



भा.कृ.अनु.प. - राष्ट्रीय जैविक स्ट्रेस प्रबंधन संस्थान

ICAR - NATIONAL INSTITUTE OF BIOTIC STRESS MANAGEMENT

Baronda, Raipur - 493 225, Chhattisgarh



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Director's Desk

I am extremely happy in bringing out the present issue of ICAR - NIBSM Newsletter. NIBSM has now gradually elevated from the phase of "warm up" research. Well focused research proposals addressing various problems of biotic stresses confronted by the Indian farmers in the present context of baffling epidemiologies, pernicious pestilence, climate change, biosecurity measures and zoonotic diseases were thoroughly contemplated in the recently concluded IRC meeting. Winning a project on "Socio-economic upliftment of tribal farmers through suitable agricultural enterprises integration in rice fallow pulse cropping system - A farmer participatory approach" under Farmer FIRST programme of ICAR added another feather in the cap of NIBSM. Our achievements on the front of campus development have been noteworthy since master plan with an outlay of 121 crores has been finally approved by the ICAR headquarters. A handsome amount of Rs. 54 crores is waited to be released in RE 2016-17 for construction of administrative block, boys and girls hostels and campus developmental works related to internal roads, landscape avenues, farm improvement etc. at Baronda farm. An old farm store building as well as residential quarters existing from IGKV time are under renovation to house laboratories and sitting space for a minimum dozen of scientists. Tender process to the tune of 1.5 crores is in full swing to procure modern equipments and laboratory infrastructure pertaining to specified mandate based upon the new frontier sciences of genomics, proteomics, DNA fingerprinting, bioinformatics etc. Through voluntary outreach activities and MGMG programmes, a small group of scientists belonging to varied disciplines of agricultural science are now compulsorily engaged in farmer - scientific interactions in several villages of Raipur and nearby districts of Chhattisgarh. It is very satisfactory to put on record that the NIBSM gradually shedding its infancy is now enthusiastically moving forward with an added strength of sixteen scientists, Joint Director (Research), Joint Director (School of Crop Health Biology Research) and a designated Director. The scientific expertise of the institute is now well represented by the scientists belonging to the major disciplines such as plant pathology, entomology, biotechnology as well as animal and fishery disciplines including extension.



Jagdish Kumar
(Jagdish Kumar)
Director (Acting)



Weed management in transplanted rice

Incorporation of 30-35 days old *Sesbania aculeate* in rice field significantly reduces the weed growth, saving of 25-30% of nitrogen, phosphorus and potashic fertilizers, reduce weed density by 56.4%, weed biomass by 38.3% and increase rice yield by 20.3% over unincorporated plots. Eighteen rice varieties were screened to know the weed suppression ability, it was noticed that plots of shorter stature varieties has more of broadleaved weeds and tall stature varieties had noticed with more of grassy weeds. Narrow row spacing (15 cm) in rice has 10% more grain yield over wider row spacing (20cm). Moderately weeded plots (two hand weeding (HW)) had increase the grain yield by 83.6% followed by 75.1% in partially

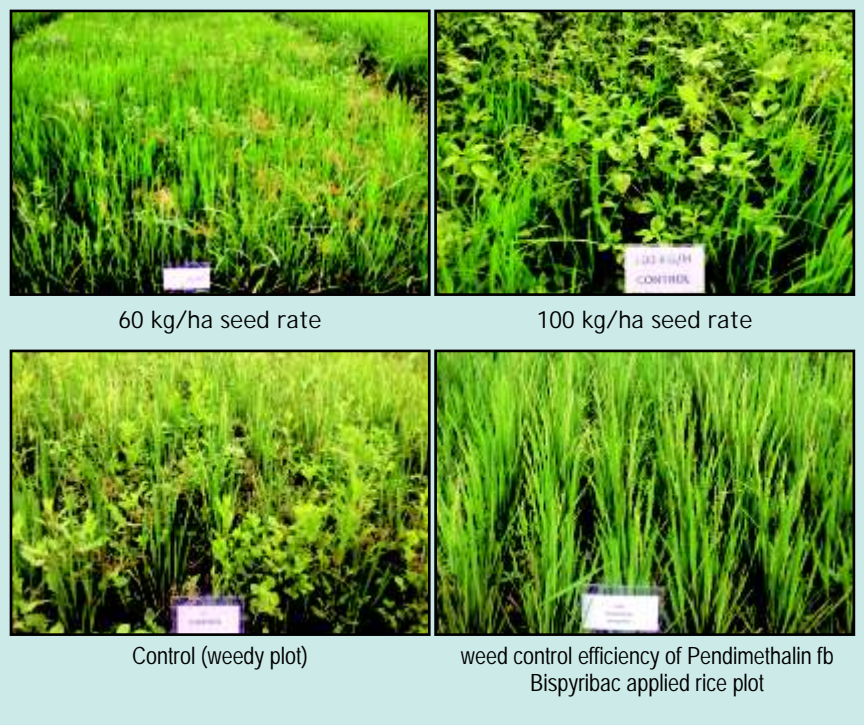
weeded plots (one herbicide spray) over control (4.0 t/ha) and reduced weed biomass by 78.8% in moderately weeded plots followed by partially weeded plots (68.1%). Application of pyrazosulfuron @20 g/ha within 3 days of transplanting followed by application of bispyribac @ 25 g/ha or penoxsulam @ 22.5 g/ha 17-20 days after transplanting has suppressed the weeds up to 80-85% comparable to 2 HW at 30 and 60 days after transplanting. The highest grain yield was recorded with 2 HW (7.2 t/ha) followed by pyrazosulfuron fb bispyribac and pyrazosulfuron fb pinoxsulam.



(V.K. Choudhary and Anil Dixit)

Weed management in direct seeded rice

Weed is one of the major constraints (up to 90%) in direct seeded rice. Among different priming treatment, priming of rice seeds with calcium chloride (150 μmol) reduced dry biomass of grasses by 19%, broadleaved weeds by 21.6% and sedges by 22.2% and grain yield improvement by 41% followed by bio-priming (*Pseudomonas fluorescence*) and hydro-priming over non-primed seeds. Weed suppression and yield of plots used recommended seed rate for direct seeded rice of 100kg/ha with 20cm row space were found to be comparable to plots used 60kg/ha seed rate with 15cm row space. Moderately weeded plots (2 HW at 20 and 40 DAS) recorded 91.8-95.4% lesser weed dry biomass followed by partially weeded plots (sprayed with bispyribac sodium @ 25 g/ha at 17-20 DAS) and recorded 1.24-1.4 times more grain yield with moderately weed plots and followed by 1.17-1.29 times in partially weeded plots over weedy plots. The highest weed control efficiency and grain yield was recorded with three HW (20, 40 and 60 DAS) followed by two HW (20 and 40 DAS) and herbicide spray; pendimethalin @1.0 kg/ha fb penoxsulam @ 22.5 g/ha, and pendimethalin @ 1.0 kg/ha fb bispyribac sodium @ 25 g/ha in direct seeded rice.



(V.K. Choudhary and Anil Dixit)

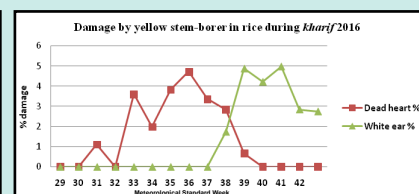
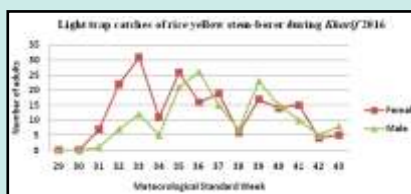
Seasonal abundance of rice yellow stem-borer and leaf-folder

Three species of stem-borer including yellow stem-borer, *Scirpophaga incertulas* Walker (Lepidoptera : Pyraustidae), Asiatic stem-borer, *Chilo suppressalis* (Walker) (Lepidoptera: Crambidae) and *Scirpophaga innotata* (Walker) (Lepidoptera: Pyraustidae) were found attacking rice in the experimental farm of ICAR-NIBSM, among them, *S. incertulas* was dominating (92.3%; 159 female adults), while *C. suppressalis* (7.7%; 15 adults) and *S. innotata* (>1%) ranked 2nd and 3rd in infesting rice culm. *S. incertulas* had appeared during tillering and reproductive stage while *C. suppressalis* and *S. innotata* has appeared during later part of reproductive stage.



Light and pheromone trap collections for 15 weeks during *khari* 2016 (29 to 43rd MSW) indicated that first female adult of yellow stem-borer appeared during 31st MSW which caused 1.1% dead heart, thereafter reached the first peak of 31 female adults during

33rd MSW and second peak of 26 female adults during 35th MSW which caused the dead heart of 3.60 and 3.83%, respectively. Maximum dead heart of 4.72% by yellow stem-borer was recorded during 36th MSW. White ear (1.74%) by yellow stem-borer was noticed during 38th MSW which increased during 39, 40 and 41st MSW, recording 4.88%, 4.22% and 4.98%, respectively. Single species of leaf-folder, *Cnaphalocrocis medinalis* (Guenee) (Lepidoptera:Pyraustidae) was noticed. Leaf-folder damage (0.46%) had started on 31st MSW and reached the maximum of 1.36% on 36th MSW 1.74% leaf damage on 38th MSW, declined thereafter. Minimum temperature and relative humidity were found to be supportive to the damage caused by yellow stem-borer and leaf-folder while the rainfall supported for the increased trap catches.



(R.K. Murali Baskaran and K.C. Sharma)

Occurrence of false smut of rice

Widespread occurrence of false smut (*Ustilagoideia virens*) disease of rice was observed in most of the farmers' fields in different villages of Raipur district during *kharif* 2016 especially on late maturing variety like Swarna, the most preferred variety in the region. The disease incidence (% of false smut-infected tillers) varied from 4.5% to 42.2% whereas number of infected grains per panicle varied from 1 to 25 in the variety Swarna. Average number of smut balls per kg of harvested grains varied from 47 to 53. In the experimental farm of ICAR-NIBSM, false smut was also observed in severe form on variety PKV HMT where number of infected grains reached around 40 per panicle with disease incidence of 30.3%. Early maturing varieties like Mahamaya escaped the infection. Intermittent, well distributed rains accompanied by cloudy days from the second week of September to first week of October, high humidity and moderate temperature coinciding with the anthesis/ flowering stage of the crop probably resulted in the widespread occurrence. False smut is becoming an increasing concern in rice growing areas which apart from reducing yield and quality, also causes economic losses to farmers due to lower market price for the presence of false smut balls on healthy rice grains.



Rice panicles infected with false smut

(S K Jain)

Screening of rice genotypes against rice root-knot nematode (*Meloidogyne graminicola*)

Total 50 germplasm lines of rice from AICRP (Nematodes) were screened against root-knot nematode (RKN) in *kharif* 2016 under pot culture experiments. Forty-five days after sowing,



Screening of rice germplasm against RKN Galls induced by RKN in rice

the plants were uprooted carefully and roots were washed with running tap water and stained with lactophenol-acid fuchsin. None of the rice germplasm has shown neither resistant nor moderately resistant reaction to *M. graminicola*. Out of 50 germplasm lines, 17 lines were shown susceptible reaction and remaining 33 were shown highly susceptible reaction.

(Mallikarjuna J)

Screening of germplasm lines of pulse crops against root-knot nematode

Total 68, 18 and 10 germplasm lines of pigeonpea, mungbean and urdbean from AICRP (Nematodes) were screened against root-knot nematode in *kharif* 2016 under pot culture experiments. Fifteen days old single plant/pot was inoculated with 1000 freshly hatched second stage juveniles of *M. incognita*.



Screening of pigeon pea germplasm against RKN

After 25 days, the plants were uprooted carefully and gall index and number of egg masses per 5 g of root was worked out and categorised based on 1-5 scale. All the genotypes of pigeonpea, mungbean and urdbean have shown susceptible reaction with respect to both gall index and number of egg masses per 5 g of roots. None of the genotypes of these crops was shown resistance or moderately resistance reaction.

(Mallikarjuna J)

Studies on microbes associated with reproductive biotic stresses of bovine

A total of 268 serum and 148 blood samples were collected from five districts of Chhattisgarh. Among them 340, 90 and 58 serum samples were subjected to indirect ELISA for detection of antibodies against bovine brucellosis, leptospirosis and infectious bovine rhinotracheitis, respectively. The overall seroprevalence was found to be 7.65%, 0.00% and 62.07% for brucellosis, leptospirosis and infectious bovine rhinotracheitis, respectively.

(Lata Jain, Vinay Kumar, S.B. Barbudde and Mamta Choudhary)

Report of viral diseases of crop plants in the plain zone of Chhattisgarh

Surveys were conducted in the farmers' field of six districts covering Chhattisgarh; Raipur, Durg, Bemetara, Kabirdham, Mungeli and Bilaspur to understand the prevalence of viral diseases in agriculturally important crop plants. Mungbean, Dolichus bean and pigeon pea were found to be affected with 21-94% yellow mosaic disease, vegetable crops such as bhendi (91-100% yellow vein mosaic and 78-100% leaf curl disease), sponge gourd (78-98% leaf crinkle disease), bitter gourd (52-100% leaf crinkle and 43% mosaic disease) and fruit crop; papaya (leaf curl disease) were found likely to be infected with whitefly transmitted Begomovirus. Other viral diseases such as leaf crinkle disease in mung bean (98%), ring spot disease in papaya (97%) and mosaic disease in cucumber (3%) were also noticed in this region. Preliminary information suggests that among the diseases caused by different viruses, Begomovirus are the most important and causing huge economic losses to the grower

(P.N. Sivalingam, K.C. Sharma, Vinay Kumar and P. Mooventhan)

Pest and Disease Status

Weekly insect pest and disease status has been recorded in rice, green gram, pigeon pea, soybean, groundnut and vegetables and sent to National Centre for Insect Pest management, New Delhi along with pest advisory.

Biotic stresses observed during *Kharif* 2016 in plain zones of Chhattisgarh

| Crop | Biotic stress | Causal organism | Intensity/incidence |
|--------------|-----------------------|---------------------------------|---------------------|
| Soybean | Tobacco caterpillar | <i>Spodoptera litura</i> | High |
| Bhendi | Shoot and fruit borer | <i>Earias</i> spp | High |
| | Whitefly | <i>Bemisia tabaci</i> | High |
| | Jassids | <i>Amrasca devastans</i> | High |
| | Yellow mosaic | <i>Bhendi yellow vein virus</i> | High |
| | Leaf curl | <i>Okra leaf curl virus</i> | Moderate |
| Bitter gourd | Leaf crinkle | <i>Begomovirus</i> | High |
| | Red pumpkin beetle | <i>Aulacophora foveicollis</i> | High |
| | Fruit fly | <i>Dacus cucurbitae</i> | High |
| Sponge gourd | Leaf crinkle | <i>Begomovirus</i> | High |
| Brinjal | Shoot & fruit borer | <i>Leucinodes orbonalis</i> | High |
| Soybean | Tobacco caterpillar | <i>Spodoptera litura</i> | High |
| Tomato | Fruit borer | <i>Helicoverpa armigera</i> | Low |
| | Wilt | <i>Pseudomonas solanacearum</i> | Low |
| | Leaf curl | <i>Begomovirus</i> | Low to moderate |
| | Blight disease | <i>Phytophthora infestans</i> | Moderate |
| Bottle gourd | Red pumpkin beetle | <i>Aulacophora foveicollis</i> | High |
| | Fruit fly | <i>Dacus cucurbitae</i> | High |
| | Mosaic | <i>Cucumber mosaic virus</i> | Low |

| Crop | Biotic stress | Causal organism | Intensity/incidence | |
|---------------------|---------------------|---|--------------------------------|-------------|
| Rice | Leaf folder | <i>Cnaphalocrocis medinalis</i> | Low | |
| | Stem borer | <i>Scirpophaga incertulas</i> | Low | |
| | Rice hispa | <i>Di cladispa armigera</i> | Low | |
| | Brown plant Hopper | <i>Nilapervata lugens</i> | Low to moderate | |
| | Leaf blast | <i>Pyricularia oryzae</i> | Low to high | |
| | Brown Spot | <i>Helminthosporium oryzae</i> | Low to high | |
| | Neck blast | <i>Pyricularia oryzae</i> | Low to moderate | |
| | Sheath rot | <i>Saro cladium oryzae</i> | Low to moderate | |
| | Stem rot | <i>Sclerotium rolfsii</i> | Low | |
| | Sheath blight | <i>Rhizoctonia solani</i> | Low to Moderate | |
| | False smut | <i>Ustilaginoidea virens</i> | Low to moderate | |
| | Kernel smut | <i>Tilletia barclayana</i> | Low | |
| | Pigeon pea | Thrips | <i>Megalurothrips usitatus</i> | Low to high |
| | | Aphid | <i>Aphis craccivora</i> | Low |
| | | Leaf webber | <i>Grapholita critica</i> | Low |
| Leaf hopper | | <i>Empoasca kerri</i> | low | |
| Phytophthora blight | | <i>Phytophthora drechsleri</i> f. sp. <i>cajani</i> | Low to moderate | |
| Green gram | wilt | <i>Fusarium udum</i> | Low to high | |
| | Tobacco caterpillar | <i>Spodoptera litura</i> | Low | |
| | Leaf spot | <i>Cercospora canescens</i> | Low | |
| | Powdery mildew | <i>Erysiphe polygoni</i> | Low | |
| | Anthraxnose | <i>Colletotrichum lindemuthianum</i> | Low | |

New Pest and Disease Records

First report of root-knot nematode (*Meloidogyne graminicola*) in rice from Chhattisgarh

Paddy is the major crop of Chhattisgarh and occupies nearly 90% percent of total cultivable land. Early stages of paddy crop in region namely in the districts of Raipur, Bilaspur and Durg were found heavily infested with rice root-knot nematode. Seedlings were yellowish with heavily galled roots; infected rice root tips became swollen and hooked, a symptom characteristic of infection of this crop by this nematode species. Initially the galls were white in colour and turning to light brown when old. The infestation of this nematode is observed both under aerobic and anaerobic conditions. The soil and root samples were collected from above said districts and nematodes were extracted from soil and roots. The root-knot juvenile population in the soil was very high (1500/250g soil). No egg masses were observed on the roots. Galls when dissected revealed large number of females (12-15/gall). The eggs were laid inside the root tissues. The adult female invariably retained 10-15 eggs. The number of eggs/egg sacs varied from 100-150. The species was identified as *M. graminicola*. This is the first report of root-knot nematode in rice from Chhattisgarh.



Rice plant with heavily infested root-knot

Heavily galled rice roots infested by *M. graminicola*

(Mallikarjuna J)

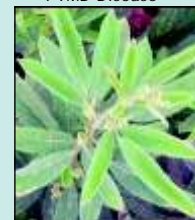
First report of pigeon pea yellow mosaic disease

Pigeon pea yellow mosaic disease (PYMD) was noticed in the experimental farm of ICAR-NIBSM, Baronda, Raipur in pigeon pea variety AL-15 with disease incidence of 8-10 per cent. The symptoms are characterised by bright yellow mosaic on the leaves of infected plants. The diseased sample was found positive in PCR analysis using begomovirus specific primers for coat protein region of DNA A (FP-ACATAATTATTAACCCTAACAA and RP- AAGATATGGA-TGGATGAGAAC) at Plant Virology Unit, Division of Mycology & Plant Pathology, ICAR-IARI, New Delhi suggests that the PYMD is caused by the genus Begomovirus under the family Geminiviridae. This is the first report of begomovirus causing PYMD.

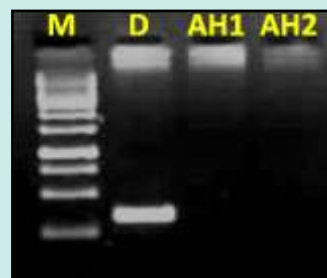
(P.N. Sivalingam)



PYMD Disease



Apparent Healthy



PCR amplification using begomovirus primers in PYMD infected leaf sample (lane D) and apparently healthy leaf samples of pigeon pea (lane AH1 & AH2). Lane M: 1Kb DNA ladder.

Institute Activities

Mid-term IRC follow up meeting

Mid-term IRC follow up meeting was conducted on 20th September 2016 under the Chairmanship of Dr. Jagdish Kumar, Director (Acting), ICAR-NIBSM to review on action taken and progress made as per proceedings of mid-term IRC. During the meeting programme mode approach of research projects was also discussed.

2nd Institute Research Committee Meeting

The second Institute Research Committee (IRC) meeting was held 01-03rd December 2016 under the Chairmanship of Dr. Jagdish Kumar, Director (Acting). During the meeting scientists of the institute were presented research progress made during the year 2015-16 on nine institutionally funded projects and three externally funded projects. Seven new concept notes and activity of integrated farming system approach were also presented for suggestions.



2nd Research Advisory Committee (RAC) Meeting



The second RAC meeting of ICAR-NIBSM was held on 11th -12th July 2016 under the Chairmanship of Prof. Anupam Varma, former National Professor, ICAR-IARI New Delhi in the presence of RAC members, Dr. J.S. Sandhu, Deputy Director General (Crop Science), Dr. R.J. Rabindra, Former Director, ICAR-National Bureau of Agriculturally Important Insects, Bangalore, Dr. C.A. Viraktamath, Former Professor of Entomology, UAS, Bangalore, Dr. P.K. Chakraborty Assistant Director General (PP&B), ICAR, Dr. Jagdish Kumar, Director (Acting), ICAR-NIBSM, Dr. J.Rane, Director (Acting), ICAR-NIASM, Baramati (special invitee) Dr. P. Kaushal, Joint Director (Research), ICAR-NIBSM and Dr. Anil Dixit, Principal Scientist, I/c PME & Member Secretary, RAC. The committee visited experimental farm, infrastructure, laboratory and suggested recommendations in line with the mandate of the institute.

5th Institute Foundation Day Celebration



The 5th foundation day of Institute was celebrated on 7th October, 2016. Dr. Jagdish Kumar, Director (Acting) welcomed the Chief Guest Dr. V. Ravindra Babu Director, ICAR-IIRR, Hyderabad, Guest of honor Dr. D.B. Ahuja Director, ICAR- NCIPM, scientists, participants and farmers. Dr. P. Kaushal, Joint Director (Research), ICAR-NIBSM made a comprehensive presentation of "Year at a Glance 2015-16" and briefed about the various achievements and activities towards the budding paths of the institute. Dr. V.K. Choudhary, Scientist proposed the vote of thanks and co-ordinated farmers-scientists interaction. On the day, Chief Guest and dignitaries released NIBSM Newsletter (January-June 2016) and six extension folders and laid foundation stone of Integrated Farming System Model. On this occasion, more than 350 farmers from different villages of Chhattisgarh participated and benefitted by conduction farmers- scientists

interaction in the field biotic stress management in agriculture.

Institute seminars

For knowledge sharing and keeping literature update, seminar series has been started at ICAR-NIBSM. Following seminars have been delivered:

| S.No. | Name of the scientist | Seminar title | Date |
|-------|--------------------------|---|--------------------------------|
| 1 | Dr. Jagdish Kumar | Pest Risk Analysis in wheat diseases with special emphasis on Karnal bunt | 28 th October 2016 |
| 2 | Dr. S.B. Barbudde | Biotic stress and one health | 26 th November 2016 |
| 3 | Dr. R.K. Murali Baskaran | Anti-herbivour activity of silica in agriculture | 31 st December 2016 |

Independence Day :

Independence day was celebrated on 15th August 2016 at the institute

स्वतंत्रता दिवस

संस्थान में 15 अगस्त, 2016 को स्वतंत्रता दिवस मनाया गया।

Parthenium awareness week

It was conducted from 16-22nd August, 2016 under the Chairmanship of Dr. P. Kaushal, Joint Director (Research). He explained about ill effect of Parthenium and also stressed upon potential use. He urged the staff of ICAR-NIBSM to have Parthenium free campus in next 2-3 years. Scientists created awareness on



Parthenium awareness created in the high school, Tarighat, Durg district of Chhattisgarh

effect of Parthenium on human health and its eradication among the farmers and school children of *mera gaon mera gaurav* villages under ICAR-NIBSM.

हिन्दी पखवाड़ा



राजभाषा- राष्ट्रीय जैविक स्ट्रेस प्रबंधन संस्थान राजभाषा कार्यान्वयन समिति के तत्वावधान में दिनांक 14-28 सितंबर तक हिन्दी पखवाड़ा डॉ. जगदीश कुमार, निदेशक की अध्यक्षता में मनाया गया। निदेशक ने सभी अधिकारियों एवं कर्मचारियों को संस्थान में हिन्दी में कार्य करने एवं इसके प्रयोग को बढ़ावा देने पर जोर दिया।

डॉ. पंकज कौशल, संयुक्त निदेशक (अनुसंधान) ने अपने संबोधन में कहा कि हम सभी का दायित्व है कि हम हिन्दी के महत्व को समझें एवं इसके विकास में सहयोग करें। हिन्दी पखवाड़ा के दौरान डॉ. वी.एन. दुबे, प्राध्यापक एवं विभागाध्यक्ष, हिन्दी विभाग, पंडित रविशंकर विश्वविद्यालय, रायपुर द्वारा हिन्दी की महत्ता विषय पर व्याख्यान दिया गया। इस

दौरान संस्थान के अधिकारियों एवं कर्मचारियों के लिए क्रमशः सुलेख, श्रुतिलेख एवं निबंध प्रतियोगिता आयोजित की गई। दिनांक 28 सितंबर को हिन्दी पखवाड़ा का समापन एवं पुरस्कार वितरण समारोह आयोजित किया गया, जिसमें श्री दीपक मिश्रा, उप प्राचार्य, शासकीय उच्च माध्यमिक विद्यालय, सारागांव मुख्य अतिथि थे। डॉ. के.सी शर्मा, प्रभारी राजभाषा ने हिन्दी पखवाड़ा के दौरान आयोजित प्रतियोगिताओं एवं गतिविधियों का विवरण प्रस्तुत किया। समापन समारोह के दौरान विभिन्न प्रतियोगिताओं में विजेताओं को नगद पुरस्कार एवं प्रमाणपत्र वितरित किये गये। समारोह के अंत में डॉ. विजय कुमार चौधरी ने धन्यवाद ज्ञापित किया।

Extension & outreach Activities

Training programme to farmers on biotic stress management

ICAR- NIBSM, Baronda, Raipur and Krishi Vigyan Kendra, Kanker jointly organized two days (19 & 20th October, 2016) training programme on "Pheromones in Insect Pest Management" at KVK, Kanker. It was co-ordinated by Dr. P. Kaushal, Joint Director (Research), ICAR-NIBSM and Dr. Birbal Sahu, Programme Coordinator, KVK, Kanker. Dr. R.K. Murali Baskaran (Principal Scientist), Dr. K. C. Sharma (Senior Scientist), Dr. P.N. Sivalingam (Senior Scientist) and Dr. V. K. Choudhary (Scientist) from ICAR-NIBSM



Training programme on "Pheromones in Insect Pest Management" at KVK, Kanker (19 and 20 October, 2016)



were also involved in conducting this training. Forty farmers of village Rani Dongari, Dhaneli Kanhar, Babu Dabena and Arod representing two blocks (Kanker and Charama) actively participated in this training. Additionally, management of rodent and viral diseases of crops were also discussed during this training. At the end of the training, certificates and

pheromone traps and lures for yellow stem borer and chick pea pod borer were distributed to participants.

Mera Gaon Mera Gaurav programme

Three groups of scientists from ICAR-NIBSM selected 15 villages from Raipur and Durg Districts of Chhattisgarh and



visited every month during Jul-Dec. 2016. By these visits more than 700 farmers were benefitted. During this period, 15

farmers meetings, three demonstrations were organized in which 371 and 18 farmers were benefitted, respectively especially on improved rice varieties, pests and disease management practices including good agricultural practices, cleanliness etc. Twenty one mobile advisories were sent to 83 farmers on management of crop diseases, weed, insect pests and fish management. Various literatures on management of rodents, weeds, animal health, blast disease, insect pests and herbicide application technology were distributed to 480 farmers, created general awareness on Parthenium eradication, cleanliness, vaccination in animals, avoid toilet in open and burning of agro waste among farmers, village youth and school children. Linkages were also established with KVK, Durg, State Department of Agriculture and Department of Rural Development and benefitted 172 farmers.

Observance of Vigilance Awareness Week during the year 2016



Vigilance Awareness week was observed 31st October 2016 to 5th November 2016. This was started with a pledge administered by all officials and staff. The main focus during this year was public participation in promoting integrity and eradicating corruptions.

Training/Workshop/Conference attended

Dr. Jagdish Kumar, Director (Acting) attended in the panel discussion on "Emergent Nematode Problems - Redefining Management Strategies" during 28-29 November 2016 at NASC Complex, New Delhi.

Dr. P. Kaushal, Joint Director (Research) attended training on "Executive Development Program on leadership development" from 28th August to 1st September 2016 at ICAR-NAARM, Hyderabad.

Dr. Anil Dixit, Principal Scientist, attended (i) ICAR Regional Committee VII 24th meeting during 8-9 September 2016 at Goa (ii) 4th Agronomy Congress at ICAR-IARI, New Delhi during 22-26 November 2016 (iii) As a resource person imparted training to Agriculture Extension Officers of Nashik, Jalgaon and Namburdar district of Maharashtra during 22-24 September 2016 on herbicide application techniques and weed management in field crops.

Dr. S. B. Barbuddhe, Principal Scientist, attended (i) 24th meeting of ICAR Regional Committee No. VII - 8-9 September. 2016 at Goa. (ii) National Symposium on poultry health and welfare: Riding the wave to the future organised by ICAR-Central Coastal Agricultural Research Institute, Old Goa, 20-21 October, 2016. (iii) Brucellosis 2016, International Research Conference, organized by Department of Biotechnology, Govt. of India, New Delhi, 17-19 November, 2016. (iv) National workshop to formulate National Action Plan on Antimicrobial Resistance organized by Food and Agricultural Organization, New Delhi, 5 December, 2016.

Dr. S.K. Jain, Principal Scientist, attended 11th Management Development Programme on Leadership Development (a pre-RMP programme) from 19-30 December, 2016 held at ICAR-NAARM, Hyderabad.

Dr. R. K. Murali Baskaran, Principal Scientist, attended the 23rd Group Meeting on Rapeseed-Mustard Research, organised by ICAR-Directorate of Rapeseed-Mustard Research at Pandit Deen Dayal Upadhaya Pashu Chikitsa Vigyan Vishwa Vidhyalaya Evam Go Anusandhan Sansthan, Mathura during 5-7 August, 2016

Dr. K.C. Sharma, Senior Scientist, attended (i) Five days Finance Management Training during 15-19 November, 2016 at ICAR-NAARM, Hyderabad (ii) attended short course on "Advances in eco friendly pest management strategies in Millets" held during 22-31 August, 2016 at ICAR-IIMR, Hyderabad.

Dr. P.N. Sivalingam, Senior Scientist, attended 8th International Geminivirus Symposium and 6th International ssDNA comparative Virology Workshop, held in Vivanta By Taj, Dwarka, and Jawaharlal Nehru University, New Delhi during 07-10 November 2016.

Dr. Mamta Choudhary, Scientist and Dr. B. K. Choudhary, Scientist attended National Symposium on "Innovative Approaches for Diagnosis And Control Of Emerging And Re-Emerging Diseases Of Livestock, Poultry And Fish" during 9-11 November 2016, CGKV, Durg

Dr. Lata Jain, Scientist, attended Brucellosis - 2016, International Conference during 17-19 November, 2016 at NASC Complex, New Delhi.

Dr. Vinay Kumar, Scientist, attended CAFT training programme on "Perspectives of plant-microbe interactions in promoting plant health and disease management" 7-27 September 2016 at G.B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand

Dr. V. K. Choudhary, Scientist, attended 4th International Agronomy Congress on "Agronomy for Sustainable Management of Natural Resources, Environment, Energy and Livelihood Security to Achieve Zero Hunger Challenge" during 22-26 November, 2016.

Dr. P. Mooventhan, Scientist, attended the training programme on mExtension: "all-in-one" Mobile Phones for Agricultural Extension, 12-16 September 2016 by MANAGE, Hyderabad in collaboration with AC&RI, Madurai, TNAU, Tamil Nadu.

Dr. Mallikarjuna J, Scientist attended the "Refresher course on Bio-agents" at TNAU, Coimbatore during 18-29 July, 2016.

Training/Workshop/Conference Conducted

Two days hands-on-training programme conducted on "Sex pheromone trap for the management of rice yellow stem-borer during 19 and 20th October 2016 at KVK, Kanker, Chhattisgarh.

Publication

Kumar, J (2016) A comparative prelude on wheat rusts in India. *Indian Phytopathology* 69: 328-339

Deputation abroad

Dr. P. Mooventhan, Scientist (Vet. Extension), ICAR-NIBSM,



Raipur is nominated by ICAR to attend the training course on "Innovative Agricultural Extension Systems to Improve Farm Productivity and Income" from 25 - 29 July 2016 at Manila, Philippines, sponsored by Asian Productivity Organization (APO), Tokyo, Japan and implemented by The Development Academy of the Philippines (DAP), Pasig City, Philippines. Subsequently, he has attended the above said training course and presented the Country Paper (India) and ICAR (NARS) details at Development Academy of the Philippines. There were 26 delegates invited from 14 countries representing Cambodia, China ROC, Fiji, India, Indonesia, Iran, Malaysia, Mongolia, Nepal, Pakistan, The Philippines, Sri Lanka, Thailand and Vietnam. There were two delegates from India; Dr. P. Mooventhan represented the Indian Council of Agricultural Research in the above said event.

Awards/Recognitions

Dr. Lata Jain, Scientist (Vet. Microbiology), ICAR-NIBSM, Raipur has been conferred with Dr. D.R. Uppal award for the academic year 2014-15 for the best thesis entitled "Immune response and protective efficacy of *Brucella abortus* phage lysate in mice and guinea pig models" at 9th convocation of ICAR-Indian Veterinary Research Institute, Izatnagar held on 5th November, 2016.



Dr. P. Mooventhan, Scientist (Vet. Extension) received the

award of appreciation certificate from the Development Academy of the Philippines (DAP), Pasig City, Manila, Philippines for the highest score obtained in the post training



evaluation conducted by Asian Productivity Organization (APO), Tokyo, Japan.

Diginataries visit

Dr. Jithendra Kumar, Director, ICAR-Directorate of Medicinal and Aromatic Plants Research, Anand visited on 13th December 2016.

Dr. K. Chandrasekhar, Senior Scientist (Entomology) and Dr. Savarni Tripathi, Senior Scientist (Plant Pathology), ICAR-IARI Regional Station, Pune visited on 25th November 2016.

Joining/Relieving

Dr. Yogesh Yele, Scientist (Entomology) joined on 5th October, 2016 at this institute.

Mr. G.C. Prasad, Senior Finance and Account Officer, ICAR-Central Institute for Cotton Research, Nagpur was relieved from the additional charge of Finance and Account Officer, ICAR-NIBSM, Raipur on 23rd November 2016.

Dr. K.C. Sharma, Senior Scientist (Entomology), ICAR-NIBSM has taken over charge of Finance and Account Officer, ICAR-NIBSM, Raipur on 23rd November 2016.

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