National Symposium
Climate Change, Plant Protection and Food Security Interface

17-19, December, 2009

Collaborator: **West Bengal Pollution Control Board**

ABSTRACT

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Organised by

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From the Editor's Desk:

The overwhelming response of the plant protection fraternity in the first National Symposium organized by us in 2007 on '*Plant Protection-Technology Interface'* encouraged us to go for another similar interactive platform – '***Climate Change, Crop Protection and Food Security Interface'.***

The issue that is shaking the World today is climate change or global warming that is impacted with all life forms on earth. As the Symposium goes on, the Copenhagen Summit on Climate Change will be taking major decisions regarding GHG emissions.

Given that predicted climate change will lead to a pole ward migration of crops, the cropping profile in any given geographical region is likely to change. Pest profile on such crops also most certainly will change, bringing in new challenges for their protection. On the otherhand, environmental concerns are at loggerheads with the present day over emphasis on the use of pesticides in agricultural pest management. The alternative of organic agriculture is being pushed aggressively to counter the use of pesticides and high dosage of fertilizers. Already the global food security is in doldrums. Will such organic culture on a large scale lead to sufficient produce output to meet the challenges of global food security? Even though food security issues are largely impacted with many social and economic issues other than productivity, the minimal productivity needs to be assured for a population burgeoning as a function of time. How do we go about it?

Since there is a significant amount of crop losses resulting from pest onslaught that are likely to be aggravated by a shift in regional biodiversity resulting from climate change, obviously plant protection strategies need to be revised to meet the new challenges posed by both climate change and food security issues.

The Symposium, divided into seven technical sessions and a plenary, will deliberate on various aspects related to plant protection that may need revised attention given its interface with the looming climate change and food security issues. The serendipitous availability of Scientists of the APN group (Asia-Pacific Network) along with a team of scientists from neighbouring Bangladesh for participation in this Symposium will most certainly enrich and enliven the deliberations.

We received a large number of papers – many of them befitting oral presentation – but only marginally related to the main theme of the Symposium. Many of them have been placed under the poster session. Nevertheless, these papers are important as they throw light on ways and means of pest management strategies. These are divided into two broad groups. Each poster will be rated and the best ones will be suitably provided with special citation at the end of the Plenary Session.

Compiling the huge number of Abstracts received till as late as December 10, 2009 was a daunting task given the mosaic of formatting styles in which they were forwarded. Any errors of omission or commission are ours. The printing and the production of the 'Book of Abstracts' is made largely possible through funds provided by NABARD which we thankfully acknowledge.

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The cottony cushion scale, *Icerya purchasi* Mask. (Homoptera: Margarodidae) is a soft-bodied mealybug infesting guava leaves all over Bangladesh. It is reddish-brown and lays up to 600-700 eggs during her lifetime. The life cycle is completed within 46-240 days depending on different environmental conditions. The females develop by parthenogenesis. It is a sucking pest and mainly feeds on citrus. Its secondary hosts include fig, apple, almond, guava etc. Due to severe infestation, premature falling of leaves occurs. The ber or plum scale, *Aonidia ziziphi* Rah. was recorded from Rajshahi, Bangladesh as a serious pest of ber plant damaging the leaves and immature fruits during December- January , 2007. Due to severe attack of mealybug, the pericarp of immature fruit is damaged to some extent and it becomes unfit for human consumption and market value is reduced.

PP - 51: Seasonal activity of spotted beetle, *Epilachna vigintioctopunctata* infesting ashwagandha (*Withania somnifera*) and its relation to weather factors

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The spotted beetle, *Epilachna vigintioctopunctata* (Coleoptera:Coccinellidae) has been observed as a major foliage feeding pest on ashwagandha (*Withania somnifera*), an important medicinal cash crops grown in Madhya Pradesh, Rajasthan, Gujarat and Maharashtra in late kharif season. It was observed that there were changes in the occurrence and abundance of this pest from season to season. Hence an attempt was made to study the seasonal activity of this pest in relation to weather factors prevailing in this region. Ashwagandha variety JA134 was sown at the DMAPR Farm during August 2008. A total of 20 plants were taken randomly and total number of eggs, grubs, pupa and adults of spotted beetle per plant were counted at weekly intervals. The activity of adults and grubs were maximum on JA134 during October, 2008 with its peak (1.95 adults, 16 eggs and 5.75 grubs/ plant) during the second week (41st standard week).There after the population gradually decreased. The weather conditions prevailed during the peak period was an average maximum temperature of 35.8^{o}C, minimum temperature of 18.9^{o}C and relative humidity of 54%. Though adults activity was observed up to first fortnight of December 2008 but their population remained low. The pest activity was not observed after 2nd week of December, 2008 when the average maximum and minimum temperature had fallen to 28.2^{o}C and 16.9^{o}C respectively. It was found that atmospheric temperature (maximum and minimum) had significant positive correlation with the population of adults, grubs and number of eggs.