

**National Symposium on
Blending Conventional and Modern Plant pathology for Sustainable Agriculture
December 4-6, 2012**

Indian Institute of Horticultural Research, Hesaraghatta Lake Post Bangalore-560089

Recommendations/ Key emerging points

Session 1: Reaching farmers and farmers participation

- 1) Green technologies for phyto nematode management in medicinal and aromatic crops needs to be developed.
- 2) Low cost field level kits to diagnose major virus disease of tuber crops needs to be developed.
- 3) Since pesticide dealers lack knowledge of pests and diseases, they may employ plant protection experts at least with diploma holders in plant protection.

Session 2: Crop losses and epidemiology

- 1) The interaction of 'avr' and 'R' genes should be worked out in tomato. Marker assisted selection (MAS) breeding resistant cultivars should be used against bacterial wilt.
- 2) Disease predication models developed for various diseases should be validated for further refinement of models.
- 3) Appropriate statistical procedures should be used for developing linear models.

Session 3: Molecular diagnostics and strategies

- 1) Robust, rapid and sensitive detection methods for quick field level detection.
- 2) Commercialize available diagnostics on a public, private partnership.

Session 4: Sustainable agriculture and livelihood

- 1) Strengthen fungal diversity conservation and taxonomy employing molecular tools.
- 2) Develop innovative methods of disease management.

Sessions 5: Green technologies for reducing impact on environment

- 1) Regulatory mechanism need to be established to check the quality of bio-fungicides.
- 2) As Most of the bio-controls enhance the growth promotion in plants, CIB regulation is not required. The issue may be taken up with CIB for waving regulations.

Sessions 6: Classical and molecular breeding

- 1) The tool of proteomics may be utilized for identifying red rot tolerance lines in sugarcane.
- 2) Multiple resistant lines may be used for vegetable improvement programs by employing MAS.

Session 7: Old and new generation chemicals

- 1) Investigate the factors responsible for the development of resistant pathogenic strain population due to natural selection pressure or mutation induced by contact and systemic fungicides.
- 2) In fungicide residual studies, parameters such as maximum residual limit, below detectable levels and waiting period of various fungicides shall be recorded and analysed.

Session 8: Integrated Disease Management

- 1) Management of basal rot of onion by seed treatment with *Trichoderma harizianum* followed by drenching with carbendazim and mancozeb.
- 2) Raising of planting material using resistant variety is recommended for cassava growing area for the effective management of cassava mosaic virus.

Session 9 : Impact of climate change on plant diseases

- 1) Rapid identification tools to detect pathogens to be developed.
- 2) Meaningful models to explain the effect of climate change on plant disease to be developed.
- 3) Importance to be given for the climate change while taking research projects in 12th plan.

Session 10 : Safe Guarding Protected Cultivation

- 1) Post entry quarantine may be strengthened to prevent the ingress of new pathogens from other countries.
- 2) IDM packages have to be developed for the management of diseases of vegetables and cutflowers grown under protected cultivation.

Session 11: Exotic pathogen threats and plant quarantine

- 1) Inclusion of tip over of banana under domestic quarantine (strengthen the domestic quarantine).
- 2) Metalaxyl should not be used against *Phytophthora* on tomato and potato.
- 3) Preventing the spread of *P. infestans* to other parts in the country.

Session 12: Regulatory and policy issues in plant pathology

- 1) Revival of taxonomy by formation of specialised genus based groups.
- 2) Strengthen tight culture collection institutions and herbaria in multiple copies.
- 3) Proper disease characterisation in terms of phenotype, structural, physiological and environmental interaction for nationally important diseases.
- 4) Import and export of cultures and planting material to be channelized through

recognised institutions (IARI, IMTECH, NBAIM, NBA).

- 5) Strengthening the study of epidemics of serious diseases in terms of losses, distribution, monitoring and factors responsible for the cause of the epidemics.
- 6) Proper implementation of quarantine by loss and increasing the number of DIAs. Formation of a committee to suggest the mechanism for domestic quarantine to government of India at least for dangerous pests.
- 7) Proper certification of tissue culture plants free from viruses and genetic fidelity.
- 8) Bio-control agents may be exempted for toxicological data from CIB stipulations
- 9) Need for development of crop based IDM packages (biologicals, chemicals etc)
- 10) Brain storming session to debate on transgenic research in the country.