ASSOCIATION FOR ADVANCEMENT IN PLANT PROTECTION

Newsletter

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Together we will protect our crops

Inside This Issue

From the Editors' Desk:

The dynamic Chief Minister of West Bengal, Hon'ble Sri Buddhadeb Bhattacharya, on his last visit to the Viswavidyalaya, when he also launched the AAPP Newsletter (Jan.30, 2006), stated informally that while the Viswavidyalaya was doing well, churning out professional graduates, post-graduates and Ph.D.s, it is time to plan to do something that will directly benefit the farmers. It is time that the centres of higher education put their minds to it.

AAPP, the autonomous plant protection body at BCKV, made a short survey of farmers' major requirements and expectations from us and it emerged that the key information gap that needed immediate bridging was diagnosing and managing pest problems. Till date their primary information source for this purpose are the dealers of pesticides and ancillary agricultural inputs.

It became obvious that diagnosis and management information should be delivered in a suitable package simultaneously both to farmers and dealers. The AAPP decided to launch two pilot projects for improving the outreach and education to the farming and dealer community.

The first Project led to the production of a Quarterly Bulletin in regional language, Bengali, ***'Shashya Suraksha'*** with the same motto, '*Together we will protect our crops'* ***(Amra ekatra aj shashya surakhaye).*** The first issue, replete with diagnostic information both through words and digital colour photographs and their management was published in a hurry in late June and proved to be an instant hit with the target population. There was an immediate demand for more from ADOs, dealers, farmers and NGOs. AAPP assures them more every quarter, as scheduled.

The second Project involving a partnership programme of AAPP with El Tel Agro Marvels Pvt. Ltd. led to a day being spent as **Nematode Awareness Day**, launched on July 7, 2006 with over 60 trainees, mostly dealers and some farmers. They were exposed to the alarmingly increasing nematode problems, both in the field and in the Lab and were briefed about their management. This was also an instant hit so much so that it was decided by the partners to replicate the day every year on 7th July with trainees from different States, at the same venue.

Successful as it was, such programmes requires the awareness of the Industry to the need for such programmes dealing with different pest components, to disseminate practical know-how and more precise management strategies rather than the empirical silver bullet ones being adopted now, depending more on hope than on science. Overall goal of both these projects is to interrupt the vicious cycle between the onset of pest attack and proper diagnosis and treatment.

Since we are mostly dependent for funds from members and donations, taking on such new initiatives imposes on us stringently efficient and effective use of our limited financial resources and budget. In producing this English version of Newsletter, we are spending nearly Rs.20,000/- per issue including postage, i.e., Rs.80,000/- annually, that too when most of the work is done by us voluntarily. We have decided therefore to launch a website by the end of November, 2006, www.aapp_bckv.cropprotect.org, focussing on our activities, Newsletter etc. By making the Newsletter online we hope to save nearly Rs.75,000/- a year which can then be channelised into such support programmes as stated above.

We look forward to other partnership programmes meaningful at the grassroots level. The question, dear Reader, is, do you want to help by downloading the Newsletter, thus allowing us to use the money saved for other programmes? Please tell us what you think. Complete and return the form (inside) to our Office or mail it. Let your voice be heard for once!

It is our hope that you will continue to enjoy the Newsletter now and in the future.

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

AAPP extends its greetings to all the readers during this festive season. Let there be peace & tranquility

Contract farming of potatoes in West Bengal – A perceived threat to the potato seed industry

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During the last four decades, India recorded highest annual compound growth for potato production and as a consequence, the country is producing more potato than it can actually consume resulting in temporary gluts and price collapse. In the processing front, as compared to USA (60%), Netherlands (47%) and China (22%), less than 1% of total produce in the country is processed. During the recent years, the demand for processed food has increased in India due to urbanization and the massive onslaught of the multinationals. With the introduction of WTO policies & regulations, several foreign concerns are entering into the potato processing sector in India.

Before introduction of alien/exotic varieties, Kufri Chipsona-1, Kufri Chipsona-2 and Kufri Jyoti were mostly used as processing cultivars. But the stipulated deficiencies in desired processing parameters challenged the acceptability of these varieties by the processing companies. The mega chip industries have preference for potatoes with yellowish skin, creamy flesh, shallow to fleet eyes, higher specific gravity and dry matter with low levels of reducing sugars, phenolics, free amino acids and polyphenol oxidase for processing purposes.

On such pretext, an exotic potato variety namely *Atlantic* was imported from Canada by an MNC through Central Potato Research Institute, Shimla, H.P. during the year 2000. Post-entry quarantine (done by CPRI?) revealed that this variety was free from diseases other than those that are already prevalent in India. Since last three years, the MNC has been multiplying the seeds of *Atlantic* in different districts of West Bengal through contract farming with an agreement with the farmers/their co-operatives that **they will procure the produce for processing at the time of harvest after assessing the desired qualities.** The question of what is responsible for giving desired quality–the varietal characteristics or the farmer remains unanswered and weighs heavily in favour of the seed supplier. The question of why indigenous varieties like Kufri Chipsona-2 or 3 are not being used by them in their chip industry remains unanswered other than the cursory mention of the quality parameters.

It's a matter of grave concern that the Inventory of Cultivated Potato Germplasm, published by CPRI, ICAR reveals that in spite of having good agronomic and processing qualities, *Atlantic* is not at all a suitable cultivar from the view point of its susceptibility towards late blight, wart, bacterial wilt, PVX, PVY, PLRV, golden nematodes, stem necrosis and PTM etc. Its keeping quality is also not up to the mark as per farmers' assessment during last three years. Such susceptibility in an alien genotype unquestionably adds an element of risk in introducing new genes of virulence/susceptibility other than those with which the domestic varieties have reached an ecological adjustment. Such new genes may cause havoc in the other varieties of potatoes that are being grown extensively through out the State. Introduction of such varieties places the gullible farmers to the brink of long term disaster!

The agricultural history of West Bengal warns that due to introduction of wart pathogen in Darjeeling area through the variety *'Furore'* imported from Netherlands during 1952-53, the potato industry lost one of the most important seed producing areas in West Bengal. After that, the most popular indigenous variety, *Darjeeling Red Round* became highly susceptible to wart. Failing to control the disease through several attempts, the GOI imposed a legal ban under section 4A of DIP Act 1914 prohibiting the export of potato grown in the State of West Bengal to any other State or Union Territory of India. Still now in the hills of Darjeeling the ban is imposed. In 1992, the legal ban was lifted for the plains of West Bengal by GOI. Since then 10% of total seed potato is being produced by the farmers in the plains of West Bengal. Through introduction of *Atlantic* in the plains, the last hope for producing seed potatoes during aphid-free period, adopting seed plot technique, is ostensibly being completely wiped out.

The *Atlantic* variety is susceptible to, among several other pests, to wart caused by *Synchytrium endobioticum*. This fungal pathogen can survive both in seed and soil. As resting sporangium it can survive in soil up to 25 to 30 years, if the land is kept fallow and may be carried on tubers of immune cultivars symptomlessly. On the other hand, both winter and summer sporangium can germinate over a wide range of temperature (12-30^{0}C), if the moisture and soil pH (3.9-8.5) are favourable. Only effective control measure against wart pathogen is to grow immune cultivar(s) for long duration and its spread can be checked by practicing a rigidly strict quarantine protocol.

Growing of wart susceptible cultivar *Atlantic* may continue to add fresh, live winter spores in the soil of plains every year and thus defeat the purpose of growing immune cultivars, which is to starve the pathogens. From the experience of 'Wart Disease Order' in 1923 in UK, it can be recommended that growing of susceptible cultivar(s) should be avoided in the plains of West Bengal where fresh initiative is taken by the farmers to grow seed potatoes nowadays. At the same time immune varieties namely *Kufri Jyoti, Kufri Chipsona-2* and *Kufri Chipsona-3* should be cultivated. It can be concluded that, when many MNCs are pouring into our State agri-business, they should try to introduce varieties in consonance with the actual ground reality of farming systems of West Bengal. Otherwise, due to such undesireable practices like the introduction of *Atlantic*, agricultural interest of the State may be affected beyond redemption in a decade's time. The Govt. of W. Bengal has the mundane duty to protect the farmer's rights and interests in the State.

The editors solicit comments, opinions for or against the problem muted by the author. They will be published in the next issue.

Congratulations! (or an epistolary paradox?)

(In deference to the Chair from which this letter emerges, it is published unedited barring the peripherals and font characteristics)

'Thanks for sending the vol.1 (3) newsletter to my home address. I thank you for bringing a new format on it which is otherwise like Prof. Societioes jumping into publishing journals. Today our country has more than 60 plant protection journals of varying quality.I seek your indulgence to make the information more poingnant and with the best scientific facts.

Some comments:

1.On page 3 on a report on A NEW SYRPHID PREDATOR OF MANGO SHOOT GALL PSYLLID.

The authors did not care to provide the identity of the syrphid predator.

2.Another report on Page 4 is from the sdameUniversity about the new eriophid mite in garlic. Where is the identity of this? Another important things as editor has to see if these new reports ithout taxonmic identity is worthwhile, except to confuse the world. The threat of such publications is

that we may have several problems in our export trade in satisfying santiary and phytosanitary (SPS) certificate for the commodity to be exported.

So, please desist from from jumping into printing such new reports.

3.Kindly provide good invited artciles in burning nematode problems of West Bengal of eastern India.

LET US RESPONSIBLE TO MAKE PLANT PROTECTION A RESPECTABLE SCIENCE & AVOID DUPLICATE RESEARCH TO BE PUBLISHED.'

T. P. Rajendran, ADG (PP), ICAR. **E-mail:** adgpp.icar@nic.in

The Authors' response: My comments on observations made by Dr T.P. Rajendran on the NEWSLETTER-1(3) and especially on my two news items. Dr Rajendran must realize that these reports are not for confusing the world, but to provide new information not existing so far anywhere in the literature. How can one conceal the natural facts for the sake of phytosanitary certificates? Taxonomic identification of insects in India is a problem. The syrphid predator of *Apsylla cistellata* was personally handed over by me to Dr V.V. Ramamurthy at IARI some time in April, 2006. Its taxonomic identity has not yet been communicated to me. However, the garlic mite has been provisionally identified as *Aceryia tulipi*.

Gajendra Singh, GBPUAT, Pantnagar. **E-mail:** : gspad@hotmail.com

Thank you!

Thank you very much for sending me the Newsletter and the forthcoming programmes and events of the Association for Advancement in Plant Protection. I am happy to note that a National Symposium on Plant Protection is going to be held in January, 2007. Please keep me informed about the developments. I would appreciate receiving the Newsletter regularly.

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Pigeon pea (*Cajanus cajan* L.), an indicator plant to basal stem rot (*Ganoderma* wilt) disease of coconut

Basal stem rot (BSR) disease of coconut caused by *Ganoderma applanatum* and *G.lucidum* is a major disease limiting coconut production in Andhra Pradesh. A reddish brown viscous fluid oozes from the stem referred as 'bleeding' is a typical characteristic symptom of the disease. In practice, it has been found that it is not possible to save the trees if *Ganoderma* infection is advanced. Ten plant species *viz.,* Red gram, Green gram, bengal gram, maize, sunhemp, sesbania, betelvine and eucalyptus along with coconut seedlings were raised in *Ganoderma*-sick soil and the reaction of these plant species to *Ganoderma* was recorded. Red gram plants showed typical bar splitting symptoms (see fig) three months after sowing;sesbania plants showed typical oozing symptoms after eight months and eucalyptus also showed oozing symptoms after two years. These critical symptoms were observed in second year of experiment also. The *Ganoderma applanatum* was reisolated from root tissues of red gram showing bark splitting symptoms. The isolation of pathogen from sesbania and eucalyptus is in progress. Studies showed that red gram is a good and reliable indicator plant for BSR disease to diagnose the *Ganoderma* inoculum in the soil. The incubation period of *Ganoderma* spp. in coconut ranges from 5-8 years depending upon the age of the palm and soil type. In practice, by observing the symptoms on red gram raised in basins around the coconut palm, the management practice that is basal application of 50 g of talc formulation of *T. viride* + 5 kg neem cake per palm/year can be adopted by the farmers, as it is not possible to save the coconut palms if *Ganoderma* infection is advanced.

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Biological notes on *Monolepta signata* (Coleoptera : Chrysomelidae) as a pest of potato crop in Bangladesh

The white-spotted leaf beetle, *Monolepta signata* (Oliv.) is a polyphagous pest of different crops e.g., potato, groundnut, sesame, cotton, soybean including cucurbits and grapevine in Bangladesh. *M. signata* was recorded during February, 2006 in potato fields at the BCSIR Laboratory Campus, Rajshahi. During study period, *M. signata* damaged tender leaves of potato and made minute holes in the leaf lamina and sclerotised them. It emerged as a serious pest of potato and hampered yield. It laid small, yellowish and elongated eggs (1.0 mm in length, 0.5 mm in diam.) on the ventral surface of leaves. The incubation period was 5-6 days and larval period was nearly 25 days. Pupation took place within 6-7 days. The developmental period elapsed for about 37 days. The adult beetle was 3-4 mm in length and 1.5-2.0 mm in width. The adult was small, dark, with long antennae and 2 pairs of whitish spots on the elytra. 10% neem seed oil (*Azadirachta indica)* spray is efficacious for controlling this beetle.

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AAPP informs all its readers and those involved in agricultural plant pest management agenda:

The views expressed in the different columns of this Newsletter are those of the source person. The publication of these does not necessarily mean either endorsement or acceptance of such views/products. However, this being a Newsletter, it encourages Plant Protection Scientists and other related disciplines to express themselves even if they have to put a little wing to their imagination or even if the data base is as yet incomplete. Go ahead!

Feel free to express yourself in this NEWSLETTER

Fruit covering : an effective control measure for jackfruit borer, *Diaphania caesalis*

Jackfruit plants, *Artocarpus heterophyllus* are attacked by jackfruit borer, *Diaphania caesalis* (Lepidoptera: Pyralidae) causing major damage to fruit production in Bangladesh. Fruit infestation starts early in the jackfruit growing season and lasts up to fruit harvest. Nearly 27.4% fruits are infested by *D. caesalis* and the reduction of market price of jackfruit ranges from 27 to 39%. Application of insecticide is the principal method of control. The effectiveness of other pest management approaches has not been evaluated properly. An experiment was conducted on fruit covering by polyethylene bags in a jackfruit orchard at Bangladesh Agricultural University, Mymenshingh.

Five jackfruit plants were selected for fruit covering. Five fruits from each plant were randomly covered by polyethylene bags after fruit setting. The size of the polyethylene bag was 55 cm x 85cm. Twenty tiny holes were made with an ordinary pin at the bottom of the polyethylene bag for aeration and removal of water (transpiration and rain water). The open end of polyethylene bag was tied with hard base (grey portion) of fruit stalk by rope. As the larvae are able to penetrate the green soft portion of the fruit stalk the covering was made up to the base of the stalk. Fruits remained covered up till harvest. Data of fruit infestation was recorded both from the covered and uncovered jackfruits and weight recorded.

There was a significant difference in percentage of infestation in polyethylene covered and uncovered fruits. The percentage of fruit infestation in covered ones was 4% while 28.99% fruits were infested in uncovered ones of the same plant. The average weight per fruit of covered and uncovered one was 8.96 and 7.80kg (NS) respectively. This study indicated that fruit covering could protect the jack fruit from the damaging activity of jackfruit borer.

Colour of the covered fruits was bright greenish-yellow and looked better than uncovered ones. The covering not only protected the fruit from attack of jackfruit borer but also from other insect pests. Better appearance of covered fruits may fetch higher market price.

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Viewpoint

Organic Farming - Big Deal for the average !

Organic food is being promoted as a much touted panacea to protect one's health from the contaminants present in the food that we consume daily. But given the price structure and differentials from the normally available food material, only the rich or the 'nouveaux riche' can afford it. Taste a sample (SEE BOX):

Price per kg (in Rs.) as on Aug.24, 2006 (in metro malls)

Items	Regular	Organic*
Rice (daily use quality)	22-30	40-60 (brown rice)
Wheat flour	22-27	54
Toovar Dal	32-40	110
Sugar	22-25	92 (raw sugar)/

*Delhi: Navadanya; Mumbai: Conscious Food

How many of the urban Indians can afford such price for daily food consumables? Obviously, the whole lower, middle and upper middle class people are written off. Given the source, bulk requirements and availability of such organic energy source (taking into account the alternative usage to which the so called farm waste is put to use by small farmers), prices are unlikely to come down in a hurry through scale up of production.

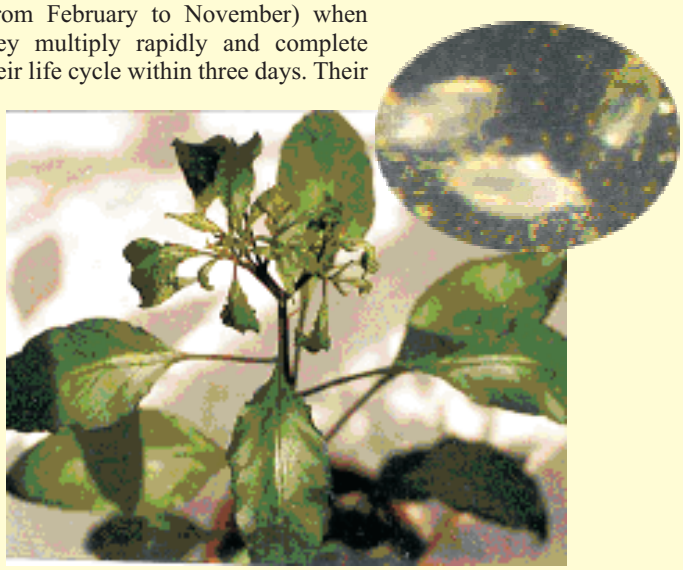
Fortunately, a huge percentage of our rural population of farmers have a separate organic cultivation technology adopted decades ago, for home consumption. They, by default, consume organic food. It is to be hoped that even such serendipitous mercies in the Nature's own acre is not grabbed away by the new agricultural marketing hubs and chains being set up in West Bengal and other States through a change in the existing APMC Act, under pressure from the multinationals in the garb of globalization and Gatt treaty!

(DON'T PANIC - BUY FRESH PRODUCE - BEST FOR YOUR BODY)

(Source: Adapted from Smriti Koppikar in OUTLOOK, Sept.4, 2006)

Yellow mite, *Polyphagotarsonemus latus* – a threat to chilli production in Bengal Basin

The production of chilli is affected severely due to infestation of yellow mite, *Polyphagotarsonemus latus* which is a very tiny (150-200µ) yellowish white mite belonging to the family Tarsonemidae. But among these, chillies are most severely infested by this mite causing even upto 100% crop loss. The mite ravages chillies throughout warm and humid period of the year (from February to November) when they multiply rapidly and complete their life cycle within three days. Their



population remains suppressed only when it rains continuously for days together and in winter months.

The mite attacks at the young apical leaves of plants producing characteristic curling and crumpling symptoms. Mite infestation causes the young leaves to curl downward in an inverted boat shaped manner; the texture of the leaves become leathery; lower surface turn shiny silvery whitish which gradually become brownish and fall off or curl completely. At the early stage of crop growth,the infested leaves get thickened and later crack. At the flowering stage, it causes bud and flower shedding, leaves curl and crumpled resulting in complete loss of fruit yield or if few of the fruits overcome the attack, they become cracked and deformed. Though similar type of symptoms are also produced due to thrips and virus infested chilli plants but close observation reveals that these symptoms are completely different from those produced by mite.

Management of yellow mite: High biotic potential and rate of multiplication makes it very difficult to manage the chilli yellow mite by using any single method.Chilli cultivars, LIC-8, LIC-13, LIC-19, LIC-45, PantC-1, Cluster Mutant, Sl-4, LEC-1, Kalyanpur Red, X-068, X204 etc. have been identified as tolerant to mite attack. Field observations reveal that the variety Cluster Mutant is ideal for summer transplanting and the variety Sl-4 is suitable for planting at September-October at Bengal Basin. The predatory mites, *Amblyseius ovalis*, *A. multidentatus* and *Agistemus fleschneri* are found very effective against the chilli mite. Need based application of dicofol @ 2.5 ml/liter of water or diafenthiuron @ 1 ml/liter of water provide promising result against the mite.

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Sashya Suraksha gets off to a start

Sashya Suraksha, a quarterly Bulletin in Bengali, specifically designed for the farmers, dealers and ADOs has been initiated by the Association for Advancement in Plant Protection (AAPP), Bidhan Chandra Krishi Viswavidyalaya. The Bulletin is designed to provide the identifiable symptoms of important diseases and pests of crop plants, supported suitably by digital photographs providing a marker for visual identification. It also provides the state of the art information in the management of such pest problems. It got off to a flying start.

On 28th June, 2006, Dr. G. C. Tewari, the ADG (Education & Planning), ICAR, while inaugurating the Bulletin, *Sashya Suraksha*, focused on the need and importance of creating mass awareness and participation in plant protection. He appreciated the endeauvour for diffusing awareness on plant protection through such a good farm literature. Prof. Jha, the secretary of the association described the objective, purpose and experience in triggering such an innovative project for involving common people in plant protection through preaching the idea of social fencing to protect both the environment and the crop. The entire programme was presided over by the Vice Chancellor, Prof. D.K. Bagchi. Prof. Bagchi in his alluring speech, applauded such a down to earth approach and wished the Bulletin a great success. The brief function was attended by a glitterati of Scientists.

Since its launching the Bulletin has been received by its target population very appreciatively and almost all printed copies were sold out within two months. Queries on their crop health and suggestions for improvement are pouring in from the farmers. The Quarterly Bulletin is expected to provide the much needed information in diagnostics and pest management of major crops in W. Bengal and adjoining States.

(**Source**:S.K Acharya,AAPP News.**E-mail:**aapp_bckv @yahoo.co.in)

Nematode Awareness Day

The Association for Advancement in Plant Protection (AAPP), Bidhan Chandra Krishi Viswavidyalaya and El Tel Agro Marvels Pvt. Ltd. jointly organized a *Nematode Awareness Day* on 7th July, 2006 at Farmer's Training Centre, Lake Hall, Kalyani, Nadia. The objective of the programme was to provide ground level training to the farmers, pesticide dealers and distributors of West Bengal. Over 80 participants from Nadia, 24-Parganas (North), Malda, Murshidabad, Bankura, Purulia, Birbhum, Burdwan, West Dinajpur and Jalpaiguri districts of West Bengal assembled and received hands on training on nematodes. On this occasion, Prof. Dipak Bagchi, Vice Chancellor, Prof. S. K Sanyal, Director of Research, Dr. P. Bandopadhyay, Director of Extension, BCKV and Prof. C. Sen & Prof. N. Mukherjee, eminent plant pathologists

were also present. Dr. S. K. Laha, Principal Scientist, CRIJAF (ICAR) made a visual presentation on the *Association of nematodes with man, animal, insect and plant* and highlighted the latest advancement on the nematological research. Prof. Sanyal emphasized the importance of nematode problems of crops and losses incurred due to them. Prof. Bagchi expressed his views on the significance of current research and its relevance and impact on farmers of the State. Prof. S. Jha, Secretary of the AAPP focussed on genesis of the Society and bottlenecks of scientists in institutional system. He also emphasised the necessity of private partnership in the dissemination of plant protection technologies and awareness campaign. In the morning session of this awareness day programme, all the trainees were taken to the University Experimental Farm and farmers fields to make themselves conversant with the visual impact of nematodes on tuberose, jute, pointed gourd and other vegetables. In the afternoon session, a hands on practical know-how on extraction of nematodes from plants, plant parts and soil and direct viewing through stereoscopic microscope were demonstrated in the AICRP (Nematode) Laboratory, Directorate of Research, BCKV. The awareness programme received positive appreciation from eminent nematologists like Prof. M. S. Jairajpuri, Dr. H. S. Gaur, Dean & Joint Director (IARI), Dr. R. K. Jain, Project Coordinator (Nematode) to name a few. The programme ended with warm and very encouraging response from the participants and academicians. (**Source**: AAPP News. **E-mail:** aapp_bckv@yahoo.co.in)

Pesticide Dilemma

Pesticides in the Food chain

India has been one of the most reluctant countries in analyzing contaminants in things we eat in spite of several active Residue Analysis laboratories under ICAR and ICMR dotting the country. ICMR's first concerted effort at a national sample survey back in 1993 revealed a high percentage of samples containing DDT/HCH but was withdrawn on grounds of inadequacy in techniques adopted. New studies revealed 51% of all food items to be contaminated of which about 22% were above tolerance levels. To cap it, most pesticides tend to accumulate in our fatty layers and even if the ADI (average daily intake) is low, it may ultimately cross the toxic barrier.Was there any other nation-wide survey? Not that we know off in spite of WHO's s specific guidelines. They have not heard from our Health Ministry while they are assessing food contaminants in every nook and corner of the World.

The appended data (see box) may be gross and arguable, but certainly most revealing!

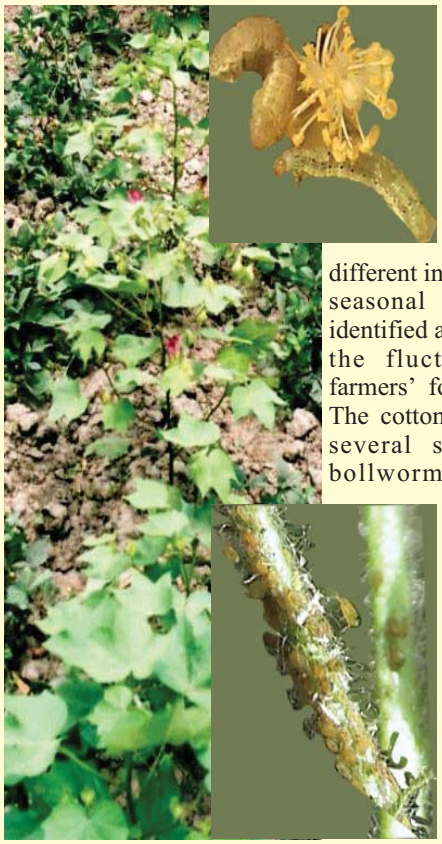
Food base	Contaminants	Health hazards	Possible remedy?
Wheat, rice dal	DDT/HCH, aflatoxins, rat hairs& excreta, arsenic from ground water in rice	Retard reproductive capabilities,carcinogenic, seizures,, blooddisorders, Tourette's syndrome	Baking & cooking at high temperatures
BUY WHOLE GRAINS, WASH THOROUGHLY & DRY, SOAK RICE & DAL WELL IN WATER BEFORE COOKING			
Milk	DDT/HCH, endosulfan, oxytocin, H2O2	Usual risks of DDT/HCH, may affect kidneys,foetus, liver, stomach ulcers	Prefer pasteurized milk. However, metal toxicants persist
Fruits, vegetables- potatoes,tomatoes, spinach, radish, carrot brinjal, cabbage, grapes, apples, mango	DDT/HCH, endosulfan, synthetic pyrethroids, carbamates, organophosphates, As, Pb, Zn, Cd, Cu, Cr	Seizures, blood disorders, brain cancer in children, breast cancer, Parkinson's & Tourette's syndrome	Read the source site for remedy for individual items
SCRUB CLEAN, REMOVE SKIN, DON'T EAT RAW, TREAT IN SALINE WATER			
Spices: turmeric, chillies, black cumin, pepper, cardamom. Coriander,cinnamon, fennel	Artificial dyes, mycotoxins, pesticides	UNKNOWN	Use raw materials, wash & dry, grind and sieve
Sugar	Alachlor, DDT, ethion, endosulfan, malathion, monocrotophos	Affect kidneys, foetus, liver, may cause leukaemia, chromosomal disorders, lung damage, birth damage	?
Meat – goat, pork, chicken, beef	Organochlorine, endosulfan, antibiotics, hormone residues	Carcinogenic, retard reproductivity, neurotoxic, mutagenic, affect kidneys, foetus, liver	Avoid, liver, chicken & pork skin, Cook at high temperature for 45 min;Live with metal contaminants if you want to eat them
Fish/shell fish	HCH/DDT, methyl mercury, ammonium chloride, chemical effluents of sewage	Retard reproductivity, carcinogenic, seizures, blood disorders, brain cancer in children, Parkinson's, Tourette's, endocrine & brain damage	Try removing the skin & cooking at high temperature for 45 min. Eat the methyl mercury & pray!

DON'T FEEL UPSET! TAKE SOME SUGGESTED PRECAUTIONS AND GET ON WITH YOUR LIVES. PESTICIDES ARE LIKELY TO STAY IN OUR AGRICULTURAL SCENARIO WHILETHE NEWER MOIETIES BECOME SAFER. YOUR BODY IS ONE OF THE BEST DETOXIFIERS ANYWAY!

(Source: Adapted from www.outlookindia.com)

Insecticide resistance management (IRM) in cotton of Sundarbans

InWest Bengal cotton is grown sparsely mainly in the coastal saline Sundarban belt of districts of South and North 24 Parganas. The climate is subtropical with high annual rainfall, the soil of silty-clay type. The land situation is mostly medium to low lying having many constraints like salinity, impeded drainage, lack of irrigation facilities etc. falling under the CDRsystem (complex, diversified and risk prone). Cotton (var. LRA-5166) is cultivated during *rabi*-summer season in the rice fallowed by utilizing the residual moisture. Damage caused by different insect pests, apart from seasonal factors, has been identified as the main reason for the fluctuating yield and farmers' fortunes in this area. The cotton crop is infested by several sucking pests and bollworms throughout the season. Use of several conventional insecticides, insecticidal mixtures, doses at will has resulted in several outbreaks of insect pests like American bollworm (*Helicoverpa armigera*), spotted bollworm (*Earias vitella*) etc. Resistance monitoring study at the laboratory of Ramkrishna Ashram Krishi Vigyan Kendra (RAKVK) with *Helicoverpa* estimated a resistance of 10-16 times against endosulfan (10mg/ml discriminating dose assay), 25-32 times against cypermethrin (0.1mg/ml) and 4-6 times against spinosad (0.1mg/ml). Concurrent intensive efforts by CICR, Nagpur, DOCD, Mumbai and Nimpeeth KVK have resulted in Insecticide Resistance Management (IRM) strategies for complimentary use along with IPM module to ensure sustainability and profitability in cotton cultivation of the region.



IRM strategies: *Sucking pest window: No spray up to 60 days*

- Cultivation of sucking pest tolerant variety (LRA-5166)
- Intercropping with cowpea and soybean and border ropping with maize
- One or two sprays depending upon the intensity of attack by jassid and aphid of NSKE 5% or boiled neem leaves or neem oil was done at 45-50 DAS (another at 60 DAS)
- Avoidance of broad spectrum OP insecticides as early season spray.

Window 1:
60 -75 DAS : Mostly infestation of Earias
Emergency: ETL based spray (50% plants show flared up squares infested by *Earias*) of endosulfan 35% EC and in few areas with higher infestation with indoxacarb 14.5%SL at 70-75 DAS
Window 2:
75 - 90 DAS : Bio-selective and least resisted insecticides for American bollworm infestation
ETL based spray (80% plants show flared up squares and American bolworm infestation - 4-5 larvae per 20 plants) of indoxacarb 14.5% SL and hand picking of left over live larvae after 5 days of spraying.
Window 3:
90 - 120 DAS : Huge attack of jassids
ETL based spray of imidacloprid 17.8% SL in jassid infested areas.
Total removal of crop residues after harvesting.

Present Status: IRM project has been running successfully for 2nd consecutive year in 10 villages of two developmental blocks (Joynagar II and Mathurapur I) covering an area of 200 ha and 876 farmers. A lot training programmes, group meetings, ecosystem analysis were conducted not only for the farmers but also for the State Department officials to disseminate the concept of IRM. The average number of insecticidal sprays has been reduced from 5 to 2.5 when compared between non IRM and IRM villages. The average cost of cultivation reduced (due to decrease in sprays) from Rs.11,000/- to Rs. 9,800/- per ha. There is even slight increase in yield (40 kg increase per ha). Thus, there is a net increase of Rs.2050/- in profit per ha. The insecticides used in non IRM villages are mostly synthetic pyrethroids, mixtures and conventional one. In a broader perspective, IRM strategies trained the farmers to manage cotton pests in an environmentally benign manner,thus to reduce the incidence of resistance problem by dropping the use of insecticides like synthetic pyrethroids and OPs which are mainly responsible for this menace.

Source: Rangan Banerji & H. Pathak, IRM project, RAKVK, Nimpeeth, W.B. **E-mail:** kvknimp@cal2.vsnl.net.in

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Be aware of neem pests:Neem (*Azadirachta indica* A. Juss.) is being extensively promoted as a safe biological panacea – In plant pest control and human medicine through its ability to produce a battery of triterpenoids like azadirachtin-a, nimbin and salanin. The trees are presently under threat due to a destructive dieback disease caused by a mitosporic fungus**,** *Phomopsis azadirachtae,* spreading at an alarming rate particularly in south India. It is likely to be transmitted through seed**.**

A highly sensitive technique using polymerase chain reaction (PCR) has been developed for detecting the pathogen. Development of a suitable management measure needs immediate attention of tree pathologists, rendered more convenient through use of this specially sensitive tool for monitoring the pathogen

(**Source:** **M. N. Nagendra Prasad** *et al.* 2006. *Curr. Sci*. **91:** 158-59. **E-mail:** npmicro8@yahoo.com

Ministers' ring food alarm in W. Bengal: Ringing warning bells about contract farming the Agriculture Minister Shri Naren De, admitted that *'Bengal may face food problems in future. There was an imminent danger in contract farming'*, he said. Some people may horde acres of land. This followed the statement by Land Reforms Minister, Abdur Rezzak Mollah who dropped a bombshell in the Assembly about food shortage in the State. This he ascribed to rampant industrialization.

Both Ministers subsequently clarified their statement with riders justifying the need for industrialization and the gist of their suggestions were that while presently the agricultural lands (even prime?) may be procured for the State's need for industrialization that is more dictated by the infrastructural needs, non-agricultural lands lying fallow in districts of Bankura and Purulia can be brought under agricultural use. They unfortunately neither explained how nor the why of it. But a Master Plan must be under processing. Till then, let us wait and see. However, Mr. Mollah reiterated on 25th September (TOI, 26/09/06),*'Personally I cannot accept fertile land being being surrendered for the Tata factory at Singur"; "I am against killing ducks to raise chicken";* He further expressed that he was disappointed that no farmer had filed a case challenging the Government land acquisition. Since then, both the Chief Minister, Shri Buddhadeb Bhattacharya and Minister of Industries, Mr. Nirupam Sen have assured all that there will be no compromise with food security, farmers' and farm labour's interests in setting up new mega industry-oriented projects ABP,1.10.06)

(**Source:** TNNetwork, TOI, July 11, 2006, with riders from the editors).

"Diesel plant'-eating insects:*Jatropha curcas* is gaining commercial importance as a biodiesel plant which is anticipated to cut down fossil fuel requirements by 5% around 2010. Starting from Andhra Pradesh &Tamil Nadu, commercial cultivation is now being introduced/proposed by Emami group and the US based Connor Information Technology in W. Bengal (ABP News, 01.10.06). There is a potential for growing the plant in 33 million ha of waste land (out of total of 146 m ha waste land) in India. The seed oil is also known to possess insecticidal, molluscicidal and nematicidal properties. Several groups of insects, however, have overcome the insecticidal properties of this plant and two pests that have become of serious concern in India are *Scutellera nobilis* causing flower fall, fruit abortion and malformation of seed and the inflorescence and capsule borer *Pempelia morosalis.* Others include *Stomphastis thraustica* (the blister minor)*, Achaea janata* and *Oxycetonia versicolor.*

With the GOIs projection of cultivating 10 m ha of *Jatropha* by 2020 that will generate 7.5 m tonnes of fuel at cost effective market rates presently at Rs.25/- per L, the price may not be sustainable unless the insect damage of the plant is put under leash. Some promising biocontrol agents identified include the spider, *Stegodyphus godyphus,* scelionids like *Pseudotelenomus pachycoris,*(egg parasitoid,*Beauveria bassiana, Metarhizium anisopliae,Leptoglossus zonatus* and *Pachycoris klugii.* More focused and immediate attention of entomologists is drawn to this balooning problem.

(**Source : Chitra Sanker** & **S.K. Dhyani.** 2006. *Curr. Sci.***91:**1 62-63**. E-mail:** chitrasanker@gmail.com)

Farmer's slam PepsiCo for poor potato yield: Bengal's experiment with contract farming received a body blow when the Berala-Boinchee Co-operative Society decided to stop production of the *Atlantic* potato variety due to poor quality of seed supplied by PepsiCo India (FritoLay Division). Last contract expiring on 31st march, 2006, involved 91 farmers in the villages of Berela, Abadpara and Dadsar. 90,000 tonnes of *Atlantic* variety seed was supplied for Rs.11.92 lakhs with a contract rate of buy-back of produce @per kg, Jan. 2006: Rs.3.40; Feb. 2006: Rs.3.70; March, 2006: Rs.3.90. *"One third of the seeds were found to be rotten. The yield was 1/4th of the usual produce. The seed quality was bad"* said Parimal Ghosh of Boinchee village. PepsiCo had supplied seed to the Co-operative Society and promised to oversee the cultivation and buy -back the entire produce from the farmers (without any riders?). The Co-operative provided the required inputs like fertilizers and chemical pesticides under the recommendation of PepsiCo authorities.

(**Source:** TN Network, in TOI, 25.08.06; photo courtesy Dr.A. Basu)

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