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, Rajasthan Agricultural University, RAU, Bikaner, Rajasthan and NCIPM, Pusa Campus, New Delhi. Dr. Naved Sabir, Senior Scientist, is the Co-Principal Investigator from NCIPM. Integrated pest management figures as one of the key components in pursuit of standardization of production technologies.

### EIQ Concept for Evaluating IPM Packages for Major Agricultural Crops in India

The data collection on pesticides for various agricultural crops is in progress at NCIPM to evaluate safer pesticide schedule using novel indicator i.e., Environmental Impact Quotient (EIQ) concept. This concept is useful to compare pesticides and different pesticide strategies, and therefore to select the safer pesticide for various pesticide packages in plant protection program. The data has been analyzed and compared for IPM and non-IPM rice and vegetable crops of the centre for different regions.

## Meetings

### Institute Research Council Meeting

The Institute Research Council Meeting was held from 22-24 April, 2009 under the chairmanship of Dr. O.M. Bambawale. In his introductory remarks, chairman apprised the house about the significant achievements and new initiatives. The ongoing research projects of the centre were reviewed and evaluated with necessary suggestions. All the scientists presented their achievements of 2008-2009 and the technical programme for 2009-10. In all thirty one projects were reviewed including externally funded projects and new projects.

### Annual Review Meeting of National Information System for Pest Management (Bt Cotton)

On 1<sup>st</sup> and 2<sup>nd</sup> May, 2009 the annual review meeting of the project, "National Information System for Pest management (Bt cotton)" was held at NCIPM. The inaugural meeting was chaired by Dr. O.M. Bambawale, Director, NCIPM and Dr. T.P. Rajendran, Assistant Director General (Plant Protection) was the chief guest on the occasion. Sh. S.M. Kolhatkar, Joint Director, Directorate of Cotton Development, Mumbai was the guest of honour. The meeting was graced by Dr. V.V. Ramamurthy, Principal Scientist, Division of Entomology, IARI, New Delhi and representatives from all the 12 cooperating centres. The progress of

the project during 2008-09 was reviewed in the meeting. The GPS system and digital video camera were distributed to all the representatives of the centres and the demonstration for operating these two equipment were given by the experts from the respective companies. The technical programme for 2009-10 was also finalized.

### Rice IPM Group Meeting

During 2008, an institutional project was initiated with six centres under the varied agro-ecological zones of the country in rice IPM. On May 22, a meeting was organized by the centre under the chairmanship of Dr. O.M. Bambawale, Director, to review the results of *kharif* 2008 and to plan the activities for 2009 season. Five centres viz., PAU, Ludhiana, NDUAT, Faizabad, VPKAS, Almora, CRRI, Cuttack and CRURRS, Hazaribagh participated in the meeting. After thorough discussion, IPM validation programme of 2009 season for the respective centres was finalized.

### QRT of the Centre visits Collaborators

Quinquennial Review Team consisting of Dr. B.L. Jalali as Chairman and Dr. D.J. Patel and Dr. S. Lingappa as members alongwith Dr. O.M. Bambawale and Dr. O.P. Sharma, Member Secretary visited some centres with whom NCIPM has a linkage, at Pune and

Bangalore during April 4-7, 2009. These included M/s Kenbiosys Pvt. Ltd, Pune, having state of the art facilities for production of microbials (*Trichoderma*, *Pseudomonas*, *Verticillium*, *Metarrhizium* and *Bacillus*) with enhanced shelf life for domestic as well as international market. A meeting was also organized in the office of Deputy Director (PI. Protection) of Maharashtra wherein 25 representatives from various biocontrol laboratories were present. The team also visited the ongoing



protected cultivation experiments in poly houses at College of Agriculture, Pune. A visit to PDBC (now NBAIL), Bangalore was undertaken on 6<sup>th</sup> April, wherein scientists presented the work carried out under TMC and NATP projects for which NCIPM was the lead centre. During discussion, it was emphasized to find out the areas of common interest and possibilities of future collaboration. BCRL and MULTIPLEX, the two leading biocontrol agent manufacturers were also visited. QRT is going to submit its recommendations shortly to ICAR.

## Training Programmes organized

### Training Course on Pest Management in Forestry for ICFRE Scientists

A training course on "Pest

Management in Forestry" was organized from 10<sup>th</sup> to 19<sup>th</sup> February, 2009 for the scientists of Indian Council of Forestry Research and Education (ICFRE). ICFRE has eight

research institutes and four advanced research centres across the country. Fourteen participants attended the course. Two leading research organizations of the country (ICFRE



and ICAR) joining hands for Human Resource Development (HRD) in the field of pest management would lead to new vistas of cooperation and collaboration between both the organizations.

Dr. P.S. Chandurkar, Plant Protection Advisor to Govt. of India, in his inaugural address, emphasized the need of label claim of pesticides for forest insect pests and diseases. He informed that only one chemical (chlorpyrifos) has been registered for use against insect pests in Forestry. Dr. T.P. Rajendran, ADG (PP) addressed the participants about the lack of data on forest as reservoir of pests and natural enemies, and the need for joint operation with ICFRE for combating the common pests of forests as well as agriculture such as termites, white grubs, defoliators, with focus on the villages located on the border of the forests. KVKs, in such localities were sought to be adopted by ICFRE to popularize their technology amongst farmers. He suggested to include a few voluntary centres from the ICFRE in the white grub network project.

The course contents were devised carefully based on the course outline and topics provided by ICFRE with required modifications, to provide advanced knowledge and sharpen the skills of participants on latest technologies of pest management in forest ecosystem for saving losses and reducing the hazards to nature at a minimum cost. The course also included the hands-on- practicals and

visit to Dr. Y.S. Parmar University of Horticulture and Forestry, Solan and biocontrol unit of International Panaacea Ltd. New Delhi. Reading materials, handouts of presentations and CDs were provided to participants.

In the valedictory function, Dr. R.K.

Mittal, ADG (EQR) informed that a joint syllabus for graduate and post graduate course has already been finalized by ICAR in collaboration with ICFRE. The participants in their feedback appreciated the contents of the training, specially the on line pest monitoring, surveillance and reporting system being developed at NCIPM, which they feel, would be of great importance to forestry also.

### Training Course on Mass Production Technology of Biological Control Agents

Eleventh National Training Course on 'Mass Production Technology of Biological Control Agents' was held at NCIPM for 10 days from February 28 to March 09, 2009 with the objective to provide cutting edge technology to scientists and research workers engaged in production of bio-agents or who wish to set up mass production units.

The training was attended by 27 participants from 12 states representing State Agriculture Departments, research institutes, KVKs, SAUs, ICFRE Institutes and



Private entrepreneurs. The training was inaugurated by Dr. T.P. Rajendran, ADG (PP), ICAR. In his inaugural address he emphasized the need to project biopesticide manufacturer system to attain the large scale production of biopesticides and to develop a network of producers to cater to the need of biopesticides for different States.

The training included lectures and hands-on practicals on mass production of laboratory hosts, parasitoids, predators, entomopathogenic and antagonistic fungi, bacteria, NPVs, and nematodes besides *Parthenium* beetle, *Zygotogramma bicolorata*. The training also included lectures on storage, transport and field utilization of biological control agents and conservation of natural enemies. Guest speakers from Divisions of Entomology, Nematology and Plant Pathology of IARI made the course informative. Dr. R.M. Shukla, Deputy Director (Entomology), DPPQ&S apprised the trainees about the registration requirements of biopesticides. Training also included visits to Nematology and Plant Pathology Divisions of IARI and International Panaacea Bio control laboratory. At the end of the training, a post evaluation test was conducted as per the ICAR guidelines to get feedback from the participants about the training.

Dr. H.S. Gaur, Joint Director (Education), IARI, the chief guest of valedictory function, appreciated the efforts made by NCIPM to disseminate the IPM technology including the mass production technology of biological control agents and distributed the certificates.

### Training Imparted

"Identification of powdery mildews" in Advanced Level Training Programme on "Biodiversity, Taxonomy, Conservation and Characterization of Fungi" at Division of Plant Pathology, IARI, New Delhi, Jan. 28-Feb. 17, 2009.

(Nasim Ahmad)

“Geo-Spatial Technologies in managing insect pests and diseases in plant protection” and “Indigenous Technical Knowledge in Plant Protection in India”, at GB Pant University of Agriculture and Technology, Pant Nagar in ICAR

sponsored 21 days Summer School on ‘Advances in commercial agriculture’ held from March 18-April 07, 2009.

(A.K. Kanojia)

‘Indigenous Technical Knowledge for improving soil and crop quality’ at

Division of Agronomy, IARI, New Delhi, 21 days summer school, ‘Quantitative and qualitative improvement in crop production systems and soil health through INM’ held from May 25-June 15, 2009.

(Sumitra Arora)

## IPM Activities/Research Highlights

### IPM Strategies for Bell Pepper

Bell pepper (*Capsicum annum* L.) is an important vegetable crop of Haryana grown over an area of about 400 ha in Karnal District. Its productivity is low owing to severe damage caused by cutworms, aphids, thrips, mites, fruit borer, virus mosaic complex, *Fusarium solani* and *Phytophthora* fruit rot at various stages of crop growth resulting in a yield loss of 30-35%.



IPM programme has been initiated in bell pepper in Daha village, District Karnal, Haryana in an area of 25 acres. The technology comprised of raising of healthy nursery with raised bed, soil solarisation, *Trichoderma* mixing in soil and seedling root dip in *Pseudomonas*, application of neem (aphids) and spinosad (thrips) spray, pheromone based monitoring of fruit borer, release of egg parasitoid *Trichogramma chilonis*, spray of Ha

NPV and emamectin benzoate if necessary. The adoption of IPM technology by vegetable growers has resulted in 2/3<sup>rd</sup> reduction in number of chemical pesticide sprays (from 15 to 5-6) besides substantial increase in yields with improved quality.

(H.R. Sardana, M. Sehgal)

### Large Scale Validation of IPM technology for Cauliflower in Ananatpura village

During 2008, village Ananatpura in Chumu tehsil of Jaipur district (Rajasthan) was selected for validation of IPM module for rainy as well as late rabi seasons on cauliflower/cabbage. A farmers' field school was organized on 16<sup>th</sup> May, 09 in which around 20 farmers participated. Ten farmers were selected for large scale validation of IPM programme for *kharif* cauliflower comprising soil and seed treatments with *Trichoderma harzianum*, application of neem cake and soil solarization, monitoring the population of *Plutella xylostella* and



*Spodoptera litura* using pheromone traps and need based application of NSKE 5%/ SINPV/ novaluron/ spinosad.

(D.B. Ahuja)

### Report on Expanding list of Host Plants of Papaya Mealybug *Paracoccus marginatus*

Heavy infestations of *Paracoccus marginatus* Williams and Granara de Willink was seen in plantations of papaya (*Carica papaya* L.; Caricaceae), mulberry (*Morus alba* L.; Moraceae), *Jatropha* (*Jatropha curcus* L.; Euphorbiaceae) and tapioca (*Manihot esculenta* Crantz ; Euphorbiaceae) besides moderate to low infestations on shoe flower (*Hibiscus-rosa-sinensis* L.; Malvaceae), guava (*Psidium guajava* L.; Myrtaceae), brinjal (*Solanum melongena* L.; Solanaceae) and tomato (*Lycopersicon esculentum* L.; Solanaceae) in Coimbatore region of Tamil Nadu. Documentation of *P. Marginatus* on weed hosts such as *Abutilon indicum*, *Achyranthus*

*aspera*, *Cleome viscosa*, *Commelina benghalensis*, *Convolvulus arvensis*, *Euphorbia hirta*, *Leucas aspera*, *Parthenium hysterophorus*, *Phyllanthus niruri*, *Trianthema portulacastrum* and *Tridax procumbense*

during 2008-09 has also been made from Coimbatore. Considering the diverse weed hosts along with a number of economically important crop plants serving as hosts for *P. marginatus* and with more than 60 documented host plants around the world ([http://www.bioone.org/doi/pdf/10.1653/00154040\(2006\)89%5B212:CBCOTP%5D2.0.CO%3B2](http://www.bioone.org/doi/pdf/10.1653/00154040(2006)89%5B212:CBCOTP%5D2.0.CO%3B2)), it becomes imperative to contain the spread through vigilant quarantine of seeds/root stocks/vegetables/ fruits/ ornamentals/other food and feed

#### Host plants of industrial importance infested with *P. marginatus*



Papaya



Jatropha



Tapioca



Mulberry

materials and its management at Coimbatore so as to prevent invasion and establishment of the species of coccid into other districts of Tamil nadu and the neighboring states within the country.

(S. Vennila<sup>1</sup>, P. Jeyakumar<sup>1</sup>, V. V. Ramamurthy<sup>2</sup>, M. Amutha<sup>3</sup> & Dhara Jyothi<sup>3</sup>)

<sup>1</sup>: NCIPM & <sup>2</sup>: IARI, New Delhi,

<sup>3</sup>: CICR, Regional Station Coimbatore

### Large Scale Validation of IPM Technology in Mustard

Large scale validation of IPM

technology in mustard was conducted in an area of 55 ha belonging to 28 farmers in five village viz., Ramgarh, Navgaon, Mohamadpur, Gurjarbas and Kesroli of Alwar District during 2008-09. The major components of the IPM technology were timely sowing of mustard (between Oct. 15-25), seed treatment with *Trichoderma viride* @ 10g/kg seed and recommended dose of fertilizers @ N:P:K- 80:40:40 kg/ha. The IPM technology resulted in low pest incidence {Alternaria blight 7.17%, white rust 7.44%, powdery mildew 6.56%, stem rot 0.95% and No. of aphids/10 cm central twig- 21.8(all mean values)}. Due to high vigour of plants in IPM, no. of pods per plant was 742 and no. of seeds per pod was 12.6 as compared to 682 and 11 in FP, respectively. The mean yield comprising of all locations was 22.44 q/ha in IPM as compared to 19.6 in FP.

(Saroj Singh, S.K. Singh, P.V. Verma and Nasim Ahmad)

### Gamma-irradiation of *Phenacoccus solenopsis* (Homoptera: Pseudococcidae) for Phytosanitary Treatment of Agricultural Commodities

*Phenacoccus solenopsis* (mealy bug), which has emerged as a major pest of cotton is also becoming a serious quarantine pest that would pose threat to many agro-commodities and ornamental plants. Quarantine treatments or systems to eliminate, sterilize, or kill regulatory pests in exported commodities are needed to prevent their introduction and establishment into new areas.

In view of quarantine treatment for *P. solenopsis*, Delhi University in collaboration with NCIPM conducted study on radiation susceptibility by exposing different life stages viz., ovisac, third nymphal instar and gravid female to a range of ionizing doses, in order to determine the dose needed to disinfest agro-commodities from this pest. Overall radio tolerance

of *P. solenopsis* was found to increase with maturity. 40Gy irradiation of 0-1 day ovisacs inhibited male adult formation, and 70Gy was enough to inhibit the transformation of crawlers (N1) up to N3 in case of male; whereas it caused 94.2% reduction in female adult formation with respect to controls. 100Gy irradiation of ovisacs inhibited female adult formation. 400Gy was inhibitory to transformation of crawlers to N2.

Based on the recent radiobiological investigations on *P. solenopsis*, the radiation dose range needed to disinfest the agro-commodities from this pest is between 100 and 400Gy. Further, the studies are in progress to evaluate the radiation mediated influence on associated bio-characteristics, so as to ensure complete quarantine security regarding this pest, by determining the lowest possible dose for phytosanitation.

(R.K. Seth<sup>1</sup>, Zubeda<sup>1</sup>, Mahtab Zarin<sup>1</sup>, R.K. Tanwar<sup>2</sup>, P. Jeyakumar<sup>2</sup>, O.M. Bambawale<sup>2</sup>)

<sup>1</sup> Department of Zoology, University of Delhi, Delhi-110 007; <sup>2</sup> National Centre for Integrated Pest Management, New Delhi

### Yellow rust and Powdery mildew recorded on Wheat

During a survey on wheat in a village in district Sonipat (Haryana) during the last week of March yellow rust disease was recorded at some places. There are reports of its occurrence at many places in Punjab too. In the subsequent observations in village Shikohpur, district Baghpat (U.P.), incidence of yellow rust as well as powdery mildew (PM) was noticed in the late sown crop. PM was prominent on earheads. The incidence of these diseases warrants a strong surveillance and monitoring of the crop in future.

(O.M. Bambawale, D.K. Garg and R.K. Tanwar)

## Farmers' Field Day

### IPM in Chillies

#### Village Nelahal: UAS, Raichur (Karnataka)

Farmers' field day on 'IPM in chillies' was organized on 7<sup>th</sup> January, 2009 in adopted village 'Nelahal' District Raichur, Karnataka, with a view to bring awareness among chilli growers about the demerits of hazardous chemicals and advantages of IPM. The field day was attended by more than hundred farmers from Nelahal and neighboring villages. Scientists from UAS, Raichur Drs. M.K. Naik, Bhimanna and Arun Kumar Hoshmani and from NCIPM Dr. H.R. Sardana and Dr. Mukesh Sehgal interacted with farmers and shared their experiences about IPM. Mr. Nagragowda, Chairman, Horticultural Produce Marketing Commodity (HOPCOM), Raichur, Mr. N. Hussain, Director, HOPCOM, Dr. B.T. Pujari, Associate Director, RRS, Raichur, Dr. S.K. Maiti, Prof. & Head, Extension, COA, Raichur and Dr. Kurubre, Programme Coordinator, KVK, Raichur, UAS, Dharwad and others addressed the farmers and

stressed upon the need for IPM in vegetable crops including chillies.

#### NCIPM Participates in the Field Day and Farmers' Meeting at Upeda organized by TERI

A field day and farmers meeting on IPM for vegetable crops was organized by TERI at Village Upeda near Babugarh Cantt, Hapur on June 8, 2009. Scientists from NCIPM, AVRDC, Taiwan, TERI and PCI staff briefed farmers about the various aspects of safe practices of pest management. More than 70 farmers of Upeda and nearby villages participated in the meeting. Media Representatives from Hindi daily newspapers 'Dainik Jagran' and 'Amar Ujala' were also present in the meeting for dissemination of the information to public. Dr. Nutan Kaushik and Mr. Vivek Sharma from TERI highlighted the improved IPM



practices in brinjal cultivation and focused on constraints and problems in brinjal farming and their management by the different available options. Dr. O.M. Bambawale, Director NCIPM highlighted that injudicious use of chemicals is hazardous to producers, consumers and environment; the only safe way is IPM. He emphasized on biopesticide use and conventional pest control options. Dr. Srinivasan from AVRDC briefed about vegetable development activities of AVRDC and successes of their IPM programmes in various countries.

### Book Releases

A book entitled, "**Pesticides, their classification by WHO and global status of hazardous pesticides**" NCIPM, P. 110, by Sumitra Arora, Prem Dureja, A.K. Kanojia and O.M. Bambawale (April, 2009) published from centre got released at the hands of Prof. Dr Mir S. Mulla (Chair), USA during valedictory function of 5<sup>th</sup> International Conference on Biopesticides' (ICOB-V 2009) held from 26-30 April, 2009, New Delhi.

The book contains detailed information on classification of pesticide active ingredients on the basis of their toxicity to non-target organisms by WHO covering information on all the 217 pesticides registered in India. It includes trade name, registered formulations, target

pests and crops which they are applied to, dose of application, waiting period and their mode of action. Maximum Residue Limit (MRL) of all pesticides fixed by ICMR (under Food Prevention and Adulteration Act 1954), on various crops are given. Besides, information on status and impact of pesticides, latest consumption of pesticides crop wise and state wise, status of hazardous pesticides (as per WHO) in other countries, various toxicity categories and



decontamination methods of pesticides. This book also reviews the latest research in this field which is very informative and useful for all the concerned researchers, scientific community, institutions and NGOs across the country.

## हिन्दी कार्यशालाओं का आयोजन

केन्द्र में मार्च 29, 2009 को एक हिन्दी कार्यशाला का आयोजन किया गया जिसमें प्रशासनिक एवं लेखा विभाग से संबंधित कर्मचारियों को हिन्दी में कार्य करने में आने वाली कठिनाइयों की जानकारी ली गई तथा समाधान सुझाये गये। इस कार्यशाला का संचालन श्रीमती सीमा चोपड़ा, सहायक निदेशक (हिन्दी), भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली ने किया। इस कार्यशाला का मुख्य उद्देश्य तकनीकी शब्दों का हिन्दी

अनुवाद, सरल हिन्दी में नोट शीट तैयार करना तथा 'सेवा पुस्तिका' (सर्विस बुक) में टिप्पणी संबंधित जानकारी प्रदान करना रहा। एक अन्य कार्यशाला का आयोजन 30 जून 2009 को किया गया। इस कार्यशाला में "कृषि अनुसंधान का हिन्दी माध्यम में संचार: संभावनाएं, समस्याएं एवं समाधान" विषय पर डॉ. जगदीप सक्सेना, संपादक, 'खेती', कृषि सूचना एवं प्रकाशन निदेशालय, नई दिल्ली ने विस्तार पूर्वक प्रकाश डाला।

डॉ. सक्सेना ने अपने सारगर्भित व्याख्यान में कार्यशाला के भागीदारों को कृषि अनुसंधान की उपलब्धियों को हिन्दी में लेखन हेतु प्रोत्साहित किया तथा सम्भावित समस्याओं पर उचित समाधान भी प्रस्तुत किया। इसके अतिरिक्त डॉ. सक्सेना ने प्रतिभागियों के प्रश्नों एवं शंकाओं का समाधान भी किया। इस कार्यशाला में केन्द्र के लगभग 25 कर्मचारियों एवं वैज्ञानिकों ने भाग लिया।

## Training Abroad

Dr. Sumitra Arora attended a Training Programme on "Rapid Bioassay of Pesticide Residues (RBPR) on

**Fruits and Vegetables for Market Inspection and Farm Education"** held at Taiwan Agricultural Research

Institute, Taichung, Taiwan from 18 to 20 May, 2009.

## Participation in Seminar, Symposium, Workshop, Conference etc.

Title of the event	Venue	Duration	Participant(s)
96 <sup>th</sup> Indian Science Congress	North Eastern	January 3-9, 2009 Hill University, Shillong	Dr. Sumitra Arora A.K. Kanojia
Winter School on Biosecurity and Biosafety Policies, Procedures & Issues	NBPGR, New Delhi	January 14-February 3, 2009	Dr. M.S. Yadav
National Symposium on IPM Strategies to Combat Emerging Pests in the Current Scenario of Climate Change	CAU, Passighat	January 27-29, 2009	Dr. O.M. Bambawale Dr. P. Jeyakumar
National Symposium on Vegetable Oils Scenario	ANGR Agriculture Univ., Hyderabad	January 29-31, 2009	Dr. Saroj Singh
4 <sup>th</sup> World Congress on Conservation Agriculture	NASC, Pusa, New Delhi	February 4-7, 2009	Dr. O.M. Bambawale Dr. D.K. Garg Dr. O.P. Sharma Dr. R.K. Tanuja Vikas Kanwar S.P. Singh
11 <sup>th</sup> Indian Agricultural Scientists and Farmers Congress	Iswar Saran Degree College, Allahabad	February 14-15, 2009	Dr. Sumitra Arora
Website Launch of NISPM and Central Zone Workshop on Mealy bug on Cotton	Mumbai and PDKV, Akola	February 22-25, 2009	Dr. O.M. Bambawale Dr. P. Jeyakumar
National Symposium of ISPP on Plant Pathology in the Global Scenario	NBPGR, New Delhi	February 27-28, 2009	Dr. Saroj Singh Dr. M.S. Yadav Dr. O.M. Bambawale
Mealy bug Workshop for South Zone	Hyderabad	March 13, 2009	Dr. O.M. Bambawale Dr. P. Jeyakumar
National Conference on Antimicrobial Resistance: from Emerging Threat to Reality	Allahabad	March 23, 2009	Dr. O.M. Bambawale
Conference on Open Access to Science Publications: Policy perspective, Opportunities and Challenges	India Habitat Centre New Delhi	March 24, 2009	Dr. Nasim Ahmad

Annual Group Meeting of AICIP	ANGR Agriculture University, Hyderabad	April 6-8, 2009	Dr. P. Jeyakumar
ग्यारहवीं राष्ट्रीय कृषि विज्ञान संगोष्ठी: सतरंगी क्रांति हेतु कृषि एवं पशुपालन की समेकित प्रणाली	भारतीय कृषि अनुसंधान संस्थान नई दिल्ली	अप्रैल 13-15, 2009	डा. ओ.एम. बम्बावाले डा. डी.के. गर्ग डा. सरोज सिंह पी.वी. वर्मा एस.पी. सिंह नीलम मेहता
International Conference on Emerging Trends in Production, Processing and Utilization of Natural Fibre	CIRCOT, Mumbai	April 16-18, 2009	Dr. O.M. Bambawale
5 <sup>th</sup> International conference on Biopesticides: Stakeholders' Perspectives	TERI, India Habitat Centre New Delhi	April 26-30, 2009	Dr. O.M. Bambawale Dr. D.K. Garg Dr. Saroj Singh Dr. Vikas Kanwar Dr. Naved Sabir S.P. Singh Dr. Nasim Ahmad
Workshop on Cereal System Initiative for South Asia	NASC, Pusa New Delhi	April 27-29, 2009	Dr. O.M. Bambawale Dr. D.K. Garg Dr. O.P. Sharma
Steering Committee Meeting of Pest Monitoring Programme in Maharashtra	Mumbai	May 6, 2009	Dr. O.M. Bambawale
Meeting of Officers of Central Integrated Pest management Centres	DPPQ & S Faridabad	May 19-20, 2009	Dr. O.M. Bambawale
XVII Biocontrol Workers Group Meeting Campus	Assam Agriculture Univ., Jorhat	May 29-30, 2009	Dr. O.M. Bambawale Dr. R.K. Tanwar
Brain Storming Meeting on Issues and Strategies for Increasing Productivity and Production of Pulses	NASC, Pusa New Delhi	June 9-10, 2009	Dr. O.M. Bambawale Dr. D.K. Garg
9 <sup>th</sup> Agricultural Science Congress: Technological and Institutional Innovations for Enhancing Agricultural Income	SKUAT, Srinagar	June 22-24, 2009	Dr. Saroj Singh Vikas Kanwar Niranjan Singh P.V. Verma
Group Monitoring Committee and Expert Group Meeting on Development of Technology Systems	INSA, New Delhi	June 29-30, 2009	Dr. Sumitra Arora

## Personnel

### Joining

- Dr. (Mrs.) S. Vennila has joined as Principal Scientist (Entomology) on May 8, 2009. Prior to joining the present position, she was working at CICR, Nagpur.
- Dr. M.N. Bhatt has joined as Principal Scientist (Plant Pathology)

on May 13, 2009. Earlier, he was working at CPRI, Campus Modipuram (Meerut).

- Ms. Meenakshi Malik has joined as Scientist (Stat.) on June 19, 2009.

### Retirement

- Dr. G.L. Nigam, Principal Scientist

(Ag. Economics) retired on January 31, 2009.

### Selection

- Dr. A. Dhandapani, Senior Scientist (Statistics) got selected as Principal Scientist at NAARM, Hyderabad and was relieved on June 12, 2009.

*Editorial Committee* : D.K. Garg, S. Vennila and O.M. Bambawale  
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