ASSOCIATION FOR ADVANCEMENT IN PLANT PROTECTION

Newsletter

2006

Volume 1, No.1, January, 2006

Together we will protect our crops

Inside this issue

From Editor's Desk:

Plant protection has had a long march spanning over several centuries from crude empirical approaches till the beginning of the 20th century when new tools of chemicals, breeding, cultural, ecological, biological options became available as a function of time. Understanding of plant-pest interactions improved with the advent of more sophisticated tools for analysis - physical, chemical, biological, ecological, statistical and finally through molecular approaches. The more recent unique technological breakthroughs, collectively known as biotechnology, led to an explosive information boom at molecular level that defied imagination. Shifts in paradigm were defined by Thomas Kuhn as a "constellation of achievements - concepts, values, techniques, etc.- to define legitimate problems and solutions". Changes in paradigms, according to Kuhn, occur in discontinuous, revolutionary breaks called 'paradigm shifts'. Such paradigm shifts in crop protection led to involvement of Scientists from all disciplines - be it physics, chemistry, mathematics, statistics, genetics, biochemistry, molecular biology, ecology…. - to solve the problems related to sustainable, stable output from crops for biotic consumption with least disruption to the various interactive communities in the plant-soil-environment system and the health of the consumer. This new information boom using new tools, more often than not, lead to confusion especially among those who have been trained through traditional curricula. It also became difficult to keep track of parallel, similar, or even associative researches going on globally despite a journal boom that occurred concurrently.

A strong base of crop protection developed at the erstwhile Kalyani University followed by Bidhan Chandra Krishi Viswavidyalaya since the early sixties and similar centres developed at different agri- and general Universities/Institutes, KVKs etc. where a new generation of enthusiastic scientists is taking over the mantle of continuing the earlier lead through rational use of newly available technologies. They strongly felt the need for a simple, holistic, interactive platform where all players involved in agrotechnology, be they growers, dealers, industry, NGOs, scientists, entrepreneurs, market managers, could get together and device ways and means of growing, packing, storing or marketing healthy, wholesome farm produce on a sustainable basis.

Further, even with the information boom that is in vogue, it was felt that there is not enough platform and space for more coordinated interaction among the various nodal groups, less said the better when one ponders over it in a national scenario. Hence, an Association for Advancement in Plant Protection is proposed and in the process of being registered. This Association, among others, proposes to issue a Journal, organise Group Meetings, Seminars, Sympsia, Farmer's Meetings, Krishi Melas etc. in conjunction with the various Universities, Institutions, private sector enterprises, NGOs, KVKs, Farmer's groups etc. Pending formal launching, it is proposed to take the first tentative step through issuance of a Newsletter, quarterly, through active participation of all interactive groups. We look forward to your involvement in the activity of the Association. Together, we are confidant, we shall be able to deliver what the general populace expects from us.

Chitreshwar Sen
Editor-in-Chief
On behalf of the Editorial Bioard

Agriinformatics Action Research for Site-specific Cropping Systems Management

Mrinal Kanti Dasgupta, Retired & Honorary Professor of Plant Pathology, Visva-Bharati
Oikos, Simantapalli, Santiniketan731235.oikos_santiniketan@rediffmail.com

Rabindranath Tagore's multifaceted concept of Rural Reconstruction (which culminates in self-generated empowerment of village community, called '*Atmashakti*') and Amartya Sen's concept of 'self-empowerment' (institutionally facilitated rural empowerment) are preferable to one-dimensional notion of (physical) rural (economic) development.

I propose to extend the Agricultural Information Network System (AINS) for researchers to be broadened to a National Agricultural Informatics and Advisory Network System (NAIANS), and to link to my notion of Plant Clinic Network (PCN) with dedicated on-line (and video-conferencing) for hierarchical referral and solution networking to serve researchers, change agents and farmers.

A farmer is a component, the systems manager and the CEO, the three-in-one, of an agricultural production system with many uncontrollable variables, not monitored at his/her end, and controllable variables often beyond his/her control. Problem solving for a farmer is a constant headache through the entire production process planning to marketing and beyond.

Agriinformatics can be defined as 'a hybrid of Agricultural Technology (AT) and IT disciplines to store, process, generate, retrieve, develop a computerised AR&IT networking for the farmers and the change agents in site-specific crop management, field problems for novel solutions and fine-tuning to researchers, and shall be open to judgment, referral opportunity, uploading both questions, problems and solutions from the participants'. Agriinformatics is of a different genre from Bioinformatics (computational branch of molecular biology for knowledge processing) to meet the unique situation of AT, agriculture as an enterprise and farming as an occupation, which integrate science (universality), technology (applied art), and the art of operations (judgemental because of uncertainty and scope of choice). Yet, there are identical elements in objectives and methodology in each of them. Therefore, agriinformatics, pursued as a site-specific action research, can lead to a National Agriinformatics Network System (NANS), multilingual at national level and oligo-lingual at State Level at its face, as well as to develop post graduate research and teaching programmes in tandem as the complementary objective.

Operative tools in action research for location-specificity: Site-Specific Crop Management (SSCM) can be defined as 'an AT&IT based agricultural management system to identify, analyse, and manage site-soil spatial and temporal variability within fields for optimum profitability, sustainability, and protection of the environment.' It employs a systems engineering approach to crop production where inputs are made on as needed basis, made possible through recent innovations in information technology such as microcomputers, Geographic Information System (GIS), Global Positioning System and automatic control of plant machinery.

Site-Specific Cropping System Management (SSCSM) is my notional extension of SSCM, being relevant to subtropical agriculture and diversity orientation. It incorporates Precision Agriculture (PA) that is defined as "a comprehensive system designed to optimise agricultural production through the application of crop information, advanced technology and management practices." Comprehensive precision agriculture (CPA) extends between crop planning and post harvest processing and marketing, to achieve better production efficiency, better product quality, ecological and energy sensitivity, as well as sustainability.

Relevance and Applicability: In West Bengal, monitoring change detection analysis undertaken at IIT, Kharagpur, for GIS of wetland and adjacent upland regarding the living marine resources could be a pointer. In Punjab, an appropriate PA is in operation. Initially, one can set forth location-specific objectives for action research.

The taste (test) of an agro-technology is in its eating (adoption) by the farmer. If one attends a farmer-scientist meet, 80-90% questions from the farmers relate to plant protection... Yet we have to answer many of them tentatively. Farmers often have to turn to uninformed, vested or unethical quarters for pest diagnostics and advices. Consequent to which are often wrong control measure, wrong pesticide, wrong dose, wrong growth stage, wrong method, wrong timing, and wrong hours of the day, least precautions and safety measures. Farmers are often reluctant to take the bother of non-chemical control measures. Plant protection extension research and dissemination is an area least worked where it is needed most, i.e. in the Developing and Transforming Countries. Field-level agricultural workers to top agricultural officers need adequate orientation and frequent quality refresher training in plant protection. District plant protection officers have to have formal education in plant protection, not in any pest discipline alone. Universities will do well to initiate integrated plant protection courses. In spite of great risk in farming, yet the new generation of farmers are quick to adopt new technologies. Adoption is generally high, when knowledge is also high; plant protection knowledge is at its poorest of all agricultural technologies. Agriinformatics may have a stellar role to address itself to such plant protection extension problems and solving them.

Letters

Plant protection in the post-genomic era

With the availability of genome sequences of several important bacterial and fungal plant pathogens and also of a few host plants, it is essential that we start making use of the genomic data, using a range of post-genomic technologies available to us. The fruits of a genome project can only be harvested when results from *in silico* analyses are translated into wet-lab experiments to better understand pathogen gene functions and identify key components of host-pathogen interactions, identify weak spots in pathogen's life that may subsequently lead to identify new intervention strategies and or new drug targets. It would be great to see key research institutions in India joining hands to initiate large-scale functional genomics projects, utilising the genome data of several important bacterial/fungal diseases, relevant to plant protection needs.

Arnab Pain
Cambridge, U.K.
(e-mail :ap2@sanger.ac.uk)

(**Editor's note :** Dr. Pain graduated from BCKV, Mohanpur in 1989, obtained his Master's degree from Division of Mycology & Plant Pathology, IARI,New Delhi and Ph.D. from Cambridge University. He is presently working as Project Manager of the Pathogen Sequencing Unit of The Wellcome Trust Sanger Institute at Cambridge, U.K. and has played a crucial role in the *Aspergillus fumigatus* genome Project).

Climate change and disease scenario

How a rapidly changing climate may influence plant pathogens and the diseases they cause was the topic of a plenary paper by me at the recent Biennial meeting of the Australasian Plant Pathology Society meeting in Geelong, Australia and published as a review (*Australasian Plant Pathology* 2005, 34, 443-448).The United Nations Framework Convention on Climate Change adopted the Kyoto protocol and the recently announced 'Asia-pacific partnership on clean development and climate' between Australia, China, India, Japan, The Republic of Korea and the United States of America have made this a highly visible area of research but the topic has not yet sparked widespread interest among plant pathologists. Two important trends have emerged from the limited research: an enlarged plant canopy at high CO_2 offers a microclimate that is often highly conducive to disease development and contain many more potential infection sites; and some fungal pathogens produce more spores at high CO_2 but increased resistance in some plants slows host invasion. This combination can lead to a more rapid emergence of damaging pathogen races. Warming will cause a pole-ward shift of agroclimatic zones and crops that grow in these zones. Pathogens will follow the migrating hosts. A crop may continue to be grown for agro-ecological or economic reasons despite climate change altering its suitability for certain locations. Crops grown in marginal climates would impose chronic stress and may increase susceptibility to diseases.

Sukumar Chakraborty
CSIRO, Plant Industry, Queensland Bioscience Precinct, St Lucia, Queensland, Australia (email:sukumar.chakraborty@csiro.au).

(**Editor's note**: Dr. Chakraborty was a first batch student in the F/Ag. of BCKV, Kalyani.)

Short Research Notes

Foliar nematode (*Aphelenchoides besseyi*) - a threat for cultivation of tuberose

M. R. Khan, AICRP (Nematode), BCKV, Kalyani, West Bengal. mrkhanbckv@rediffmail.com

Foliar nematode, *Aphelenchoides besseyi* emerged as a serious problem in tuberose in West Bengal. First reported from Hawaii Islands from the leaves of tuberose, this nematode is widespread in

Eastern and Southern India particularly in rice causing 'white tip disease'. It has more recently spread to Orissa presumably through bulbs. The researches conducted over several years provide the following information.

This foliar nematode constitutes a major limiting factor for cultivation of tuberose in Ranaghat, Haringhata and Panskura areas. The 'calcutta single' cultivar of tuberose is more vulnerable to *A. besseyi* than the 'calcutta double' cultivar. Research results confirmed that *A. besseyi* is the primary causal agent for malformed flowers and population of *A. besseyi* causing white tip disease in rice is the same population infecting tuberose causing floral disease. Infested bulbs harbour nematode in coiled anhydrobiotic condition (quiescent pre-adult and adult stages) in the scaly leaves outside the bulbs. The nematode can also survive in the dried scaly leaves, stems and flowers for more than 25 months; however, they can not survive in soil for a long time.

Nematode management options successfully tested include

- Tuberose bulbs soaked in 5% neem-seed-kernel-extract overnight or dipped in monocrotophos 36SL at 500ppm for 6 hours.
- After sprouting, three to four sprayings with monocrotophos 36SL at 500ppm at 15 to 20 days intervals over the years
- Infested plant parts should be burnt or buried into the soil.
- Growing tuberose away from rice field is encouraged.

Double-stranded RNA-mediated hypovirulence of *Rhizoctonia solani*

Dilip Lakshman, Research Plant Pathologist, USDA-ARS, Floral and Nursery Plants Research Unit, Beltsville, MD 20705, USA. LakshmanD@usna.ars.usda.gov

Rhizoctonia solani is a soil borne fungal plant pathogen responsible for economic losses of crops worldwide. Isolates of Rhizoctonia (anastomosis group 3) cause a disease commonly known as black scurf, stem and stolon canker of potato. We observed that some isolates of the pathogen lose their ability to cause severe disease, a phenomenon called hypovirulence. We also demonstrated that hypovirulent isolates could protect potato crop from the effects of virulent (disease-causing) isolates of the fungus. Our research group (University of Maine and USDA-ARS) determined that both virulence and hypovirulence (reduced ability to cause disease) of some Rhizoctonia isolates are associated with the presence of distinct virus-like double-stranded RNA (dsRNA) molecules in the fungus. Genome of both the dsRNAs had been sequenced and characterized. We noted that the presence of the hypovirulence associated dsRNA causes the quinic acid (QA) biosynthetic pathway of Rhizoctonia to be active at all times. In pathogenic isolates of the fungus, the QA biosynthetic pathway is normally inactive, but can be induced by QA which is present in the soil from decaying of lignin rich organic materials. Increased activity in the QA pathway results in decreased activity in the shikimic acid pathway and the concomitant reduction of phenylacetic acid (PAA) released by the fungus. PAA is a pathotoxin of Rhizoctonia disease development. Current research at the USDA-ARS is focused on metabolites and Rhizoctonia gene(s) involved in the regulation of virulence. Increased understanding of the disease interaction will aid in protection of plants against disease caused by this pathogenic fungus.

Ufra disease of deep water rice and its management in Assam

B. N. Choudhury, Senior Scientist, Department of Nematology, AAU, Jorhat-13

Ufra disease caused by *Ditylenchus angustus* is originally known as *Dak pora* and poses a serious problem in deep-water rice or *bao* paddy cultivation in Assam. In infected plants, the panicles failed to emerge out from the flag leaves or sometimes emerged partially. Few panicles emerged fully but with false grains. The infected paddy fields looked like a dried field from distance. About 20 to 90 per cent yield loss was recorded due to the attack of this nematode.

Management practices of ufra disease: It is very difficult to control ufra disease due to the typical deep-water situation. The following management practices have been found to be worthy of recommendation to the farmers: i) Resistant varieties: Rayada B-3, Bazail-65. ii) Burning of stubbles: The main source of inoculum is the stubbles left over in the field after harvesting. The stubbles should be burnt in as a community programme. This practice was found to be very effective. iii) Adjustment of date of sowing: During mid April to last part of April, the population of ufra nematode decreases in the field. Therefore, the sowing of *bao* paddy should be delayed to coincide with this period. 'Padmapani' variety could be sown during this period. iv) Crop rotation: Instead of growing deep-water rice every year, the field should be rotated with a crop like jute whenever possible. It reduces the nematode population significantly. v) Chemical control: If the presence of ufra nematode in the field is known, the field should be treated with carbofuran 3G @ 12 kg/acre before sowing.

Management of banana scarring beetle, *Nodostoma viridipenne* - a real challenge to the banana growers of eastern India

B. Bandyopadhyay, AICRP on Tropical Fruits, BCKV, Mohanpur, biswanath_bckv@rediffmail.com

Banana scarring beetle, *Nodostoma viridipenne* Motsch. of late, has become a major problem for banana growers in eastern India and about 29% crop losses has been estimated. The adults of this pest cause serious damage on banana leaves and young fingers.

A study on the population dynamics of this pest undertaken during the years 2002 - 2005 revealed that the adults came out from the soil during the month of February and population build up continued up to November. Under field condition 3-4 generations often occurred. Two additional colored forms viz. complete reddish-brown coloured body and complete blackish coloured body have been recorded so far. The adults lay light yellowish elongated eggs near the base of the pseudostem under field condition. Newly hatched larvae are off yellow but full grown larvae are yellow to yellow-brown in colour. The pest passes through five larval instars and remains dormant during winter months as pre-pupal or pupal stages, these being yellowish or cream-yellow in colour.

The adults are both diurnal and nocturnal in habit but causes maximum damage during the morning (7-10 am) and in the afternoon (3-5 pm). The adults prefer newly emerged leaves and young fingers. These were found to feed on the both surface of banana leaves and majority of the scars were straight. The population of the pest builds up from the month of February and remains active till November. It shows three peaks of population development, during the second fortnight of February, second fortnight of July and first fortnight of September (2002-2005). Practically no adult was recorded during winter months. Based on these observations, 15 different treatments including some commercial chemical formulations, biopesticides, neem oil and some cultural practices were tested, application coinciding with the peak period of incidence. Out of these, tilling and clean cultivation followed by spraying of acephate 0.11% or pouring 20ml in heart and bunch-covering during initiation of inflorescence may be recommended for successful management.

Views

Human Resources for Plant Pathology in India what's bakin', what's cookin'??

For the last few years, I often had opportunities to review papers of different frontline journals, be among the panel of experts in interviews, comprehensive viva-voce, which allowed me to get a panoramic view of on-going research as also interact with upcoming Plant Pathologists in India and the West. Barring a few exceptions, I find that there has been a significant degeneration in quality in India. Research articles, theses are mostly routine. Graduating folks are poor in taxonomy, bio-ecology. Research in these aspects has taken a back seat. After any interview or comprehensive *viva-voce*, I end up with a heavy heart, great despair, hopeless, thinking that even the B.Sc.(Ag.) degree certificates of candidates from the reputed Universities are questionable, what to talk about the M.Sc. and Ph.D. degrees. Papers arising from theses of reputed SAUs too tell the same story. I do not blame the degree holders too much. I would rather fire the degree providers for the compromise formula being adopted. This is because, in my opinion, the teaching quality and the process of examination have deteriorated drastically. Top class grinding is rare. The teachers and students are both 'managing' with minimal efforts. Teachers 'manage' classes as efficiently as they managed their recruitment in to the system. The less meritorious gets through due to regional, casteist or political push while the better is left out. Even the quality control is poor in recruitment as we do not have any bench-mark standard, below which we would not recruit, no matter if positions are left vacant for posterity. Thus, slowly but surely, we are contributing towards reducing the Indian plant plant protection scenario to a junkyard. I had the unfortunate experience to see a M.Sc. (Ag.) in Plant Pathology degree holder from a reputed SAU working in my laboratory on daily-paid basis. The balance between demand and supply of highly trained manpower, as maintained in some Communist nations, is grossly lacking in India, which is responsible for jobless highly skilled human resources. All these are retardants in India while the West is booming only due to non-compromise and sticking to a system. Only limited vacancies could encourage bright students to do well, compete, which could also control the quality at source. If future is built on the present, what does the future hold for Indian Plant Pathology on this junkyard? Tough workers, better holistic knowledge with a broader base are our advantages over the West. That is why, in most of the important research teams, you shall find Indian blood. I would stop here bluntly with this silver lining in the dark clouds looming large over the field of Indian Plant Pathology. Hey readers, c'mon, do some soul-searching, react generously on this newsletter or act effectively to stem the rot before it is too late if you are an Indian to the core.

C. Chattopadhyay
Sr Scientist (Plant Pathology), NRC on Rapeseed-Mustard, Bharatpur 321303
chirantan_cha@hotmail.com

Crop Protection by Transforming Farmers

A two step method of transforming farmers into experts, evaluators and decision makers is proposed:

- Organizing Farmers' Field School (FFS) as only on-field training program allowing them to observe and understand ecological interactions through self-discovery exercises. This science based learning and skill development in crop health management can make farmers aware and confident of creating a safer environment for themselves and their crops.

- Opportunities are created to practice IPM at community level utilizing local resources and innovative methods, primarily emphasizing scouting and vigilance. Local leadership emerges out of it to lead community IPM.

  These are the farmers' preserve and also help in restoring natural resources. They create and strengthen social capital that is required for competing in the market.

  This model for crop protection is successful in many countries including China, Vietnam and Bangladesh.

N. Mukherjee
Retd. Professor of Plant Pathology
e-mail : nilangshee.mukherjee@indiatimes.com

News : Red Alerts

Fruit borer, a threat to mango cultivation

Autocharis albizonalis (Hampson), Pyralidae, Lepidoptera, is proving to be serious borer causing 10-52% damage to mango fruits and was recorded particularly from the districts of Malda, Murshidabad, Nadia and Hooghly in West Bengal. The borer has been reported from West Bengal, Orissa & Andhra Pradesh in India and also from countries like Indonesia, Java, Philippines, Thailand and Australia.

Biology: Larval instar 5; Incubation, larval, pre-pupal and pupal period lasted for 2-3 days, 11-13 days, 4.5-6 days and 9-11 days, respectively. Two to three overlapping generations are known. Milky white oval eggs were laid in masses near the fruit apex. Full grown larvae are with dark brown head and white body ornamented with red intersegmental bands. Pupation occurs inside the dry branches and crevices of bark of the mango plant.

Symptom: Damage is primarily caused by the caterpillar. Typical symptom of their damage is the appearance of a small hole at the distal end of the fruit. Infested fruits become unfit for human consumption and drop prematurely.

Incidence pattern: The first generation larvae attack the fruits during second to third week of March and peak infestation can be observed during first week of April and then population declines. Next peak infestation can be observed during second week of May.

Management: (i) Varieties like Rakhalbhog, Mohanbhog and Gopalbhog are less susceptible. (ii) Collection and destruction of damaged fruits is also effective. (iii) Three rounds of spray, 1st during pea stage with monocrotophos 36SL(0.07%), 2nd during marble stage with DDVP 76%EC(0.05%) and 3rd during crick ball shaped fruits with alpha cypermethrin 10EC(0.01%) manage the pest effectively. In all cases stickers (0.6ml/ltr) are to be added with the spray fluid.

[**Source : S. K. Sahoo and S. Jha,** Training Associate (Plant Protection), Malda Krishi Vigyan Kendra & Professor, Dept. of Agril. Entomology, BCKV, Mohanpur, Nadia, E-mail: shantanu_jha@hotmail.com]

Beware of fake crop protection pesticides

Most people involved in the business of marketing and using pesticides are aware of a thriving fake pesticide market, rampant in Asia. Dupont have recently issued warning of this multi-million dollar market in fake crop protection products in Europe too, especially in Ukraine, France, Italy and Spain, to name a few countries.

Unfortunately for growers it is not easy to spot such products, looking like genuine products, with the exception of minor deviation in labels. When you find out, your crop has died. Fakes usually have poor quality or no active ingredients. Dupont's product most commonly used in the grey market relates to sulfonylurea herbicides. They identify the regulation of parallel imports as primary route of market entry for these products. In India, hardly any controls are in place. During repackaging the fake products finds a way into the market. The solution probably lies in not allowing repackaging. But is it a feasible proposition in our country?

The agrochemical industry in East Africa has developed a new technology to detect fake agrochemicals.

(**Source :** *Farmer's Weekly*, 16/12/05 : Mike Abraham)

Insects develop resistance to engineered crops-GM cotton/maize growers - Are you listening?

Krishna Ramanujam reports from Ithaca, N.Y. that genetically modified crops containing two insecticidal proteins in a single plant efficiently kill insects. But when crops engineered with one of those toxins grow nearby, insects may more rapidly develop resistance to all the insect-killing plants. Since their introduction in 1996 and more recently in India, some reports of crop failures or poor crops have been reported and the Cornell group has found several insects such as cabbage loopers show resistance to Bt sprays in commercial greenhouses.

From the point of view of management of resistance, single gene Bt plants are inferior to dual-gene plants. Hence, it will be profitable if single gene products are withdrawn as soon as double gene one becomes available. Such pyramided plants have the added advantage of requiring a smaller refuge of non-Bt plots where Bt-resistant insects mate with others that do not have resistance. The offspring's of such mating are susceptible to toxins. However, this strategy of having a refuge may not be useful for the farmers in India or China with small land holdings of less than ½ acre

(**Source :** Internet)

! BANNED

Department of Agriculture & Co-operation, Ministry of Agriculture has issued an order (no.SD.644 (E), dated the 6th May, 2005) banning use of monocrotophos on vegetables. All monocrotophos manufacturers are required to incorporate the warning "BANNED FOR USE ON VEGETABLES" on labels and leaflets in bold letters. The State Government shall have the power to take such steps under the relevant provisions of the Insecticide Act, 1968 and the rules made thereunder as they may deem fit for the execution of these Orders in the state concerned.

News from the World

Protection of Plant Varieties and Farmers' Rights Authority

Large percentage of cultivars existed in 19th and early 20th century and much of it has been lost as new and better varieties replaced old cultivars. To contain loss of genetic diversity and sustain agricultural growth, among several steps that have been designed, the Indian Act of 'Protection of Plant Varieties and Farmers' Rights' (2001) is significant. The Act is expected to protect the rights of farmers for the contributions made in conserving, improving and making available plant genetic resources for development of new varieties. India ratified the agreement on Trade Related aspects of Intellectual Property Rights (TRIPS) and thereby an ordinance to amend the Patent Act (1970) was promulgated in 1994. India has an observer's status in the UPOV (Union Internationale pour la Protection des Obtentions Vegetables), an international organization for protection of new plants (Head Office: Geneva, Switzerland). Farmers' rights are globally acknowledged for proper legal coverage,

highlighted by UNCED in its Agenda 21 and by the Convention on Biodiversity. The FAO conference of 1993 adopted a resolution calling for multi-dimensional farmers' rights with continuity between farmer-conserved germplasm and plant breeder bred new varieties. Farmers or their communities have a right to keep, use, exchange, share and market their seeds or planting material. The PPVFRA retains the basic spirit of UPOV and is the trendsetter, that covers both plant breeders' and farmers' rights. PPVFRA has a Chairperson and recently Dr S. Nagarajan, a Plant Protectionist of eminence, has taken up the position. The Authority has 15 members, including representatives from farmers, tribal organizations, women organizations, seed industry, etc. with a Registrar General of the rank of Additional Secretary as its Member Secretary with powers of a civil court. Registration and disputes on variety related aspects shall be dealt after the novel descriptors are finalised at DUS (distinctiveness, uniformity, stability) centres.

(Source : Chirantan Chattopadhyay, Bharatpur.
e-mail : chirantan_cha@hotmail.com)

Compost: New sources for inducing suppressiveness in soil towards soil-borne plant pathogens

Soil suppressiveness through heavy manuring or incorporation of resistant soil to disease conducive soil has been a well documented phenomenon in disease management since at least the 1970s. This approach was reported to be particularly effective against soil-borne pathogens of the likes of phytophthoras, fusaria, pythia, to name a few.

At UBKV, Pundibari, the effectiveness of this approach is being reassessed through use of traditional and vermicomposts as an ecosafe alternative to more aggressive pesticide use and is being found to be a viable option for management of soil-borne plant pathogens.

(Source: S. Dutta, M. De Roy, UBKV, Cooch Behar)

Plant hospital in Japan

The hospital will be strictly for curing diseases in agricultural and garden plants, such as rice, vegetables, trees and flowers. According to one estimate, about 12 percent of the world's crops are lost to diseases annually.

In Japan, about 6,000 diseases are known to affect those plants considered to be "useful." Their causes include viruses, germs and mold. "Despite the potentially great need, there has been no feasible plan for a hospital," said Shigetou Namba, a professor of plant pathology at the university's Graduate School of Agricultural and Life Sciences. The hospital will make diagnoses based on photos of the plant "patient" and a description of its symptoms. There will also be face-to-face "consultations" with plants that are brought in.

Scientists can then prescribe proper treatment and suggest preventive care. According to Namba, local farming institutes, which advise farmers on how to fight crop diseases, have been scaled down in recent years. There is no specialized body providing guidance to small farmers, individual gardeners or nurseries, he said. At the same time, most university research focuses on theoretical studies of disease. Few researchers are well-versed in real-life farming, forestry management and horticulture, according to Namba.

As a first step toward establishing a hospital, the graduate school has decided to open a Laboratory of Clinical Plant Science in April. Over five years, the laboratory will develop new diagnosis technology, create a database and train "plant doctors," according to the researchers. Ikeda Scientific Co., a trading firm that specializes in scientific equipment, has donated 180 million yen for the laboratory. Researchers are planning to set up the hospital within several years with the help of state-licensed specialists for plant protection.

The laboratory will also train farming and plant specialists at local governments and expand networks of experts to agricultural experiment stations, farm cooperatives and seed shops. Takeshi Nishio, director-general of the Policy Research Institute of the Ministry of Agriculture, Forestry and Fisheries, says he has high expectations for the project. "It is highly appreciated that a university, which tends to focus on advanced research, has turned its eye to the farming fields," he said.

(Source: Internet)

Did you know?

- The ISAAA 2005 Global Report on Biotech Crops says that after 10 years there are now 21 countries growing some 90 million hectares of GM crops
- The Indian government will propose in the coming budget a 150% tax exemption to the agrochemical industry to facilitate growth of the extension services and to improve R&D spend
- Bayer Crop Science is to divest prothiofos, a broad spectrum insecticide to Arysta Life Science for global distribution.

New fungicide being developed to meet the needs of UK cereal growers

A NEW cereal fungicide designed to help UK farmers fight back against growing disease resistance problems - by meeting the demand for higher doses of triazole fungicide, combined with an anti-resistance fungicide partner - is being developed by Syngenta Crop Protection.

Known by its code name, UKF0282, the development product contains two curative triazole fungicides shown to penetrate inside the leaf, combined with the anti-resistance partner of Bravo (chlorothalonil), which protects against fungal growth on the leaf surface.

(Source: Internet)

Weed management

Prof. R. K. Ghosh informs:

- Zero till direct seeded rice wheat system is a distinct possibility by using PE herbicide.
- *Parthenium hysterophorus* biologically controlled by a Mexican Beetle, *Zygogramma bicolorata* /Marigold plant (*Tagetes* spp.).
- Pneumatic boat prepared by NRCWS, Jabalpur for is useful survey and surveillance of aquatic flora and fauna.

Computer Based Pest Information

National Centre for Integrated Pest Management (NCIPM) has taken initiative to develop a computer based Pest Management Information System (PMIS) for different crops to cater to the need of scientists, extension workers and progressive farmers. PMIS for cotton, chickpea, rapeseed-mustard and groundnut are ready for purchase. Similarly, Nematode Management Information System (NMIS) has also been designed for nematode problems of crops and their management. PMIS and NMIS are compatible in Microsoft Window based Computer system.

{Source : website: www.ncipm.org.in)

Crop Protection Calendar

Possible insect pest problems during January to March

RICE

- *Boro* rice may have infestation of first brood of yellow stem borer (*Tryporyza incertulas*) during February and then during late March-early April. In borer prone areas as prophylaxis, use carbofuran granule. Community light trap operation to detect adult appearance when persistent insecticides like quinalphos (0.03%) will be effective as palliative.
- Brown plant hopper (*Nilaparvata lugens*) 5-10 insects per hill during tillering and 10 /hill during booting and 25 insects at natural enemy ratio with BPH 1: 5 are ETLs. Skip row planting, N-fertilizer application in 2 split doses, periodical draining out of bound water and spraying with acephate at 375 g a.i. /ha are suggested.

PULSES

- Pulse crops at reproductive stages may be infested with borer complex (*Catochrysops cnejus, Maruca testulalis, Helicoverpa armigera, Exelastis atomosa*) and by cryptic borers (*Apion clavipes, Melanagromyza obtusa*) especially on late sown or long duration varieties of red gram. About 16% of the pods showing marks of infestation have been estimated as EIL. *H. armigera* showing early infestation on Bengal gram leaves as scraping marks may be sprayed with HaNPV to ward off later virulent infestation. Cultivation of short duration early maturing varieties may escape severe damage by cryptic borers on red gram. For other pests one or two sprays at 20 days interval with monocrotophos (0.04% a.i.) suggested.

POTATO

- For potato cut worms (*Agrotis* spp.) field bunds free from weeds, placing sods of grasses between rows where larva accumulate when upturned next morning will reveal presence of quite some larvae can be destroyed mechanically. Placing yellow pan water traps of crop level and examining trap every afternoon will indicate immigration of aphids (*Aphis gossypii, Myzus persicae*) and spraying with methyl demeton (0.04% a.i.) within the crop canopy and repeating it at 15/20 days interval will take care of those virus transmitters.

OILSEEDS

- Sowing of rape/mustard by mid-October saves crop from infestation of aphid (*Lipaphis erysimi), Plutella xylostella, Crocidolomia binotalis* and *Athalia lugens proxima*. For crops sown during November or later spraying with methyl demeton at 0.03% once when 10% of mid shoots show 2 cm length of colony then repeating the same once after 20 days will give economic control of aphid. During late January spray with endosulfan at 0.07% or quinalphos at 0.04% on sight of *Plutella* and others is suggested

MANGO

- To save mango for severe damage by jassids (*Amritodus* spp.) full cover spraying with sevin at 0.1% or chlorpyriphos at 0.07% with in florescence initiation and repeating the same at 10-15 days interval are required. For another menacing pest, a lepidopteran fruit borer (*Deanolis albizonalis*) treating the crop at pea size stage of fruits with dichlorvos may minimize damage. Against omnipresent fruit flies (*Bactrocera* spp.) trapping of adults with methyl eugenol is suggested.

(**Source**: Prof. M. R. Ghosh)

From the Headquaters

Forthcoming events

- Regional workshop on soil test (Eastern Zone) during 27-28th Feb, 2006 at Kalyani, BCKV, Nadia, West Bengal
- Group meeting of AICRP on Tropical Fruits on 7-10th April, 2006 at Kalyani, BCKV, Nadia, West Bengal
- National Seminar on Tropical Fruits on 11-12th April, 2006 at Kalyani, BCKV, Nadia, West Bengal
- First Biennial Conference of Crop and Weed Science Society (CWSS) is scheduled to be held on April 21, 2006 at BCKV.
- Training on Integrated Pest Management on 11th May, 2005 at FTC, Kalyani, BCKV, Nadia
- Parthenium Awareness day at Nadia on 3rd September, 2005.

Weed Science Society

West Bengal Weed Science Society (WBWSS) is now known as Crop and Weed Science Society (CWSS) based at Bidhan Chandra Krishi Viswavidyalaya, Mohanpur. It issues two journals:

- **Journal of Crop and Weed,** Vol. 1 No. 1 21 January, 2005; Vol. 1 No. 2 20, January, 2006
- **Crop and Weed Science News,** Vol. 1 2006 April, 2006.

For membership and publication of scientific articles/materials /news please contact with Prof. R.K. Ghosh (Secretary, CWSS), Department of Agronomy, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur 741 252, Nadia, West Bengal. E-mail :rkgbckv@yahoo.com.

(**Source**: Prof. B. Bandopadhyay and Prof. R.K. Ghosh, BCKV, Dept. of Agronomy, Mohanpur)

Congrats

- **Dr C. D. Mayee :** Dr C.D. Mayee, a senior Plant Protectionist, after having contributed immensely to oilseeds and cotton pathology, having served as Director of Central Institute of Cotton Research, Nagpur (ICAR), Vice Chancellor of Marathwada Agricultural University, Parbhani and as Agriculture Commissioner (Government of India), has taken over as the Chairman of the Agricultural Scientists Recruitment Board (ICAR). This Association wishes him a pleasant and successful innings at the ASRB.

- **Dr T. P. Rajendran:** a renowned Entomologist, having contributed to breeding for nematode resistance in potato and as Cotton Entomologist at various research institutes of ICAR has recently taken over as the Assistant Director General (Plant Protection) at the headquarters of the Indian Council of Agricultural Research, Krishi Bhawan, New Delhi. On behalf of the fraternity of Plant Protectionists, this Association wishes Dr Rajendran an effective and path-breaking tenure as ADG (PP).

Holistic Agriculture - A View Point

"The same parcel of land has to produce enough needed for the present, being more than it used to produce before.... Applying mind and intelligence to the same parcel of land now makes it possible to achieve more production through greater productivity..... The technology applied previously to meet the needs of the village is no longer appropriate to attain enough surpluses for the world at large.... Some persons think that the production may remain contained to meet the needs of the village as in the past; the surplus shall not be taken outside the village. ...Wisdom it is neither to stop communicating with the rest of the world nor to live contentedly with taking merely two more morsels of rice twice a day before going to bed. We can never achieve the quality of human-hood unless we give and take with the world outside. The country that does not do that will not survive in the present times. Our wealth and agriculture, religion and lifestyle, knowledge and wisdom, and anything and everything have to rise to be able to be one with the globe...

Therefore it is time to enlighten our country's agricultural production process with the knowledge achieved throughout the world. The day is gone when the farmer alone as an individual will till the land; the learned and the scientist shall join hands with him. Today it is not enough that the share of the farmer's plough meets the soil of our country- the intellect, knowledge and perseverance of the whole country shall meet the same". (Rabindranath Tagore on releasing the first issue of 'Bhumilakshmi' [Land, the Goddess of Prosperity], the first Bangla magazine on agriculture and rural reconstruction, Aswin 1325, September-October 1918-19). [Translation by Prof. M.K. Dasgupta, Sriniketan, Visva-Bharati, W.B.]

About the Newletter

This being our first effort at formal communication with the plant protection fraternity, the editorial in page one in this issue introduces, albeit briefly, the Association for Advancement in Plant Protection. The newsletter is our first step towards creating a platform for expression for all participating components from down to earth farmers, through NGOs, Industries - be it in the pesticide sectors seed production centre/ agricultural implements manufacturers, or the scientists, Administrators and master planners across the board in SAUs, related Institutions, Universities, biotech research centre - you name it. The Newsletter will be issued quarterly in the months of January, April, July and October respectively in each year.

The format generally becomes obvious from this issue although many additional spaces/column for many other diverse agenda will become available as news exchange protocol is put into place through a two-way source-sink interaction, becomes a reality. Editorial in the first page will be followed by a page 2 devoted to invited article submitted on topics related to either grey or controversial areas that will stimulate intellectual exercise and positive, fruitful response or reactions. Such exchanges not exceeding 100 words will be accommodated under the sub-head, Letters to the Editor. Letters will be followed by short research communications (not exceeding 250 words) on ongoing original researches on crop protection including its complex and varied interfaces, on new techniques or development of new technology protocols.

Next will come 'views' or 'points of view', where participants will have the option to express their views on any of the multifarious interfaces of plant protection including education, human resource, agri-administration etc. We also invite brief reaction to such views in our letters to the editor column. News column - not necessarily collected from internet, will have several sub-sections including red alerts, News about any aspect - be it quarantine, storage, new pesticides being tailored, new tools being designed, news about seminars, symposia, workshops, group meetings related to plant protection or any other news that you feel worth communicating.

Other than editorial and page 2 Big debate, there will be two regular columns - one on projected pesticide/protection calendar on a few crops of major importance during the quarter, and another News from Headquarters, this being Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal. We would also like to congratulate Plant Protection Specialists for receipt of any award of importance, promotion to meritorious position, foreign visits of meaningful importance and even though painfully, any obituary, if these are brought to our notice.

All communications in any of the proposed sub-heads referred to above may please be sent to **Prof. Srikanta Das, Department of Plant Pathology, BCKV, Mohanpur, Nadia, PIN-741252, West Bengal,** India or attached at aapp_bckv@yahoo.co.in. The research communications may be sent to the above address either by e-mail or in a CD, written in MS-WORD-7, double spaced. Do not forget to add your e-mail ID and mailing address in any of your communications. **Last date for any submissions, be it under any sub-head, may please be sent so as to reach Dr. Das or our mail ID by March 07, 2006.**

We look forward to your vigorous involvement and interaction in making this news letter meaningful. A membership form is appended. Please fill it and sent it to **Dr. Biswanath Bandyopadhyay, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, W.B. 741252** or making a photocopy of it and filling in all the required details.

Membership Form:
Association for Advancement of Plant Protection

Name : _____ _____ _____
Last Middle First

Date of Birth :..... **Designation :**.....

Address :

Office : ..... Residence : .....

....

....

Tel : ..... Mobile : ..... Tel. : ..... Mobile : .....

E-mail ID : ..... E-mail ID : .....

■ (Please tick address for correspondence) ■

Payment may please be made through crossed DD drawn in favour of AAPP, BCKV payable at State Bank of India, Kalyani branch and sent to Dr. Biswanath Bandopadhyay, Faculty of Agriculture, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, and W.B. 741252.

DD No..... Drawn on Bank.....Branch.....Amount (in figure).....
(In words.....)

Membership rates*:

	Individual:	Rs.100/-
	Corporate:	Rs. 500/-
	Students/Fellow:	Rs.50/-

*Rates apply to Newsletter option only.

AAPP Newsletter is published by Dr. Shantanu Jha, Secretary, Association for Advancement in Plant Protection, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, W. Bengal-741252, India, composed by Mr. Sankar Dhar and printed at **Anindita Computer**, How-9, (M) : 98302 78484