



# National Institute of Plant Health Management

Department of Agriculture, Cooperation & Farmers Welfare  
Ministry of Agriculture & Farmers Welfare, Government of India  
<http://niphm.gov.in>



## Plant Health News Letter

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### From the Director General's Desk



Mrs. V. Usha Rani, IAS  
Director General

Pesticides are an important tool for crop protection, household pest control and animal protection. Pesticides not only helped the farming community worldwide in reaping high yields through crop pest control, but also led to serious discussions on their ability to stay in environment for longer time leading to environmental and food contamination. Food safety is gaining importance not only for

international trade of food commodities but is also attracting lot of attention in the domestic food market.

The food trade across borders is inevitable for various reasons and Sanitary and Phytosanitary Measures are implemented to provide the “safe food” to the consumers through implementation of certain food standards set based on science. The registration process of any pesticides against a target pest in a crop involves generation of very crucial data based on extensive bio-efficacy trials, environmental, toxicology studies, pesticide metabolism and residue degradation trials, so as to recommend the dosage of pesticide, time of application, pre-harvest intervals (PHIs) and maximum residue limits (MRLs).

Understanding pesticide residue limits is very important for food exports to any country and hence GAP plays vital role in minimizing residues and promoting Indian foods in international trade. The issues of pesticide residues on foods is very crucial to deal in integrated manner with the help of farmers, researchers, traders, policy makers, legal bodies, testing experts and importing countries.

To meet the human resource gap in the core area of Pesticide Residue Analysis, NIPHM is organizing capacity building programmes such as Pesticide Residue Analysis (PRA), Sampling of fruits, vegetables and other items for Pesticide Residue Analysis, calibration of laboratory equipment for Pesticide Residue Analysis, Method validation in Pesticide Residue Analysis and measurement of uncertainty etc. for the benefits of various functionaries. I hope the various functionaries of State & Central Govt., Scientists from ICAR, State Agriculture Universities and Pesticide Residue Testing Laboratories will take advantage of these programmes to equip themselves with skills and competency.

(Smt. V. Usha Rani, IAS)  
Director General

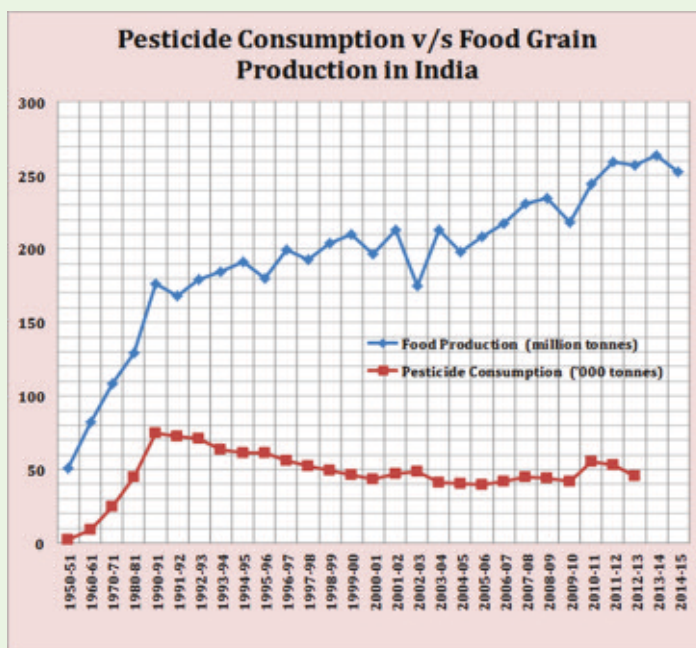
**Theme Article**  
**Pesticide Residues – Export Implications**  
**Dr. Cherukuri Sreenivasa Rao, Director(Pesticide Management)**

Indian agricultural production systems have undergone tremendous changes after introduction of high yielding short duration varieties suitable to various agro climatic zones, leading to achieving food sufficiency. Indian farmers are in forefront in adopting new technologies at all times, and the Green Revolution was possible with the new scientific products of agricultural research institutions of ICAR and SAUs, coupled with introduction of fertilizers and pesticides for higher productions through augmentation of nutrients and management of pests. Indian farmers produced 257 million tonnes of food grains during 2014-15 to feed the nation. Indian food grain production was 50 million tonnes during 1950, and with the adoption of new technologies and techniques, food production increased to nearly 260 million tonnes. In this process, pesticides played an important role in achieving food security over the years through introduction of new molecules based on changing times, changing pest scenario and environmental and food safety requirements.

#### **Pesticide Use and Food Production:**

Pesticide means any substance or mixture of substances of chemical or biological origin intended for preventing, destroying, attracting, repelling, mitigating or controlling any pest including unwanted species of plants or animals during the production, storage, transport and distribution of agricultural commodities or animal feeds including substances intended for use as plant growth regulator, defoliant, desiccant, fruit thinning agents, or sprouting inhibitor and substances applied to crops either before or after harvest to protect them from deterioration during storage and transport. Pesticide consumption in India was 2350 tonnes of active ingredient during 1905-51, gone up to 75,000 tonnes during 1980-81, and is 45620 tonnes during 2012-13. The consumption pattern changed based on the area of commercial crops and the pest status on various crops. The data presented in fig.1 shows that the food grain production and pesticide consumption not actually related, since the food grain production data include only cereals & pulses but not fruits, vegetables, oil seed & fibre crops. including only cereals and pulses. India, being a tropical country, the pesticide consumption pattern is more skewed towards insecticides, which accounts for 64% of the total pesticide consumption in 2006-07. Fruits and vegetables consume the highest amount of pesticides (26%) in the

world, followed by cereals (15%), maize (12%), rice (10%) and cotton (8.6%). In India however 45% of the total pesticide consumption was on cotton crop followed by rice (22%), vegetables (9%) and pulses (4%) and the trend is now changed after the introduction of transgenic cotton. The area under plant protection is continuously increasing, but still only 25-30% of total cultivated area is under pesticide cover. The changes in pesticide use pattern over the years in India is due to introduction of newer molecules with less application doses and safer to environment, Integrated Pest Management (IPM) technologies, use of natural pest management methods, newer crop hybrids such as bt cottons, pest tolerant crops, changes in the cropping systems, farmers education on pest and pesticide management, introduction of good agricultural practices (GAPs) and issues on pesticide residues and food safety.



Source: Indiastat.com

#### **Pesticide Registration:**

Before a pesticide is sold in the market, it is registered under the Insecticides Act, 1968. Central Insecticide Board and Registration Committee (CIB&RC), facilitate the registration of safe, efficacious and quality pesticides for domestic use, export and also disseminate information to State Governments and other concerned departments/agencies for effective implementation of Insecticide Act and Rules framed there under.

#### **Pesticide Residues:**

The pesticide present on a surface where it was applied right

after application is called deposit. Pesticide present in or on any substrate after a period of application or even without application is called residues. World Health Organization (WHO) has defined pesticide residues as any specified substance in food, agricultural commodities, and animal feed, soil or water resulting from the use of pesticides. The term includes any derivatives of a pesticide such as conversion products, metabolites, reaction products and impurities that are of toxicological significance. A pesticide when sprayed may drift over from a nearby field and fall on a crop or surface. Term pesticide residue, therefore, include residues from unknown or unavoidable sources (e.g. environmental), as well as known application of the pesticides. The most important property of a substance to be called residue is its toxicity. Therefore, pesticide residues in/on food commodities are a matter of concern and are regulated by national and international laws.

#### **Pesticide Residues in Food and Regulations:**

The food production principles and technologies are changing slowly due to consumer preferences towards safe food than sufficient food, and similarly Indian farmers also have learnt to adopt the practices for safe food production based on the consumer preferences. Safe food idea is not new, but after the formation of World Trade Organization (WTO) and agreement on Sanitary and Phytosanitary (SPS) measures in international trade, the food exports and imports standards have been implemented by all countries. These food safety standards are set based on science basically to protect the health of humans. The legal standard for pesticide residues worldwide is Maximum Residues Limit (MRL), which is defined as the maximum concentration of a pesticide residue (expressed as mg/kg) legally permitted in or on food commodities and animal feeds. The MRL is established by the regulatory bodies based on supervised field studies conducted at more than one agro-climatic zone as per Good Agricultural Practices (GAP), residue estimation as per Good Laboratory Practice (GLP), Acceptable Daily Intake (ADI) derived from toxicological studies and food consumption pattern in a country or region (food factor). Other inputs considered during the establishment of MRL are information on daily intakes of the commodity carrying the residue besides other criteria such as health, technological, and socio-economic feasibility and its enforcement etc. Pesticide Residues in/on food is a matter of concern under food safety. Hence, all countries have developed food safety standards and regulations to protect

the health of consumers. These standards are not only for the domestic produced food but also for food imports.

In India, Food Safety and Standards Authority of India (FSSAI) has been established under Food Safety and Standards Act, 2006 for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. Various central Acts like Prevention of Food Adulteration Act, 1954; Fruit Products Order, 1955; Meat Food Products Order, 1973; Vegetable Oil Products (Control) Order, 1947; Edible Oils Packaging (Regulation) Order 1988; Solvent Extracted Oil, De-Oiled Meal and Edible Flour (Control) Order, 1967; Milk and Milk Products Order, 1992 etc repealed after commencement of FSS Act, 2006. The Food Safety and Standards Regulations, 2011 has been notified in the Gazette of India dated 1st Aug 2011 and these regulations are in force. The regulations on pesticide residues in foods are as per the Food Safety and Standards (contaminants, toxins and residues) Regulations, 2011, and the Tolerance Limits, otherwise called as Maximum Residues Limits (MRLs) are prescribed for various pesticides on crops based on GAPs and Risk analysis.

The Codex Alimentarius Commission (which means 'food code' in Latin) establishes a code of food standards for all member nations of WTO for international trade. It was created by two UN organizations, the FAO and the WHO and has committees covering many aspects. Pesticide residues in food are dealt with by the Codex Committee on Pesticide Residues that work on scientific approvals made by the independent expert panel, the Joint FAO/WHO Meeting on Pesticides Residues (JMPR).

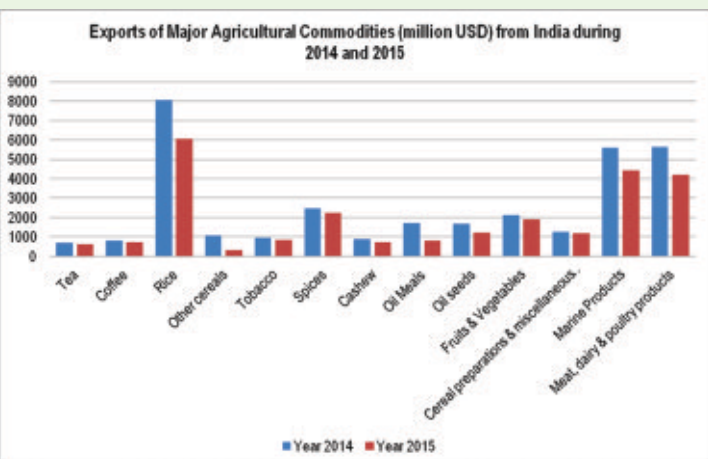
Residue monitoring plays vital role to understand the pesticide residues in food so as to understand, deal, manage and regulate the pesticide residues in foods through implementation of good practices. Indian Council of Agricultural Research (ICAR) through All India Network on Pesticide Residues has generated data on residues in various food commodities since 1983, and on the recommendation of Joint Parliamentary Committee (JPC) on Pesticide Residues during 2003, the Department of Agriculture and Cooperation (DAC), Ministry of Agriculture has initiated the central sector scheme, "Monitoring of Pesticide Residues at National Level" during 2005-06 involving Ministry of Agriculture, Ministry of Health, Ministry of Chemicals and Fertilizers, Ministry of Commerce, Ministry of Environment and Forest and State Agricultural Universities, and The



Project Coordinating Cell, AINP on Pesticide Residues, IARI, New Delhi of ICAR as Nodal Centre. NIPHM is one of the participating laboratories under MPRNL scheme since 2013. The scheme involves monitoring and analysis of pesticide residues in agricultural commodities in different agro-ecological regions of the country to address the concerns for food safety and impact of pesticide residues on India's food and agricultural trade. The data generated through the project is helpful for governmental interventions such as Integrated Pest Management and other suitable measures in regions of high prevalence of pesticide residues, and also help the authorities at various levels to sensitize the stake holders on pesticide use / safe use, pesticide residue and food safety, and regulatory issues related to pesticide residues.

**Food Exports from India**

Understanding pesticide residue limits is very important for food exports to any country and hence good agricultural practices plays vital role in containing residues and promoting Indian foods in international trade. India is the leader in exports of commodities such as spices, chilli power, tea, coffee, fresh vegetables, and Indian farmers' gains good fame and price for their commodities.



During 2015 (Jan-Nov), 6045 million USD worth of rice, 2257 million USD worth of spices, 1909 million USD worth of fresh fruits and vegetables, 745 million USD worth of cashew and coffee, each and 639 million USD worth of tea was exported to various countries. The data presented below shows the value of major agricultural commodities exported during 2014 and 2015.

**Pesticide Residues in Foods exported to USA and Alert Notices:**

The food exports are tested for pesticide residue

contamination prior to shipment, and importing country also do tests for contamination. Once the food pass food safety tests, the food is allowed to sold in the market. The food production in organized sectors such as grapes, tea, coffee, seed spices is usually followed as per the GAPs recommended by the importing country, but the production of rice, red chillies, vegetables is distributed along all agro-climatic zones and area, through small farms and farmers, and hence following GAPs, with special reference to use of pesticides, is many times difficult. The food test reports are published in public domain of importing country, and hence, repeated alerts on particular food from India not only lead to consumer non-preference, but also credibility of source of the product in international trade. USFDA issued import alert # 99-05 on “Detention without physical examination of raw agricultural products for pesticides” covering specific growers / shippers, and alert # 99-08 on “Detention without physical examination of processed foods for pesticides”. The following are some of the alert notices issued by USFDA on various food products (raw and processed) imported from India during 2010-2015.

Name of the product	Alert date	Pesticide
Andhra rawa, boiled rice	07/05/2014	Acephate, Carbendazim, Methamidophos
Andhra rawa, boiled rice	07/05/2014	Acephate, Methamidophos, Carbendazim
Andrographis extract	11/07/2013	Indoxacarb
Bacomind, herbal extract	28/06/2013	Tricyclazole
Bacopa extract	23/09/2013	Tricyclazole, Triazophos, Chlorpyriphos
Bacopa minnifera extract	08/07/2013	Tricyclazole
Beans, cluster	04/06/2014	Ethion, Monocrotophos
Beans, Corn, Pea & Vegetables	31/05/2012	Ethion, Tebuconazole
Beans,surtipapadi,frozen	21/03/2012	Chlorpyriphos
Beans,surtipapadi	21/03/2012	Chlorpyriphos
Beans.Corn,pea,vegetables	08/06/2011	Profenophos,Monocrotophos,3hydroxy carbofuran
Beans.Corn,pea,vegetables	17/05/2012	Ethion
Bittergourd,blanched	30/03/2013	Dimethoate,Acephate
Blanched avail mix	11/08/2014	Triazophos
Blanched sambar veg mix	20/04/2013	Ethion, Triazophos
Bread / rolls/ buns(Pillsbury)	25/02/2013	Triazophos
Brown bean, red chori	01/11/2013	Oxadiazon
Chick peas, dried	16/10/2013	BHC, alpha
Chilli, green whole	11/02/2013	Triazophos
Coleus forskoli extract	28/05/2013	Carbofuran
Drumstick	31/01/2014	Cypermethrin
Drumstick, frozen	28/04/2014	Methamidophos
Gokshura powder, organic	20/08/2013	Carbofuran
Gooseberry	08/03/2013	Monocrotophos

Name of the product	Alert date	Pesticide
Gooseberry	06/08/2013	Carbendazim
Gooseberry, fresh, frozen	01/09/2015	Carbendazim
Gotu kola (Herbals)	02/09/2011	Carbendazim
Gram, roasted	05/05/2013	Quinalphos, Profenophos, Triazophos
Indian coleus forskoli extract (herbals)	04/02/2011	Carbendazim
Lentils, chora dal	01/11/2013	Carbendazim
Mango, cut, green, frozen	11/08/2014	Carbendazim
Mango, pulp	11/02/2013	Carbendazim
Mixed vegetable	14/05/2013	Ethion
Moringa leaf powder	14/08/2012	Permethrin
Moringa, leaf power	18/11/2013	Permethrin
Mushrooms	06/07/2015	Carbendazim
Mushrooms, canned	12/06/2012	Carbendazim
Mushrooms, sliced	28/06/2011	Chloroprotham
Mushrooms, sliced	28/06/2011	Chloroprotham
Neera brahmi extract (herbals)	02/04/2015	Chlorpyrifos
Okra	01/10/2010	Monocrotophos
Okra	14/05/2013	Monocrotophos
Okra, cut	13/06/2013	Acephate, Monocrotophos
Okra, cut bhendi	16/09/2012	Endosulfan, Monocrotophos
Palak paneer	12/04/2012	Profenophos
Palak, leaves	11/02/2013	Chlorpyrifos
Pigen peas	17/05/2012	Ethion
Pomegranate, juice	28/05/2015	Carbendazim
Potato snacks (haldiram)	31/03/2015	Ethion
Psyllium, seed husk	07/06/2011	Carbendazim, Imidacloprid
Psyllium, seed husk	16/04/2013	Carbendazim
Raisins	04/03/2011	Methamidophos
Rava, idli, instant mix	31/07/2012	Triazophos
Rava, idli, instant mix	31/07/2012	Triazophos
Rava, idli, instant mix	31/07/2012	Triazophos
Rava, idli, instant mix	15/07/2014	Triazophos
Rice	20/03/2012	Buprofezin
Rice, basmati	11/04/2012	Carbendazim
Rice, basmati	18/05/2012	Isoprothiolane
Rice, basmati	07/11/2012	Isoprothiolane
Rice, basmati	07/11/2012	Buprofezin
Rice, basmati	29/11/2012	Buprofezin
Rice, basmati	12/12/2012	Buprofezin
Rice, basmati	14/12/2012	Isoprothiolane
Rice, basmati	18/12/2012	Triclosan, Carbendazim
Rice, basmati	28/12/2012	Isoprothiolane, Buprofezin, Carbendazim
Rice, basmati	11/02/2013	Carbendazim, nIsoprothiolane
Rice, basmati	30/04/2013	Isoprothiolane
Rice, basmati	21/06/2013	Imidacloprid, Buprofezin
Rice, basmati	10/03/2014	Imidacloprid

Name of the product	Alert date	Pesticide
Rice, basmati	13/08/2015	Carbendazim
Rice, basmati	02/09/2015	Buprofezin, Tebuconazole, Isoprothiolane
Rice, basmati, brown, organic	06/01/2016	Buprofezin, Tebuconazole, Isoprothiolane
Rice, basmati, white	19/08/2014	Isoprothiolane
Rice, brown basmati	04/08/2014	Buprofezin, Isoprothiolane
Rice, idly rice	21/07/2014	Triazophos
Rice, masoori	04/10/2013	Methamidophos, Buprofezin
Rice, plain	14/02/2013	Ethoxyquin, Carbendazim, Pirimiphos-methyl
Rice, ponni	03/09/2015	Buprofezin
Rice, ponni, boiled	17/09/2015	Tebuconazole
Rice, ponni, raw	11/07/2014	Buprofezin
Rice, samba masoori	25/06/2014	Acephate, Methamidophos, Imazalil, Carbendazim
Rice, sona masoori	30/07/2010	Pirimiphos methyl
Rice, sona masoori	14/10/2011	Isoprothiolane, Buprofezin
Rice, sona masoori	14/06/2012	Isoprothiolane
Rice, sona masoori	10/12/2012	Methamidophos, Buprofezin
Rice, sona masoori	28/12/2012	Buprofezin
Rice, sona masoori	20/02/2013	Methamidophos, Buprofezin
Rice, sona masoori	24/04/2013	Methamidophos
Rice, sona masoori	09/07/2013	Methamidophos
Rice, sona masoori	01/04/2014	Buprofezin, Methamidophos
Rice, sona masoori	01/04/2014	Buprofezin, Methamidophos
Rice, sona masoori	28/05/2014	Buprofezin, Methamidophos
Rice, sona masoori	04/06/2014	Buprofezin
Rice, sona masoori	24/07/2015	Buprofezin
Rice, sona masoori	03/09/2015	Buprofezin
Rice, sona masoori	13/10/2015	Chlorpyrifos, Buprofezin, Isoprothiolane
Rice, sona masoori	05/11/2015	Fenobucarb, Buprofezin
Rice, sona masoori	11/12/2015	Clothianidin, Tebuconazole
Rice, sona masoori, brown	11/12/2015	Clothianidin, Tebuconazole
Rice, white ponni	12/04/2014	Buprofezin
Sesame, seed	07/11/2012	Endosulfan sulphate
Sesane oil, idhayam	28/07/2014	Malathion
Soybean powder	16/10/2013	Endosulfan
Soybean, powder	17/05/2011	Endosulfan
Spinach	17/05/2011	Profenophos
Spinach	26/04/2013	Chlorpyrifos
Spinach, palak, frozen	17/05/2011	Profenophos
Toordal (lentils; pigeon peas)	01/03/2011	Chlorpyrifos
Tribulusterrestris extract	10/10/2013	Acetamiprid, Carbendazim, Clothianidin, Tricyclazole, Permethrin, Thiamethaxam, Imidacloprid
Tribulusterrestris extract	19/11/2013	Carbendazim, Ethion, Imidacloprid, Tricyclazole, Acetamiprid, Thiamethaxam, Clothianidin
Tulsi, extract (basil)	28/06/2012	Fenvalerate

Similarly, different countries issues alert notices based on the test reports, so as ensure the safety of their people through safe food supply. In some cases, such as European Union, many nations come together to formulate common standards for pesticide residue in various foods, besides individual country standards, to aid the trade in foods for supply of safe food to the customers. EU through RASFF (The Rapid Alert System for Food and Feed) database keeps its information as transparent as possible to the consumers, business operators and authorities around the world.

These alerts lead to serious implications on Indian food exports such as changes in customer preferences towards other nation's foods, reduction in Indian foods exports, ultimately loss to farmers. The promotion of Indian foods in international trade is very essential for the benefit of Indian farmers.

#### Pesticides Residues and Good Agricultural Practices

The pesticide residue issues can be solved through different practices at farm level. The residue levels on agricultural commodities should be below MRLs, and this can be achieved successfully by following GAPs suggested by the importing countries in some cases, and in most cases, by following the GAPs recommended by ICAR, SAUs based on the Insecticide Act, 1968 so that the residues in the foods does not cross the tolerances limits set by FSSAI. Residues remaining in or on plants are often unavoidable even when the pesticide has been applied according to Good Agriculture Practice (GAP). Residue trials are necessary to determine the level of residue and thus any potential harm to humans and animals. Supervised residue trials should be designed so that the highest likely residues are present e.g. by using the highest application rate and shortest pre-harvest interval (PHI) consistent with the GAP to mimic possible worst case scenarios. Trials also need to be conducted in different locations and in more than one season to take account of environmental and climatic variations. Practices of following recommended pesticides at recommended doses, following Pre-Harvest Intervals (PHIs) does not result in presence of pesticide residues above tolerance levels on foods.

Educating farmers through media, trainings, and interactions is an important tool. Understanding the implications of pesticide residues present in foods is an essential principle to formulate strategies for popularization of GAPs in different crops.

The issue of pesticide residues can also be tackled through identification of residue free areas, formulation of groups / societies of farmers growing similar crops intended for export or with export potential for regular trainings and information updates on standards set by importing countries. The Government of India has taken lead in strengthening the residue testing laboratories across the country and the data generated during last decade made a way to understand the crops on which the frequency of

residues is high, and also areas / locations / states where the residues exceeding the limits. Ministry of Agriculture and Farmers Welfare informing the state governments regularly to take initiatives to manage the pesticide use in different crops based on the data generated across the country through MPRNL project.

The government organizations such as The Agricultural and Processed Food Products Export Development Authority (APEDA), Spices Board, Export Inspection Council of India (EIC) are also aiding export promotions through forming strategies, networking (Hortinet, Peanut Net, Meat Net, and training the growers, exporters, updates on changes in regulations of importing countries, dispute resolving at international levels, research on contentious issues to find out the root cause of the problems, inspections prior to exports, brand promotion at international level etc.

The issues of pesticide residues on foods is very crucial to deal in integrated manner with the help of farmers, researchers, traders, policy makers, legal bodies, testing experts, importing countries, active participation at international trade and policy bodies, for promotion of Indian foods at international level. India with vast ecological and agro-climatic zones, blessed with seasons and scope for growing any type of crops, can grow as leader in agricultural exports international trade for the benefit of farming society through safe food supply for the welfare of consumers across the globe

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- US-FDA Import Alert #99-08 on "Detention without physical examination of processed foods for pesticides" at [http://www.accessdata.fda.gov/cms\\_ia/importalert\\_259.html](http://www.accessdata.fda.gov/cms_ia/importalert_259.html)
- Major uses of pesticides (Insecticides, Fungicides, Herbicides, Plant Growth Regulators, Biopesticides) as per Insecticide Act, 1968, at <http://www.cibrc.nic.in/>



### Special Event - Convocation of PGDPHM (Kerala- Off campus) programme

The convocation for the 1<sup>st</sup> Batch of Post-Graduation diploma in Plant Health Management (Off-campus- PGDPHM- 2013-15) & Inauguration of 3<sup>rd</sup> Batch PGDPHM- (2015-17) Kerala were conducted at State Agricultural Management Extension Training Institute (SAMETI), Tirvanthapuram, Kerala on 15th February, 2016. The function was presided by Shri. K.P. Mohannan, Hon. Minister for Agriculture as chief guest and Mrs. V. Usha Rani, IAS, Director General, NIPHM as Guest of Honor. Director General, NIPHM distributed the diploma certificates to the successful participants. Dr. K. Vijayalakshmi, (Director PHM, NIPHM) presented the report on PGDPHM course. The following dignitaries Shri. Dr. Rajasekharan (Chief –Agriculture, State Planning board), Shri. Ashokkumar Thekkan (Director of Agriculture), Shri. Ajithkumar (Director, PPM Cell) had given special address to the gathering. The programme was also attended by many delegates of agriculture departments. Total 28 agriculture officials were graduated and three rank holders (1<sup>st</sup> rank: Mrs. Smitha; 2<sup>nd</sup> rank: Mrs. Mini and 3<sup>rd</sup> rank : Dr. Jomy Jacob) were awarded with medals.



### Special Event - Plant Quarantine and Phyto-sanitary Treatments (18<sup>th</sup> -22<sup>nd</sup> January, 2016)

Plant Quarantine is the first line of defense in Plant Protection. The global movement of plants and plant material has a primary requirement of pest freedom. Hence, the Phytosanitary measures are required to be in place to prevent the entry of exotic pests into the country thereby saving the agricultural economy from the ravages in these pests.

NIPHM organized a training programme on Plant Quarantine and Phytosanitary treatments for the officials of Ministry of Agricultural Development, Nepal from 18<sup>th</sup> -22<sup>nd</sup> January, 2016. Along with twelve officials from Nepal, two Indian officials were trained on various aspects of Plant Quarantine, International Regulations, Biosecurity concepts, Phytosanitary Measures and Phytosanitary treatments including fumigation and forced hot air treatment.



### New initiatives

A five day training programme on **“Preparation of Laboratory as a Proficiency Test Organizer for Pesticide Residue by following ISO 17043-2010”** was organized from 11<sup>th</sup> to 15<sup>th</sup> January, 2016 in collaboration with EU-Capacity Building Initiative for Trade Development in India (CITD), APEDA and NIPHM under Technical Assistance Information Exchange Instrument (TAIEX) of European Commission and 11 participants including two officials from EIA, Kochi and Kolkata were trained. The Participants gained the knowledge and skills in conducting the Proficiency testing programme as per International standards and also statistical methods which involve in Proficiency Testing programme.





### Participation in Krishi Unnati Mela at Pusa Campus, New Delhi

'Krishi Unnati Mela' was organized jointly by the DAC & FW, Ministry of Agriculture and Farmers Welfare, Government of India and Indian Agriculture Research Institute (IARI), Pusa, New Delhi at Indian Agriculture Research Institute from March 19-21, 2016. Hon'ble Prime Minister Shri Narendra Modi inaugurated 'Krishi Unnati Mela'- the National Level Agriculture Fair-cum-Exhibition at IARI, New Delhi.

National Institute of Plant Health Management, Hyderabad participated in the fair-cum-exhibition. Activities of all divisions viz. Plant Biosecurity, Plant Health Management, Pesticide Management and Plant Health Engineering were exhibited with live demonstrations. Smt. V. Usha Rani, IAS, Director General, NIPHM, Dr. N. Sathyanarayana, Director (Plant Biosecurity), Dr. O. P. Sharma, Joint Director (PHM), Dr. C. S. Gupta (ASO) and Dr. Sunanda Patil (ASO) participated in the event. Farmers enquired about the use and availability of fruit fly bottle traps and they were very enthusiastic and curious to know about the low cost technologies developed by NIPHM. More than 10,000 visitors witnessed institutes activities and about 8,000 leaflets were distributed on their requests. Leaflets (Hindi) describing easy methods for on-farm mass production of biopesticides, fruit fly bottle trap were distributed to the visiting farmers, scholars, scientists, entrepreneurs and others. Some of the farmers have also given their address to get information on various activities and training programmes conducted by NIPHM.

Hon'ble Union Agriculture and Farmers' Welfare Minister Shri Radha Mohan Singh, visited the NIPHM stall and appreciated the efforts to showcase various activities of NIPHM. The event of participation of NIPHM was appreciated by all sectors and created good awareness about various low cost technologies developed by NIPHM among the farmers.



### Inauguration of Vermicompost Production Unit at NIPHM

In organic cultivation vermicomposting plays an important role in improvement of soil health and fertility. NIPHM constructed the modern vermicomposting unit with cost of Rs. 3.74 Lakhs. The objective is to train the extension officials, so that they will be able to train the farmers in mass production of vermicompost and vermiwash. Mrs. V. Usha Rani, I.A.S, DG NIPHM inaugurated a newly constructed vermicomposting unit on 11.01.2014. The unit has four tanks with capacity of producing 5-7 tons of vermicompost.





## Capacity Building

### Phytosanitary Treatments - Fumigation (MBr & ALP) 11<sup>th</sup> - 25<sup>th</sup>, January, 2016:

NIPHM is one of the notified Institutes under Insecticides Rules 1971 Chapter III -10, (3a) (iii) for imparting training for commercial pest control operators on fumigation using Methyl bromide and Phosphine. The training provides hands on experience on Methyl Bromide and Aluminium Phosphide fumigation, handling of equipment involved in fumigation, and various safety precautions while doing the fumigation process. Twelve participants were attended the training and learnt the use of approved fumigants, their physical and chemical properties, mode of action and safety precautions to be followed while handling fumigants, principles of fumigation, monitoring the fumigant concentration, appropriate use and maintenance of fumigants, and accreditation procedures for Methyl Bromide and Phosphine fumigation. The participants had hands-on experience on use of safety equipment, fumigation equipment and calibrations to improve their skills and competency in doing Methyl Bromide and Phosphine fumigation.



### Plant Quarantine: National regulations and Procedures and Plant Quarantine procedures for Import and Exports (01<sup>st</sup> -05<sup>th</sup>, February, 2016):

The liberalization of trade in the post WTO scenario has opened up new avenues for international trade in agricultural commodities. One of the main components in the international trade of agricultural commodities is application of Biosecurity and quarantine rules and procedures, by exporting and importing countries.



The PQ rules, procedures and degree of implementation vary in specificity and protocols from country to country. Proper understanding and following the procedures reduces the chances of consignment rejections, penalties and non-

A five day training programme on 'Plant Quarantine Procedures for Imports and Exports' and 'Plant Quarantine: National regulations and Procedures' was organized from 01<sup>st</sup> - 05<sup>th</sup>, February, 2016 and nine participants from the States of Gujarat, Tripura, Uttarakhand and Odisha and five private industry participants were trained. The participants learnt topics related to SPS and Technical Barriers, International conventions, National Regulations, SOPs on imports and exports. Practical scenarios on procedures for import/export of seeds, plants, bulbs, grains, fruits, GMOs, germplasm and bio-control agents were organized.

### Fundamentals of Plant Biosecurity (08<sup>th</sup> -12<sup>th</sup> February, 2016):

Agriculture, horticulture and forestry are the areas affected by the invasion of new exotic plant pests and causing significant economic damage to production as well plant biodiversity. Rapid globalization and advancements in transport, travel, tourism coupled with liberalization of trade pose increased risk of introduction of exotic and invasive pests into the country.

The main objective of this 5 days training was to orient the officials on the basic concepts related to Plant Biosecurity, International and national regulations, Plant Quarantine procedures for import of agricultural commodities and impact of introduced plant pest and exotic pest threats. Nine officials from the States of Tamil Nadu, Uttarakhand, Andhra Pradesh and Maharashtra were trained.

### Forced Hot Air Treatment (FHAT):

The packaging material is one of the most threatening pathways for incursion of timber pests across the globe. Forced Hot Air Treatment (FHAT) is one of the approved treatments for packaging material under ISPM -15. National Standard for Forced Hot Air Treatment (NSPM-9) has been developed which prescribes treatment procedures and the steps to register the facility. It is essential to certify the FHAT facilities to ensure that wood packaging material is treated and marked in consistence with the provisions of ISPM -15. NIPHM is the only Institute in India to offer a specialized



training programme on FHAT for industry stakeholders. One training programme was conducted from 08<sup>th</sup> -12<sup>th</sup> February, 2016 and thirteen participants from the States of Gujarat, Maharashtra, Telangana, Kerala, Tamil Nadu, Andhra Pradesh, New Delhi, Punjab and Haryana were

## Capacity Building

trained.

The topics covered included critical requirements for establishing FHAT facilities, calibration of sensors, placement of sensor, identification of coolest point, safety precautions, conducting the treatments, use of appropriate mark and record keeping in accordance with ISPM – 15 and NSPM – 9. The participants also learnt the pests associated with wood packaging materials.

### **Plant Biosecurity and Incursion Management (09<sup>th</sup> -29<sup>th</sup> February, 2016) :**

Rapid globalization and advancements in transport, travel, tourism coupled with liberalization of trade pose increased risk of introduction of exotic and invasive pests into the country. Alien plant pests which gained entry into India are causing significant economic damage to agricultural production.



The training of 21 days duration provided exposure to participants in biosecurity concepts, impact of invasive alien species and exotic pest threats. The participants learnt various strategies that can be employed along the biosecurity continuum viz.,

- Pre border - off shore inspection, certification and treatments, PRA & quarantine regulations.
- Border/entry point - application of quarantine regulations, inspection, sampling, testing and treatment
- Post border- regulations for growing in post entry quarantine facilities, pest surveillance, exotic pest monitoring, containment and/or eradication of pests.

The participants were familiarized with the decision making tools such as Pest Risk Analysis to identify potential pests of concern to India, importance of pest listing and pest database, risk management measures, Diagnostic techniques and protocols for regulated pests. The significance of pest surveillance, and pest risk analysis in securing market access for Indian agricultural commodities was highlighted.

The mock exercises during the programme enabled the participants to improve their skills in understanding and

carrying out Pest Risk Analysis, emergency response in the event of new pest reports, use of Pest Risk Analysis to analyse the cost-effectiveness of eradication / containment programme.

### **Pest Risk Analysis (15<sup>th</sup> -19<sup>th</sup> February, 2016):**

Pest risk analysis (PRA) is a science based tool to tackle the alien pests of concern to any nation while facilitating international trade. PRA is a process which helps to assess the risks of entry, establishment, spread & impact potential of exotic pests. PRA identifies phytosanitary measures to prevent the introduction of entry of an exotic pest. The international standards brought out by IPPC serve as guidance for carrying out PRA. Thirty four participants from the States of Gujarat, Kerala, Andhra Pradesh, Punjab, Karnataka, Tamil Nadu, New Delhi, Madhya Pradesh, Uttarakhand, Maharashtra and Odisha were trained.

### **Emergency Preparedness and Plant Pest Incursion Management (22<sup>nd</sup> -26<sup>th</sup> February, 2016):**

The liberalization of trade in the post WTO scenario has opened up new avenues for international trade and this leads to a growing risk of incursions of harmful exotic organisms. There is a need for legal and institutional framework that clearly mandates basic aspects of prevention & management of invasive alien species. In order to create awareness among the different stakeholders, Emergency Preparedness and Plant Pest Incursion Management training was organized from 22<sup>nd</sup> to 26<sup>th</sup> February, 2016.

Sixteen officials from the States of Haryana, Jammu & Kashmir, Kerala, Karnataka, Uttarakhand, Maharashtra and Andhra Pradesh were trained and the participants learnt various basic incursion management strategies for the prevention, preparedness, response and recovery functions associated with an exotic, or major endemic plant pest or disease outbreak in India.

### **Stored Grain Pest Management for FCI and CWC Officials (07<sup>th</sup> -11<sup>th</sup> March, 2016):**

India is witnessing a record grain production in the recent years and the godowns are overflowing and warehouse management has become a tough task. The mere presence of insects, even dead, like that of Khapra beetle, results in serious setback in international trade of stored grains and products. The domestic management is also of serious concern especially in the context of food security requirement.

An exclusive programme of 5 days duration was organized for officers of Food Corporation of India (FCI) and Central Warehousing Corporation (CWC) from 07th - 11th March, 2016. Fifty two participants from Telangana, Kerala, Karnataka, Tamil Nadu, Chhattisgarh, Maharashtra, Odisha, Andhra Pradesh, Uttar Pradesh and Bihar were retrained.



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The participants learnt the importance of stored grain pest



management in the context of national food security and global grain trade. The trainees also learnt methods of detection of various stored grain insect pests by employing appropriate identification tools, use of pheromones and traps. The significance of Systems Approach in managing the food grains was explained. Participants conducted practical fumigation exercise using Phosphine as per NSPM-22.

### Pest surveillance (10<sup>th</sup> to 17<sup>th</sup> March, 2016):

Pest surveillance provides insights into the health status of a country's agriculture and strengthens preparedness for preventive actions both in addressing the problems due to domestic pests of serious concern as well as in protection of native agricultural biodiversity from the incursion threats of exotic pests. Surveillance also provides vital information for development of robust quarantine policies and also facilitates early detection of invasive alien species which is very essential for their eradication. Establishment of pest free areas and areas of low pest prevalence to gain market access can be achieved only through well designed pest surveillance programmes.

NIPHM organized Pest Surveillance training from 10<sup>th</sup> to 17<sup>th</sup> March, 2016 and trained 23 participants representing Odisha, Karnataka, Gujarat, Manipur, West Bengal, Punjab, Uttarakhand, Tamil Nadu and New Delhi. The participants learnt various pest surveillance strategies such as detection, monitoring and delimiting surveys. The participants learnt tools required for surveillance of target pests and the procedures for establishment of Pest Free Areas to gain Market Access. The participants learnt about various lures

and traps for carrying out fruit fly surveillance for monitoring as well as for area-wide control.



### Off-campus workshop on fruit fly Management in Mango fields:

Tephritid fruit flies are responsible for losses in fresh produce as well as considered as major impediment in export of economically important fruits and vegetables. Mango is an important fruit being exported from India to other countries and fruit flies are the major constraint for export. NIPHM organized three off-campus work shop on 'Fruit fly Management in Mango fields' for the mango growers in Andhra Pradesh, Maharashtra and Uttar Pradesh. Around 1500 farmers were trained from these 3 states on the preparation of low-cost bottle trap and lures for management of fruit flies infesting Mango.



### Farmers Field School (FFS) Methodology:

The training on Farmers Field School (FFS) Methodology was organized at NIPHM from 6<sup>th</sup> to 10<sup>th</sup> January, 2016. The programme was attended by 4 participants from Department of Agri. Tripura, UP and J& K States. During the training course, participants were imparted exposure to enhance knowledge and skill in Agro Ecosystem Analysis



## Capacity Building

(AESA), Ecological Engineering for PHM, Mass production of biopesticides, predators & parasitoids, on-farm production techniques of Biocontrol Agents, Mycorrhiza, field observations, etc.

**Induction Training:**

NIPHM and MANAGE, Hyderabad have jointly initiated induction training programme to newly recruited Agricultural / Horticultural extension officers. The programme is designed with various aspects of Plant Health Management with special focus on farm level mass production of biocontrol agents, bio-pesticides and mycorrhiza bio-fertilizers, principles of biosecurity and extension management skills, marketing, work ethics, etc. The duration of the training programme is of two weeks (8 days at NIPHM and 5 days at MANAGE). During the quarter, the training programme was organized from 15<sup>th</sup> to 27<sup>th</sup> February, 2016. The programme was attended by 20 newly recruited Agricultural Officer from Department of Agriculture, Tamil Nadu.

**Training to Farmers Producer Organizations (FPOs):**

Recently, NIPHM has initiated support to Farmers Producer Organizations (FPOs) by forging linkage with Small Farmers Agribusiness Consortium (SFAC) to train the representative farmers in the low cost on-farm production of biocontrol agents & microbial biopesticides and biofertilizers to promote sustainable agriculture. In this regard, NIPHM has offered training to FPOs and organized second training programme from 30<sup>th</sup> March to 1<sup>st</sup> April 2016. A group of 38 farmers representing various FPOs in the States of West Bengal, UP, MP and Maharashtra was trained for 3 days at NIPHM. The participants were facilitated and funded by *Indian Gramin Services, Hyderabad* - an NGO working with farmers and rural communities.

**Training programme on Integrated Pest Management on Paddy from 07.03.2016 to 09.03.2016 (3 days) and Pulses from 21.03.2016 to 23.03.2016 (3 days):**

The training programmes were conducted for 73 senior officers from Government of Tamil Nadu on IPM in paddy

and pulses. They were educated on concepts of pest management i.e. Agro-ecosystem Analysis (AESA) and Ecological Engineering (EE). They were imparted training on mass production of host insect, *Corcyra*. Aspects on biological control agents such as *Trichogramma*, Reduviid bug, Coccinellids were trained to them. They were imparted training on microbial bio pesticides such as *Trichoderma*, *Pseudomonas* also on bio fertilizers (Mycorrhiza). Further, the officers were trained in Vermicompost preparation, seed treatment with microbial bio pesticides (bio priming), rodent pest management, identification of plant parasitic nematode etc.

**Refresher Training Programme to Agri-entrepreneurs in "on farm production of biocontrol agents and Microbial biopesticides (5 programmes from January to March 2016):**

In collaboration with MANAGE, five refresher training programmes were conducted to Agri entrepreneurs for 5 days in "on farm production of biocontrol agents and Microbial biopesticides" from January – March 2016 (18.01.2016 to 22.01.2016, 01.02.2016 to 05.02.2016, 08.02.2016 to 12.02.2016, 29.02.2016 to 04.03.2016 and 14.03.2016 to 18.03.2016) to expand their agribusinesses and enter into new areas of entrepreneurship. In these training programmes, a total of 146 participants were given hands-on experience on mass production of various parasitoids (*Trichogramma*, *Brcon*, *Chelonus blackburnii* etc.), predators (*reduviids*, *coccinellids*, *Chrysoperla* etc.) and microbial biopesticides (*Trichoderma*, *Pseudomonas*) and biofertilizers. They were also trained in vermicompost preparation, seed treatment with microbial biopesticides (biopriming), pesticide application techniques, rodent pest management, fruit fly trap and lure preparation. In addition, they were acquainted with the new concepts of pest management i.e. AESA based PHM in conjunction with Ecological engineering for pest management.





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**Refresher training course in production methodologies, quality control protocols of biocontrol organisms (17<sup>th</sup> to 24<sup>th</sup> March 2016):**

One eight days refresher training programme was conducted for officers (AD's & AO's) of Telangana State bio control labs on "production methodologies, quality control protocols of biocontrol organisms" from 17<sup>th</sup> to 24<sup>th</sup> March 2016. The trainees were provided hands on experience on mass production of different parasitoids, predators, microbial biopesticides and entomopathogenic nematodes (EPN). The various skills imparted were, mass rearing of host Insects (*Helicoverpa*, *Spodoptera*) for production of NPV; *Corcyra* for production of *Trichogramma*, *Chelonus blackburni*, *Goniozus nephnatidis*, *reduviids*, *coccinellids*, *Mallada*, *Chrysoperla* etc., preparation of neem seed kernel extract (NSKE); mass production of *Trichoderma* spp., *Metarhizium* sp., *Beauveria* sp., *Verticillium* sp., *Pseudomonas* sp., *Bacillus* spp., etc.; preparation of mother cultures for biopesticides; Isolation and mass multiplication of EPN and techniques for development of bioformulations.

In addition the trainees were provided with hands-on practices for quality analysis on quality standards such as testing of *Helicoverpa armigera* Nuclear polyhedrosis virus (HaNPV), *Trichoderma*, *Pseudomonas*, Entomopathogenic fungi, etc. This included both microscopic counts as well as bioassay methods for assessing quantity. A total of 14 officers were trained in this programme.

**Training on 'mass production and application of EPN for root grub management in sugarcane:**

Sugarcane is a commercial and industrial cash crop grown across many states in the country. Every year it suffers seriously from many pests, of which white grub is economically important. It has threatened the sugar bowl of many states and became a major concern for many growers and scientists. Among the microbial bio-control agents used for insect pest management, Entomopathogenic (EPN) nematodes are such bio control agents that parasitize insects and kill the insects. In view of this, NIPHM has used entomopathogenic nematodes in vitro and in vivo against many economically important insect pests and found very effective especially, for the root grub management in sugarcane. To popularise the technology among farmers, training programmes are offered to Extension officials and progressive farmers on mass production and use of Entomopathogenic nematodes against white grub in sugarcane. During the quarter, two training programmes were organized in the month of January and March 2016. Total 38 participants have attended these programme and learnt mass production and application of EPN in sugarcane.

**Appropriate Pesticide Application Techniques and Farm Level Storage Structures (18<sup>th</sup> – 25<sup>th</sup> January 2016):**

Appropriate pesticide application techniques and equipment selected for applying pesticides plays very important role in the success of pest control operations. This complex process requires a high level of knowledge and understanding, practical skills, well maintained and calibrated equipment, and probably most importantly a desire or will to protect the environment. The main purpose of pesticide application technique is to achieve maximum efficacy with minimum side effects on non – target organisms. The knowledge on farm level storage structures enhances the farmers to safely store the produce and also can sell it when there is a better market price. 31 participants from various states were attended the training programme. The participants gained knowledge on use of high volume, low volume and ultra – low volume spraying techniques, nozzle selection, and calibration of the equipment, storage problems of food grains at commercial / farm level. The participants have also learnt the importance of suitable equipment selection, operation of the equipment, selection of suitable nozzles and calibration of the sprayers. Institutional visits of IGMRI and FCI, Cherlapally was also organized to show different storage structures, method of storage and construction specifications of godowns.

**Safe and Judicious Use of Chemical Pesticides (01<sup>st</sup> - 08<sup>th</sup> March 2016):**

Pesticides are poisonous substances and cause harm to many living organisms. Therefore their use must be very judicious. The application techniques ideally should be target oriented so that safety to the non – targets and the environment is ensured. Spray drift and the risks associated with the application of pesticides in agriculture are attracting increasing attention. NIPHM organized a training programme on safe and judicious use of chemical pesticides from 1<sup>st</sup> to 8<sup>th</sup> March, 2016. Total of 17 participants from 5 states were attended the training programme. Participants were trained on various aspects like appropriate selection of spraying techniques such as high, low and ultra- low volume, proper selection of nozzles and dosage requirements, pesticide formulation and their properties, quality control of pesticides, judicious use of rodenticides, safe use of pesticides and precautions to be taken while spraying and

## Capacity Building



storage of pesticides. Practical sessions were organized on application techniques, selection of suitable nozzles, calibration of the sprayers, and their operation. An Institutional visit to ICRISAT was organized to get acquainted with different farm equipment.

**Pesticide Formulation Analysis (PFA):**

The training programme on Pesticide Formulation Analysis was organized from 15<sup>th</sup> March, 2016 to 19<sup>th</sup> May, 2016 wherein nine participants were trained. The participants were imparted knowledge to the concepts of pesticide management, various sections and rules under Insecticide Act, 1968 & Rules 1971, procedures for implementation in enforcement, pesticide formulations and their physico-chemical properties, principles of volumetric analysis and various types of titrations, volumetric and instrumental methods of analysis for quality control of pesticides. The participants were provided hands on experience in analysing pesticides using the modern analytical instruments as per the latest Bureau of Indian Standards (BIS) and Registration Committee (RC) approved methods of analysis. The participants were also acquired skills in operation and maintenance of UV-Vis & FT IR spectrophotometers, Gas chromatographs and liquid chromatographs.

**Inspection Sampling and Prosecution Procedures under Insecticide Act 1968:**

The training programme on Inspection Sampling and Prosecution Procedures under Insecticide Act, 1968 was organized from 03<sup>rd</sup> to 08<sup>th</sup> February, 2016 and 20 participants were attended. The participants were learnt salient features of the Insecticide Act, 1968, Insecticide

Rules 1971, duties and responsibilities, procedures for collection of samples, methods of analysis of various pesticides, interpretation of Analytical Reports and procedures for prosecution including the evidence act & Cr. PC.

**Documentation Procedures for NABL Accreditation for PTLs and PRLs:**

The training programme on Documentation procedures for NABL Accreditation conducted from 19<sup>th</sup> to 22<sup>nd</sup> January, 2016 and attended by 17 participants. The participants were trained in preparation of various documents viz. Quality Manual, Quality System Procedure, Standard Operating Procedures, work instructions, forms and formats and Maintenance of records as per ISO/IEC 17025-2005.

**Refresher training on Rodent pest Management:**

Refresher training on Rodent Pest Management was organized for extension functionaries from 5<sup>th</sup> -11<sup>th</sup> January 2016. The objective of this training was to acquainting the participants in diagnosis of rodent species, rodent damage/infestation measurement, ecology and ethology of the rodent pests which provides a basic knowledge on rodent pest management and facilitates them to plan and organize rodent control campaigns. Total 07 participants from Tamil Nadu, Maharashtra and Himachal Pradesh were trained on several basic aspects of rodent pest management, with more exposure to field situation.

**Refresher training on Rodent pest Management (Off-campus):**

A programme was organized at Kerala Agricultural University, Trissur from 18<sup>th</sup> to 24<sup>th</sup> January, 2016. A total 20 officials from agriculture and horticulture department of Kerala were trained in several basic concepts of rodent pest management with hands on practical's.

**Training programme on Integrated Vertebrate Pest Management:**

NIPHM organized a 21 days training on Vertebrate Pest Management, to the university scientists/ agriculture extension officials from 1<sup>st</sup> to 21<sup>st</sup> March, 2016. A total 6 (3 scientists and 3 agriculture officers) from states A.P., Karnataka, Maharashtra and Haryana were attended the training.



## Around the World : Environmental Working Group (EWG) of USA –Releases clean 15 and dirty dozen Produce list for safe eating

Nearly three-fourths of the 6,953 samples tested by the U.S. Department of Agriculture in 2014 contained pesticide residues - a surprising finding in the face of soaring consumer demand for food without synthetic chemicals. The update of EWG's Shopper's Guide to Pesticides in Produce™ reports that USDA tests found a total 146 different pesticides on thousands of fruit and vegetable produced in USA.

EWG singles out produce with the highest pesticide loads for its Dirty Dozen™ list, which includes strawberries, apples, nectarines, peaches, celery, grapes, cherries, spinach, tomatoes, sweet bell peppers, cherry tomatoes, and cucumbers. Each of these foods tested positive for a number of different pesticide residues and showed higher concentrations of pesticides than other produce.

The Clean Fifteen™ list of produce least likely to hold pesticide residues consists of avocados, sweet corn, pineapples, cabbage, frozen sweet peas, onions, asparagus, mangoes, papayas, kiwis, eggplant, honeydew melon, grapefruit, cantaloupe, and cauliflower.

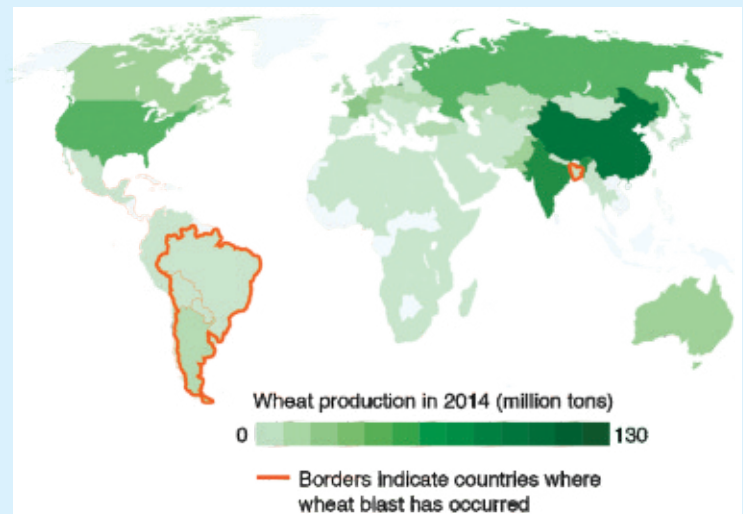


## Around the World: Wheat Blast - at India's doorsteps

Wheat is the second most important food crop next to rice in Bangladesh and India and plays an important role in attaining food security. Since February of 2016, Wheat crop in Bangladesh have exhibited wheat blast symptoms, and more than 15,000 hectares of wheat crops have been destroyed. Genomic sequencing confirmed that the causal agent is the fungus *Magnaporthe oryzae* Triticum pathotype (Ascomycetes: Incertae sedis) (synonym: *Pyricularia oryzae* Triticum pathotype). This is the first report of wheat blast in Bangladesh.

The pathogen was first reported in Brazil in 1985, blast is widespread in South American wheat fields, affecting as much as 3 million hectares in the early 1990s. The pathogen can be spread by seed, and also survive on crop residues. The fungus is better known as a pathogen of rice, however, this pathogen is distinct from that of Rice pathogen and attacks the heads of wheat. The wheat blast pathogen is favoured by high moisture for several days followed by sunny hot and humid weather. It is unknown how wheat blast got to Bangladesh. However, it is predicted that wheat-infecting strain was brought in from South America (Nature – International Science Journal, 2016). There is an eminent threat of the pathogen entering and spreading in the wheat belt of Indo-gangatic area. There is immediate need to conduct pest risk analysis to identify potential pathways and endangered areas congenial for the establishment of this pathogen in wheat grown areas of the India. Since India shares the border with Bangladesh, there is a dire need to keep close watch and conduct vigorous surveillance for monitoring, early detection & containment of the pest incursion. The consequences of a wider outbreak in South Asia could be devastating to a region of food security.

Source : CIMMYT





Republic Day was Celebrated by NIPHM officers with great enthusiasm  
Smt. V. Usha Rani, IAS, Director General NIPHM hoisted the National Flag on this eve



### Awards and Honour

Dr. N. Sathyanarayana, Director (Plant Biosecurity), NIPHM received Eminent Bap Reddy Memorial Award for his contribution in Pest Management for sustainable agriculture. Award was given by Smt. V. Usha Rani, IAS, Director General, NIPHM & MANAGE during annual meeting of Plant Protection Association of India at Tirupati, Andhra Pradesh on 04 th February, 2016



### वर्ष 2015-16 हेतु राजभाषा कार्यान्वयन समिति की चतुर्थ बैठक संपन्न

दिनांक 01-03-2016 को श्रीमती वी.ऊषारानी, भा.प्र.से., महानिदेशक, रावस्वाप्रसं (एनआईपीएचएम) की अध्यक्षता में राजभाषा कार्यान्वयन समिति(राकास) की चतुर्थ बैठक आयोजित की गई। बैठक में अक्टूबर-दिसंबर, २०१५ को समाप्त हिंदी तिमाही प्रगति रिपोर्ट प्रस्तुत की गई। महानिदेशक ने उक्त रिपोर्ट की समीक्षा की एवं राजभाषा अधिनियम की धारा 3(3) के पूर्णतः अनुपालन किये जाने पर सराहा और भविष्य में भी इसकी अनुपालना सुनिश्चित करने हेतु निदेश दिये। उन्होंने किसानों से जुड़े कृषि-कौशल एवं नये तकनीकों से संबंधित वीडियो का हिंदी एवं अन्य क्षेत्रीय भाषाओं में अनुवाद कर एनआईपीएचएम वेबसाइट पर अपलोड करने के निदेश दिये। महानिदेशक ने संस्थान के सभी प्रभागों के निदेशकों को निदेश दिये कि वे किसानों में वनस्पति स्वास्थ्य से संबंधित समस्याओं एवं इसके लिए सुझावों एवं उपचारों के प्रति जागरूकता बढ़ाने के लिए इससे संबंधित लेख स्थानीय हिंदी समाचारपत्रों एवं पत्रिकाओं में प्रकाशित करवाई जाए। संबंधित लेख की भाषा कृषक समुदाय के समझ के अनुरूप, सहज एवं सरल होनी चाहिए। बैठक के दौरान महानिदेशक ने महत्वपूर्ण निर्णय लेते हुए संस्थान की प्रशिक्षण सामग्री (मैनुअल) को हिंदी में भी अनुवाद करवाने के निदेश दिये, ताकि देश के सभी क्षेत्रों से आने वाले प्रशिक्षार्थियों को सरल हिंदी भाषा में सामग्री उलब्ध करवायी जा सके।

दिनांक 18-02-2016 को संस्थान के अधिकारियों एवं कर्मचारियों के लिए एकदिवसीय हिंदी कार्यशाला का आयोजन किया गया। आमंत्रित अतिथि वक्ता श्री जयशंकर प्रसाद तिवारी, सहायक निदेशक(राजभाषा), केंद्रीय हिंदी प्रशिक्षण उप-संस्थान, हैदराबाद ने राजभाषा नीति एवं यूनिकोड के इस्तेमाल के बारे विस्तारपूर्वक जानकारी दी।

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