ASSOCIATION FOR ADVANCEMENT IN PLANT PROTECTION

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Together we will protect our crops

Inside This Issue

From the Editors' Desk :

Chemical Consequences - Organic Alternatives (?)

MOST plant protection scientists are familiar with Rachel Carson and her *'Silent Spring'*. In 1962 she quoted from Keats "*The sedge is wither'd from the lake and no birds sing*". Her poignant portrayal (betrayal?) of pesticide use in agriculture, public health services and animal medicine led to ban on DDT. It also gave birth to environmental awareness and EPA (Environmental Protection Agency) in US and elsewhere.

Nearly 30 years later, planes blanketed parts of Massachusetts with another non-selective pesticide malathion to wipe out the Eastern equine encephalitis. The following silence was deafening.

Has all this awareness made our food, fodder and life safe? Yes, we banned some but brought in others so that we have hardly reduced the synthetic pesticide load in the environment since 1962.There is no compromise to be seen in public health sector but agriculture today is leaning towards IPM, composting, crop rotation, use of biopesticides and bioagents, and organic farming.

Balancing the risk of benefits of pesticide use is tricky as it also involves business. The pesticide industry accused Carson for pushing the world to the dark ages with insects and vermins causing disease and pestilence. On the other hand Sen. Pam Resor in USA(90s) pushed for a law requiring schools to use preventive IPM System around children. She recommended cutting vegetation along highways rather than use herbicides but she is sobered by the political reality of finding funds for cutting. Sam Jeffries recommended cutting grass little higher to cool the ground for weed free lawns, avoiding death of earthworms that aerate the soil. He says the '*greatest part of the greenery in this planet is located in rain forests where the soil is alive, without being fertilized four times a year*'.

While old pollutants like DDT and organic but highly toxic polychlorinated biphenyls may be fading away from the US ecosystem, a new study of bird eggs in Maine found the ova of a variety of birds contained hundred different and new industrial and household contaminants. From mercury to flame retardants to stain resistant clothing and pesticide, these chemicals are carried off by mother birds and passed on to their offspring. The numbers of different chemicals have increased since 1962 and we do not know the effect of combining them on human health or that of environment. *'If a bird eats something on your lawn and flies to its young to feed or flies off and dies, we won't know'*, said Heidi Ricci (Sr. Policy Analyst).

Obviously, though the battle cries with the industry are not over in developed countries but some progress has been made for a safer environment. What about us in India and residents of the third world? Less said the better! Mercurials and chlorinated hydrocarbons are still in use both in agriculture (clandestine?) and public health sector respectively.The banned monocrotophos is extensively being used by farmers. The water the middle class drinks, aquaguard purified, is made bacteria-free using nanosilver coated pellets, banned all over for use in packaging, what to say of using in water filters. Nano silver is also used in several washing machines. These are only isolated examples, the so called tip of the iceberg. When Japanese encephalitis or dengue epidemic breaks in crowded ghettoes extensive and blanket spraying of pesticide 'oil' is recommended and practiced!

Ask the environmentalist where have the birds and diverse residents of our environment gone? Where are the earthworms and other beneficial soil residents? Why do we have to replenish them continuously? Where are the predators in the crop canopy? Where and why did we loose the genetic diversity in our cropping systems? Is dengue, chikanguniya or Japanese encephalitis more dangerous than the so called 'oil' that is sprayed to eliminate them?

The borne American Rachel Carson, even after more than a decade of her death, is in all probability squirming in her grave!

If you have answers to some of these questions in this editorial, do write to us and mail us at aapp_bckv@yahoo.co.in. We would appreciate knowing and learning from you.

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

Organic Farming : An enigma

Asit K Mukhopadhyay, Retd. Professor of Soil Science, Bidhan Chandra Krishi Viswavidyalaya,Mohanpur.

ORGANIC drum-beaters call the products of conventional farming (CF) unsafe and unhealthy as they involve synthetic chemical fertilizers, pesticides and herbicides. On the other hand the critics of organic culture point out that it is an inefficient production system and overpriced when the quality of the product is evaluated against comparable conventional crop and the claim of organics are vague and at times misguided. Where lies the truth? Let us evaluate the key features of the balance sheet CF vs OF (organic farming).

Contrasted with conventional or mainstream farming, OF is a form of agriculture that excludes the use of synthetic chemical fertilizers, pesticides, plant growth regulators, livestock feed additives and genetically modified organisms. It mostly follow crop rotation, integrated pest management, green manuring, crop residue recycling, compost and mechanical cultivation to maintain soil productivity and control pests.

International Federation of Organic Agricultural Movement (IFOAM) defined the overarching goal of OF as *The role of organic agriculture, whether in farming, processing, distribution or consumption, is to sustain and enhance the health of ecosystems and organisms from the smallest in the soil to human beings*.

In many studies it was observed that on an average organic farms yielded less than conventional farms, but the lower yield were balanced by lower input costs on fertilizers and pesticides and better selling price, capability of organic farms to withstand severe weather conditions better than conventional farms (often yielding more than conventional farms during drought).

In some countries OF products are regulated, being labeled 'Organic' by their respective Governments through organic certification to producing farms for a fee.

OF protects the soil (from erosion, nutrient depletion, structural breakdown), and promote biodiversity and prescribes outdoor grazing for livestock and poultry.

In OF a variety of methods are employed like crop rotation, green manure, cover cropping, and application of compost and mulching. Certain processed fertilizers such as seed meal, nutrients-enriched various mineral powders (such as rock phosphate and green sand, a naturally occurring form of potash, calcium-rich calcite and magnesium-rich magnesite) are used. Organic pest control involves the cumulative effect of many techniques, including allowing for an acceptable level of pest damage, encouraging and introducing beneficial organisms, careful crop selection and crop rotation and mechanical controls such as row covers and traps. Effective pest control however requires a thorough understanding of pest life cycles and interactions. Weeds are controlled mechanically, thermically and through the use of cover crops and mulches.

While OF is labour and knowledge intensive, conventional farming is capital-intensive, requiring more energy and manufactured inputs. OF generally produces some what lower yields but sustains better yields during drought years. Many studies have shown that organic farming requires less water, uses fewer and invariably natural pesticides, prevents soil erosion, leaches significantly fewer nitrates and has been shown to have improved nutrient qualities including as much as double the antioxidants, flavonoids.

Research reports on crop productivity in OF vis-à-vis CF reveal certain interesting information. In 2005, Cornell University published results of a 22 year farm trial with corn (maize) and soybean. OF produces the same yields as conventional method over the long term averages but consumes less energy and contains no pesticide residues. This was attributed to lower yields in general but much higher yields during drought years. On the other hand, a prominent 21-year Swiss study found an average of 20% lower organic yields over conventional along with 50% lower expenditure on fertilizer and energy and 97% less pesticides. A major U.S. survey report published in 2001, analysed results from 150 growing seasons for various crops and concluded that organic yields were 95-100% of conventional yield. A long term study by U.S. Department of Agriculture, Agricultural Research Service (ARS) scientists concluded that OF can build up soil organic matter better than conventional no till farming.

It is widely recognized that organic farming rejects all genetically engineered products, including plants and animals (unanimously voted by more than 600 delegates from over 60 countries in Mardel Plata Declaration on October 19, 1998 in IFOAM's 12th Scientific Conference). Despite the above exclusion, there is concern that pollen from genetically modified crops is increasingly contaminating organic and heirloom genetics by entering the organic food supply.

Controversy exists with respect to sustainability of OF. One study from the Danish Environmental Protection Agency found that, area-for-area, organic farms of potatoes, sugarbeet and seed grass produce as little as half the output of conventional farming. Findings like these, and the dependence of organic food on manure from low-yield cattle, has prompted criticism from many scientists that OF is environmentally unsound and incapable of feeding the world population. Among these critics are Norman Borlaug, father of the “green revolution” and winner of Nobel Peace Prize, who asserts that OF can support at most 4 billion people, after expanding crop land dramatically and destroying eco-systems systematically. Others view the whole issue as means for organic farmers to make their money on hype and conventional farmers to make their money on quantity and quality.

The debate rages! Meanwhile the high priced organically produced edibles find their way into the Malls for the '*nouveaux riche'*, while the average and the poor survive, consuming merrily the conventionally raised agricultural produce.

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

Utility of Proteomic Tools for Assessing Protein Expression in Soybeans - PROTEOMIC technologies are powerful tools for examining alterations in protein profiles. We used these tools to characterize fungal proteins. Root rot diseases account for the largest percentage of loss in commercial production worldwide and the fungus *Rhizoctonia solani* is a major cause of root diseases. In addition to being important plant pathogen of agricultural crops, isolates of this fungus are beneficially associated with orchids, may serve as biocontrol agents and play a role as saprophytes in decaying and recycling soil organic matter. The pathogen was once successfully controlled by methyl bromide (pesticide) recently banned due to environmental concerns. However, control of the pathogen is difficult using conventional pesticides, mostly due to lack of sufficient knowledge of its biology and pathology. Even though there are reports on the physiological and histological basis of Rhizoctonia-host interactions, very little is known about the molecular biology and control of gene expression during infection by this pathogen. Increased understanding of the disease interaction will aid in protection of plants against the pathogen. To our knowledge, there is limited investigation of the pathogenic mechanism of *R. solani* protein expression level.

In this vein, we investigated and optimized two protein extraction protocols namely, TCA-Acetone (TA) and Phosphate-TCA-Acetone (PTA). Extracted *R. solani* proteins were resolved by two-dimensional (2-D) gel electrophoresis covering pH 4-7 and 6.5- 205 kDa. Using either method, more than 500 protein spots could be counted from the 2-D gels. However, unique protein spots were observed in the gels of each of the two protein extraction methods. Also, some protein spots were found to be more intense in the TA gels than in the PTA gels and *vice versa*. Obviously, our findings emphasize the importance of using more than one protein extraction protocol to capture the largest protein profile in 2-D gels. The separated protein spots were digested with trypsin and analyzed using matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF-MS). We have identified six protein spots. We are in the process of identifying more *R. solani* proteins by using combined technologies of MALDI-TOF-MS and liquid chromatography followed by tandem mass spectrometry (LC-MS/MS). In the continuation of this project, we plan to compare and identify differentially regulated proteins among virulent and chemically induced or double-stranded-RNA-mediated hypovirulent (avirulent) *R. solani* isolates to decipher possible mechanisms of virulence of the pathogen. Proteomic information would help us to have a greater ability to identify the pathogen, understand its biology, host-pathogen interactions, mechanism of fungicidal actions and ultimately, to formulate improved disease management practices.

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A Brainstorming Session on Climate Change at the AAPP

AAPP orgainses a brainstorming session on 'Impact of Climate Change on Possible Shifts in Pest Scenario of Cropping Systems'

THE FOCUS of attention in the present day agricultural scenario has shifted to climate change (CC) especially since the release of the Summary Report of the 4th Intergovernmental Panel on Climate Change (IPCC, 2007) and subsequent outputs The AAPP having focused on emerging and gray areas of plant protection organized a brain-storming session on " *Impacts of Climate Change on Impending Pest Scenario of the Agro-ecosystems*" on 20th March , 2008 at the auditorium of the Directorate of Research, BCKV, Kalyani, chaired by the Association President, Dr. D.K. Bagchi, Former Vice-Chancellor, BCKV, Mohanpur, Nadia.

At the onset the Secretary of the Association, ***Dr. Shantanu Jha,*** welcoming the guests and members, presented to the house a comprehensive story of the onerous trends of CC on plant pests and pathogens in agroecosystems for open discussion. Dr Jha pointed out that the natural systems are the most vulnerable because of their sensitivity to CC and limited capacity to adapt. He stated that under a changed climate scenario the damage caused by pests and pathogens will be changed. Heavy precipitation, higher temperatures may affect patterns of pests differently and weed flora are likely to benefit under elevated CO_2 levels. The changes of crop morphology and anatomy due to CC will likely affect the pest-crop relationships. The epiphytotic patterns will depend largely on microclimatic changes that are not easily predicted through parameters used for studying CC by the IPCC.

The lead speaker of the Session, ***Mr. Debol Roy***, IFS, Member Secretary, WBPCB, stated that the rate of changing temperature depends upon the human activities. Under Indian conditions acute drought will be predicted in Krishna Kaveri Command areas while floods will be more frequent in Mahanadi, Assam, Orissa and West Bengal. He also pointed out that rise in 1-2^{O}C at mid to high latitude may cause alleviation of cold limitations where 10-15 % increases in yield of wheat and maize and no change in the yield of rice is predicted. The global agricultural commodity prices (GACP) may vary from -10 to 30 %. The rise in temperature by 2-3 ^{O}C may enhance the yield of C3 plants by 11 % with proper adaptation and the GACP may be vary from -10 to 20%.

While elaborating on the general effects of CC on biodiversity, cropping systems, crop morphology and anatomy Mr. Roy also briefly evaluated the possible impact of warming situation on changing pest situation, profile and virulence level. Warming causes all exothermic animals to pass their juvenile phase faster and thereby, allowing the population build up in a shorter period. High temperature allows winged insects to reach the flight threshold faster and thereby intensify the damage caused by wind-borne pathogen vectors and virus-vectors, thus changing the pest profiles for different agro-horticultural systems. Nearly 90 % of the plant sp. form mycorrhizal association under elevated CO_2 situation Warmer situation also cause the shifting of insects, birds and other animals from their said region. Northward shifting of butterflies of North America and Europe is already documented. He expressed that the effect of global warming may cause extinction of the different species and biodiversity. The whole ecosystem ecologists and scientists are now addressing the issue of the role of CC in the ecosystem processes, with the potential for greater understanding of the large scale impact of the socio-ecological and economic systems. Dr Roy finally stated that given the interest of the BCKV Scientists and Scholars, Projects relevant to CC on agriculture will receive favourable consideration from WBPCB.

Dr. S. K. Sanyal, Director of Research, BCKV and the Chief Guest of the Session congratulated the Association for selecting such a globally important issue in the brain-storming session for discussion and interaction among the scientists and the members of the Association. He stated that under warming situation, crops will be faced with severe abiotic stress and the temperature rise will have differential effects on soil health and fertility owing to the enhanced level of decomposition of the organic matter due to the enhanced level of microbial activity.

Dr. M R Ghosh initiated the follow up discussion focusing on likely pitfalls in assessing impact of CC on pest distribution and intensity scenario. ***Dr. C. Sen*** questioned the validity of the trends projected by IPCC based on very gross sampling approach and shifts in temperature. Their impacts on microclimate which often determines the tempo of pest incidence and severity remains questionable without valid data. ***Dr.B. Das,*** In-Charge AICRP Betelvine stated that insect species with wide geographical distribution illicit high tolerance to variable temperature regimes. Hence insects having inherent genetic plasticity may tolerate considerably more temperature variations than are being predicted. However, minor shifts in temperature may significantly affect insect fecundity. ***Dr S.A.Khan*** gave a presentation on microclimate in crop canopy and their antecedent effects on pest scenario. ***Dr. S. Dutta*** pointed out that temperature shifts may affect rhizosphere and rhizoplane microbes significantly. Dominance of bacillus and actinomycetes are likely. The shifts in these microbes should be an inherent component of studying pathogen profiles.

Finally, the Secretary of the Association, Dr. Shantanu Jha, conveyed the vote of thanks.

(**Source**: From report of S. Dutta,
E-MAIL:subrata_mithu@yahoo.co.in).

GLOBAL WARMING NEWS

Agriculture in the Near East Likely to Suffer from Climate Change - THE HUNGRY and poor will be mostly affected as was projected in a FAO meeting that debated CC impact on the region.

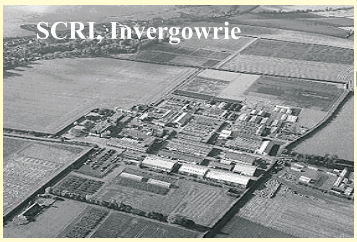
Salient findings were :

- Agriculture in the Near East is likely to suffer losses because of high temperature, droughts, floods and soil degradation threatening the food security of many countries.
- Hunger and malnutrition caused by climate change will most probably affect those who are already poor, malnourished or dependent on local food production.
- The Middle East and North Africa are particularly exposed to water shortages. An additional 155 to 600 million people may suffer an increase in water stress in North Africa with a 3° C temperature rise.

"The number of dry days is expected to increase everywhere in the region," said Wulf Killmann, Chairman of FAO's working group on climate change. "The number of frost days should decrease, while heat waves in the region's more continental areas might become more frequent. As a result, the length of growing seasons should decrease. More efficient water and energy use, sustainable agriculture, better forest management and afforestation are key measures to mitigate the effects of climate change," Killmann added.(**Source**: FAO.org - Pubblicata il 03/03/2008)

Front Line of the Fight Against Global Warming - SCIENTISTS from Scotland's six main research institutes briefed ministers on climate change research, showcasing how to tackle the problem.The conference was organised to update the ministers responsible for climate change and environment on some of the projects being carried out at Scotland's leading environmental, agricultural and biological research institutes. The projects include:

- Developing measures to slow down the release of carbon from soils-an important source of greenhouse gases
- Using anaerobic bacteria to ferment waste plant material and create the fuels of the future ethanol and butanol to reduce the burning of fossil fuels.



- Developing new crops and plants that are more resilient to heat and drought.
- Scientists have also identified a new way to cut greenhouse gases by reducing flatulence in sheep and cattle.
- Researchers at the Rowett Research Institute near Aberdeen are developing a feed additive that can inhibit the production of methane that occurs naturally as part of the animal's digestive process.

Yesterday, the academics warned that as our climate changes, Scotland is expected to experience warmer, drier summers and milder, wetter winters

The Scottish Crop Research Institute is involved in identifying threats from new plant pests and pathogens. Information will be used to research cost-effective control measures that are environmentally benign. SCRI has already deployed solutions to combat root rot in soft fruit and late blight on potatoes. These techniques will be used to combat new and emerging disease threats. Another area of research is developing new crops and plants that can survive heat or drought. Based at Invergowrie, the SCRI is also analysing long-term climate records for the local area. The analysis will examine crop yields and outbreaks of diseases to provide a detailed assessment of the impact of climate change.

(**Source**: **Tanya Thompson,** The Scotsman newspaper, : 19 March 2008)

GLOBAL WARMING caused by man is real and the consequences will be dire if something isn't done soon: 'Global climate is near critical tipping points that could lead to loss of all summer sea ice in the Arctic with detrimental effects on wildlife, initiation of ice sheet disintegration in West Antarctica and Greenland with progressive, unstoppable global sea level rise, shifting of climatic zones with extermination of many animal and plant species, reduction of freshwater supplies for hundreds of millions of people, and a more intense hydrologic cycle with stronger droughts and forest fires, but also heavier rains and floods, and stronger storms driven by latent heat, including tropical storms, tornados and thunderstorms.'
James Hansen, Director, NASA Goddard Institute for Space Studies

GM NEWS

GM Papaya to Reveal Gene Modification Effects

A FOOD crop has had its entire genetic code read to reveal the precise effects of genetic modification on its DNA for the first time.

The pioneering feat could be exploited to allay concerns about the effects of gene tinkering.

The SunUp papaya was created by bombarding young plants with gold particles coated in a gene that would make the resulting plants resistant to a serious pest, the ringspot virus.

A team of scientists led by Prof Maqsudul Alam produced the first detailed look at the entire genetic code of the "transgenic" plant that resulted from this gene bombardment.

The International Papaya Genome Consortium led by the University of Hawaii researcher has deciphered the genetic code of the disease-resistant SunUp papaya.The draft plant genetic code - genome - consists of 372 million "letters" and reveals that the insertions of new DNA occurred in only three places in the papaya genome.This reveals the "transgene" responsible for resistance to papaya ringspot virus and the feat shows that now it is possible to study the effects of GM in unprecedented detail.

The Rainbow papaya, a hybrid between transgenic SunUp and non-transgenic Kapoho, is currently greater than 60 per cent of Hawaii's total papaya production and nearly 70 per cent when other transgenic varieties are included.

Papaya is now the fifth angiosperm (flowering plant) for which detailed genomic information is available.

(**Source**: **Roger Highfield** (Altrernet). Last Updated: 23/04/2008

Phytase enriched GM Maize for China -

CHINESE company Origin has obtained a licence to the world's first genetically modified phytase maize. It is expected to be one of the first GM maize lines to be approved and commercially sold in China's domestic market.

The potential global market for phytase has been marked at $500 million, with $200 million for China alone, according to the China Feed Industry Study. The maize seed market in China is estimated at $1 billion.

Phytase is currently used as an additive to break down phytic acid in maize being used as animal feed, alongside increasing phosphorus absorption in animals by up to 60%. The GM lines will effectively eliminate the need for the separate purchase of phosphate supplements and maize, saving time, machinery and labour, as well as allowing animals to directly absorb more phosphate and subsequently reducing feed costs.

The maize has been developed and licensed by the Chinese Academy of Agricultural Science (CAAS), the result of 7 years of

study. Dr. Yun-Liu Fan, CAAS scientist and member of the Chinese Academy of Engineering said "Our genetically modified corn will reduce the need for phosphate supplements and reduce feed costs."
The maize has passed the Ministry of Agriculture's evaluations for safety in the transgenic intermediate-test and environmental-release stages, and is currently in the final stage of evaluation for production test safety.The maize is set for commercial launch in 2009.
(**Source**: **Rebecca Debens**, Agrow Agricultural Biotechnology News, 21 April, 2008).

Ill Wind Blows: How Far Does A Bee Fly?

USING "pure farming" methods inspired by the Shinto religion, Shigeki Sano knows how to grow a great organic daikon radish beside the Lachlan River at Cowra. And he knows enough English to declare "no good" when asked about genetically modified canola.NSW farmers are about to change agriculture forever by growing Australia's first commercial genetically modified food crop. Federal Government's Office of the Gene Technology Regulator recommended the moratorium be lifted, saying GM canola could be grown without harming organic farmers.
But back in 2003 Armstrong was worried that would not be the case."My neighbour on the western side happens to be a small consortium of Japanese families who migrated out here some years ago," he told State Parliament."They have an irrigation block of some 50 hectares. They hand-raked the whole block, not once but twice; they picked up every bit of foliage and vegetation they could; they worked day and night, with their big straw hats on in the summertime; they cleared it because they wanted to grow organic produce. They have created a successful business that is unique in the Cowra district.
"Where would they be if I started to grow the GM canola or other GM crops and happened to contaminate their organic crop? I would be polluting their crops and therefore I would destroy their market."
The decision to allow GM canola has been welcomed by the NSW Farmers Association and many other organisations, but on the Kitanodai Kaihatsu Farm at Cowra, they still fear exactly what Mr Armstrong spoke of in 2003.
The farm's produce includes Chinese cabbage, broccoli and bok choy, all members of the brassica family of plants, as is GM canola.
Kitanodai's farmers fear GM canola could cross-pollinate with the brassicas, leading to GM hybrids that would ruin the farm's organic status. Pollen can be carried on the wind or by bees. GM canola could also cross-pollinate with common weeds such as wild radish - also part of the brassica family - or arrive as seed spilt from trucks or carried by animals, humans and harvesting equipment.

PESTS AND PEST MANAGEMENT

Agdia, Inc. Offers the First Rapid Test for the Detection of Hosta virus X -

Agdia, Inc.Elkhart, Indiana, a leading provider of easy-to-use tests for agricultural diagnostics, announces the development of a rapid test strip for the detection of Hosta virus X.
Plants infected with HVX do not always exhibit symptoms. When symptoms are present they can vary from variety to variety and also resemble other problems. This behavior makes it difficult to recognize infected plants.
Designed to deliver on-the-spot results, the Agdia HVX ImmunoStrip® can be used by anyone. It takes only minutes to determine if plants are infected with Hosta virus X. Use the HVX ImmunoStrip® to test before purchasing plants or before accepting a shipment. Ensure plants are clean before propagating and monitor plants throughout the season. The test works with leaf or root material.
Strong, clean results make the test simple to interpret. Using the test requires no cumbersome technique or equipment.
Portable Strips can travel with the user wherever they may be needed. One-year guaranteed shelf life.

Agdia celebrates 26 years of providing diagnostic solutions to agriculture. Agdia offers not only diagnostics test kits, but also testing services for plant pathogens.
(**Source**: Agdia at http://www.agdia.com).

Wasps Performing Role of 'Greenbug Exterminators' -

RECENT samplings by Oklahoma Cooperative Extension Service Entomologist Tom Royer show that a natural enemy of greenbugs is actively helping to control the unwanted pests.
A tiny parasitic wasp, *Lysiphlebus testaceipes*, has been so active in a number of test plots that there is no need to spray, even though greenbug numbers have reached or exceeded treatment thresholds."Scientists, specialists and Extension educators in Oklahoma, Texas and Kansas are validating the usefulness of the Glance 'n Go system for greenbugs this year."

The forms can be obtained at entoplp.okstate.edu on the Internet. By following a few simple instructions, producers can use the Greenbug Calculator to determine an economic threshold based on the cost of treating the field and the price of wheat.
"Once a threshold is determined, a scouting form can be printed and used to record the sampling results and an informed treatment decision can be made," Royer said.
Greenbug treatment thresholds currently should fall around one to two greenbugs per stem or tiller because of the high price of wheat.
"It's possible that a recheck may indicate the wasps have already taken care of a field's infestation, thus saving the producer the cost of an unnecessary insecticide application," Royer said.
(**Source**:**Donald Stotts**,Crop Management. 15 April, 2008.)
EMAIL: Donald.stotts@okstate.edu..

New Peanut Variety Resistant to Nematodes, Virus -

A NEW peanut variety developed by ARS scientists may help farmers in their battle against two key peanut problems. Peanut varieties are plagued by pests like the peanut root-knot nematode and diseases like tomato spotted wilt virus (TSWV).
While certain peanut varieties exhibit resistance to either the microscopic worms or the TSWV pathogen, Tifguard is the first variety that has resistance to both.
Tifguard was developed by hybridizing a TSWV-resistant cultivar with a nematode-resistant cultivar. Field tests for resistance to peanut root-knot nematode were conducted at two Georgia farms in Tift County that were heavily infested. In testing for TSWV-resistance, Tifguard plants were grown in plots at one of the Tift County farms that also displayed severe TSWV problems.

Not only did Tifguard exhibit higher resistance to TSWV, it also produced higher yields than standard check cultivars when grown in fields with little or no nematode pressure. And because of its high level of resistance to both TSWV and root knot nematode, Tifguard had significantly higher yields than all other varieties.
For these reasons, Tifguard should be particularly valuable to peanut growers who have to deal with both root-knot nematodes and TSWV. It was released in 2007 and is currently in seed production. Seed for farmers should be available by the 2009 planting season.
(**Source**: Plant Health Progress, 16 May 2008)

● **Stature SC Fungicide Features New Flowable Formulation of dimethomorph** - BASF product gives growers preventative control of Phytophthora and downy mildew diseases. BASF Turf & Ornamentals announced it has launched Stature SC fungicide, a new liquid flowable formulation of its widely used Stature DM fungicide. This new formulation will help greenhouse and field and container nurseries preventatively control Phytophthora and downy mildew diseases.

As a Group 40 fungicide, this new flowable formulation has a different mode of action than other fungicide chemical classes. When rotated into disease management programs, Stature SC helps growers prevent fungicide resistance.

For application ease, growers can measure Stature SC in small or large amounts and apply as a spray, drench or through chemigation. The new flowable formulation mixes faster as a liquid suspension. The product is also effective for conifer seedling operations, shadehouse and lathhouse growers.

For more information about BASF Turf & Ornamentals visit www.betterturf.com and www.betterplants.com.

(**Source:** Plant Health Progress, 16 May, 2008).

● **BASF Launches Innovative Ornamental Fungicide And Herbicide at its Industry Media Summit** - BROAD-SPECTRUM Pageant fungicide helps greenhouse growers control more diseases than any other fungicide; FreeHand herbicide saves manual weeding costs

BASF Turf & Ornamentals today announced at its Crop Protection media summit the launch of Pageant™ fungicide, the ornamentals industry's broadest-spectrum fungicide, and FreeHand™ 1.75G herbicide featuring an innovative formulation of dimethenamid-P and pendimethalin.

Combining newly registered active ingredient, boscalid, to the ornamentals market and pyraclostrobin (the ai in InsigniaÂ® fungicide), Pageant fungicide helps growers control more diseases with one application than any other registered fungicide. FreeHand herbicide is a preemergence herbicide and combines a granular formulation of dimethenamid-P with pendimethalin for time-saving weed control in ornamentals, landscape and grounds maintenance applications.

With Pageant fungicide, growers are able to do more with one disease control application to positively impact their bottom line. FreeHand herbicide gives growers a powerful, cost-effective alternative to manual weeding."

The broadest spectrum foliar fungicide for ornamental plants on the market, Pageant fungicide has activity on all four classes of fungi and provides excellent control against Pythopthora and downy mildew diseases. This fast-acting formula starts working within minutes of application.

(**Source**: Plant Health Progress, 16th May, 2008).

● **Syngenta Introduces Warrior II with Zeon Technology**- SYNGENTA Crop Protection announced that the U.S. Environmental Protection Agency has approved Warrior II with Zeon Technology® for broad-spectrum insect control in more than 23 crop groups. Warrior II is a more concentrated formulation of Warrior with Zeon Technology® , and will provide storage, handling and container disposal advantages. Warrior II contains 2.08 pounds of active ingredient per gallon--twice the concentration of Warrior, which it will replace in most markets across the United States.

"This ease of handling will provide significant advantages to our customers," said Jeff Cecil, insecticide brand manager for Syngenta. "But equally important, Warrior II with Zeon Technology will provide the same proven pest knockdown and long-lasting residual control as its predecessor."

Syngenta developed and introduced the active ingredient in Warrior, lambda-cyhalothrin, in 1987, and it quickly became the leading pyrethroid insecticide on the market. Zeon Technology, a patented encapsulation process, brought new benefits to the product when it was introduced.

The Zeon formulation mixes easily with water and reduces potential handler exposure because the active ingredient is enclosed in tiny capsules, suspended in a water-based carrier. In the field, it also improves rainfastness and protects against breakdown by UV light. When spray droplets dry on the target, the capsules quickly release the active ingredient for fast pest knock down.

Warrior II with Zeon Technology will be used for broad-spectrum insect control in alfalfa, cereal crops, corn, cotton, potatoes, rice, soybeans and vegetables.

(**Source**: Syngenta Crop Protection. www.syngentacropprotection-us.com. (28.4.2008).

Mary DeMers, mary.demers@syngenta.com)

● Bayer CropScience and Monsanto have entered into an exclusive agreement on fungicide seed treatment for corn.

● Mexico is about to clear the way for the legal cultivation of transgenic crops, in spite of resistance from environmentalists and several small farmer associations.

● DuPont, through its Pioneer Hi-Bred business, is making genomic sequences of *Colletotrichum graminicola* a major fungal pathogen of corn plants publicly available through GenBank.

● Friedrich Berschauer, Chairman of The Board of Management of Bayer CropScience, has been appointed Chairman of CropLife International, Mr. Hugh Grant, Chairman and CEO of Monsanto, has been appointed Vice-Chairman.

● Valent BioSciences has entered into a five-year collaborative agreement with the Chengdu Institute of Biology in China to study the role of abscisic acid (s-ABA) in crop stress management and plant disease resistance.

● Cornell University has been awarded a $26.8 million grant from the Bill & Melinda Gates Foundation to launch a broad-based global partnership to combat wheat stem rust.

● The European Business Association in Ukraine and the ECPA have launched a major awareness-raising campaign in Ukraine aimed at fighting the growing number of fake and dangerous pesticides appearing on the market.

● DuPont's insectide Rynaxypyr has been launched in the Philippines as Prevathon.

● DuPont and Arcadia Biosciences have entered a research and commercial agreement to improve nitrogen use efficiency in corn.

● Monsanto says it has been forced to raise the price of its Roundup agricultural herbicides because of the current all-time high demand and a global supply of glyphosate that it is unable to keep up.

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● **Blazing Punjab: Flaming Fields -** PASSING through the villages of Punjab, one sees fires in the just harvested fields. An absolutely avoidable ecological destruction and environmental violence is going on at the hands of brainwashed farmers.

The trees, the earth friendly creatures, the micro organisms are getting destroyed for no rhyme or reason. Farmers are burning the wheat stalks just in order to save a few hundred rupees.This dangerous practice is bound to play havoc in a few years and these shortsighted misadventures are going to extract a huge price in terms of money, time, environmental health, ecosystem and natural resources. Countless innocent, man- and crop-friendly living forms are being criminalised. These living forms actually rejuvenate and energise our soil, our mother earth.

Punjab is burning, really. A very painful scene we are witnessing every day around us. Madness, a mass psychosis of people unconcerned with the results of their own misdeed is happening around us, which is terribly upsetting. It is reminiscent of 'thousand fires in Rome', but at the end of those, Nero added another page in human history. But what are we achieving here with these unnecessary fires in our fields? We are burning wheat crop residue in more then 5500 Sq KMs and 12685 Sq KMs in rice crop residues.

These large-scale burning, releases trace gases, along with sub micron-sized aerosols, which are known to aggravate lung and respiratory diseases. Burning of the crop residue not only adds to atmospheric pollution and emission of green house gases but also leads to loss of rich renewable soil rejuvenating organic resources.

Who is to blame? Are our farmers responsible? What is the reason for this? Why our society is behaving like this? Are the changing life styles also contributing in this indifferent attitude of our society? Why our social scientists are indifferently quiet on this burning issue?

Is it as simple that farmers are burning up crop straw to save few hundred rupees only? Why the farmers are intent to burn stubble?

The burning of crop residue should not be seen in isolation. We have to take a holistic picture. It is not a problem in itself… it is a symptom of deep-rooted civilizational crisis of our society and our age. We have to address the crisis on much wider canvass.

Incidentally, farmers burn 196 lakh MTs of straw every year, worth crores of rupees, besides losing 38.5 lakh MTs of organic carbon, 59,000 MTs of nitrogen, 2,000 MTs of phosphorous and 34,000 MTs of potassium every year. If government feels that this should be saved, it should take up a large campaign, asking farmers to use the straw as mulch.

Let us start this voyage to build our own developmental paradigm to come out this self inflicting devastation.

(**Source**: **Umendra Dutt,** 17 May, 2008. Countercurrents.org.
E-MAIL: umendradutt@gmail.com)

● **Rs 29 Crore to Help Fight Pests -** FARMERS in the state as well as in the country can hope to produce bumper crops without suffering any crop loss due to pest attack.! Finance minister P Chidambaram announced Rs 29.4 crore for the upgradation of National Plant Protection Training Institute (NPPTI) at Rajendranagar in 2008-09 budget presented on Friday which will work towards that goal. The upgraded Institute will be called the **National Institute of Plant Health Management (NIPM).**

"The Institute will conduct training to pesticide dealers. The dealers will then be able to guide farmers on what pesticide should be used for each crop. There are three lakh pesticide dealers in the country," NPPTI additional plant protection advisor-cum-director B G Naik told."Most of the dealers have little knowledge about pesticides. Their aim is how to sell the pest products to the farmers. Later, the certificates will be presented to the dealers," he said. According to officials of the institute, a new phenomenon in the recent years has been increased import trade in pesticides from low-cost producers in neighbouring countries. "In some cases, these have been demonstrated to be misbranded or even fraudulent.

"There is an urgent need for a new laboratory of analytical capacity to support monitoring of these imports," Naik said. The upgraded Institute will also conduct training to the non-governmental organisations on pesticides usage to educate farmers. The new strategy would be to increase agricultural production with plant protection being given top priority. "Advances have been made in plant protection technology. The extension functionaries of the Agriculture Department need to be equipped with latest information on plant protection so that they will guide farmers," he said.

With the allocation of Rs. 29.4 crore for it, the National Plant Protection Training Institute (NPPTI) at Rajendranagar will get autonomous status.Two new courses on pesticide formulation and pesticide residue will be introduced on plant protection. Facilities like new laboratories, sanctioning of additional posts in the grade of directors and accommodation for trainers will follow.

The NPPTI (formerly known as Central Plant Protection Training Institute) was established on Aug 28, 1966 as a training wing of Central Directorate of Plant Protection, Ministry of Agriculture.

(**Source**: Times News Network, March 1, 2008.)

● **Oxford Launches Research Centre in Memory Of Indian Professor -** THE UNIVERSITY of Oxford has set up a new science and technology research centre in memory of an Indian professor who died in 2005. The Centre was launched on Thursday in memory of Sanjaya Lall, who was Professor of Development Economics at the University from 1999 until he expired in 2005. The Centre, called the Sanjaya Lall Programme for Technology and Management for Development (SLPTMD), will seek to improve e-services for farmers in India in one of its first projects. Lall developed a global reputation for his work, which focused on the needs of developing countries in a multinational market, the University said in a release.

The Director of the programme, Xiaolan Fu, said: "The Programme aims to advance Professor Sanjaya Lall's pioneering research on technology and industrialisation in developing countries. In July, the researchers from the programme will join an international team in Sironj, Madhya Pradesh, to provide computer and mobile phone technology to farming communities. The mobile phones will be given to representatives from each of the farming communities, known as Munnas, who will respond to requests from local farmers when they need advice on plants that are looking sickly or crops that are not growing well. The 'Munnas' will take photographs of plants on their mobile phones and transmit those images to the agricultural experts for an immediate response.

Without this technology, advice on crop failures and pest problems can take days as the agricultural advisers travel from village to village on bicycles if they need to look.

● **Food Watch: Every Hectare Counts -** COASTING along small town roads in Kedah, it's impossible to miss the vast, green expanse of neatly delineated paddy fields.These rice plains cover 10.6 Kha of Kedah's entire 94.25 Kha.With an average padi yield of 5.4 tonnes per ha, the State ranks third in Malaysia. But the mention of high yield evokes another name: *Sekinchan,* which produces an average of 10 tonnes per hectare.

The small town, dubbed the rice bowl of Selangor, is renowned for its consistently high yield. But paddy hectarage in the Muda area in Kedah - under the Muda Agricultural Development Authority (Mada) - is about 50 times more than Sekinchan's 1,900ha, making it much harder to manage.

According to rice industry consultant Datuk S. Jegathaeesan, yield performance in the Muda area does not reflect the billions of ringgit in investment..What this translates to is more efficient water management.

(Source: **Yong Huey Jiun**)

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