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QUARTERLY

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# Plant Health NEWS LETTER

July - September, 2019

## Theme Article

Seed Health Testing

## Special Event

Inauguration of FHAT Facility

## WHAT'S INSIDE



Department of Agriculture, Cooperation & Farmers Welfare
Ministry of Agriculture and Farmers Welfare, Govt. of India


# From the Director General's Desk

India has achieved self-sufficiency in food production due to untiring effects of farming community and development of high yielding varieties. Seed is the basic and most critical input for sustainable agriculture. There is immense potential for export of Agriculture and horticulture commodities especially cereals, and vegetable seeds. Seed production and export in India are being viewed as a high growth Industry. The major seeds which are grown in India for export are Maize, Paddy, Wheat, Sorghum, Barley, Tomato, Okra, Cauliflower, Onion, Sugar Beet and Radish. In recent years, seeds are considered as an important commodity in International trade. Seeds act as a carrier for long distance movement of seed borne pathogens such as fungi, bacteria and viruses. Seeds are routinely tested to prevent or control plant pests and pathogens that may affect seed quality, seed movement, and their introduction into new territories. A seed health test is one of the important phytosanitary requirement imposed by national plant protection authorities before allowing seed to enter their territory. The most effective method for controlling seed-borne diseases is seed health testing and certification. Dry Seed Examination, Seed Washing Test, Blotter Test, Agar Test, Grow out test, Enzyme Linked Immuno Sorbent Assay (ELISA) and Polymerase Chain Reaction (PCR) are the major seed health testing methods used for the detection of fungi, bacteria and viruses.

International Seed Testing Association (ISTA) and Organisation for Economic Co-operation and Development (OECD) are the international organizations working on seed health testing with the mandate to encourage the use of high quality seeds consistently in international trade. NIPHM established the seed health testing lab and gives training on seed health testing methods to various stakeholders such as Plant quarantine officials, officials working in seed health testing lab, State Agricultural Universities, ICAR Scientists and stakeholders from industry.

The current quarter witnessed significant activities at the Institute with the Inauguration of Forced Hot Air Treatment Facility by Shri. Rajesh Verma I.A.S., Additional Secretary, Ministry of Agriculture and Farmers Welfare. The inauguration and convocation of the Kerala off-campus PGDPHM was held at Thiruvananthapuram. Brainstorming sessions on new emerging pest and their management was held in relation to porcupine management in saffron crop and also to initiate on 'Pest Free Area' approach with reference to fruit fly in mango in a limited area as a pilot project experiment. The current issue of the newsletter focuses on the importance of seed health management techniques and its importance in the plant health management.

भारत ने कृषि समुदाय के प्रभाव और उच्च उपज वाली किस्मों के विकास के कारण खाद्य उत्पादन में आत्मनिर्भरता हासिल की है। बीज टिकाऊ कृषि के लिए बुनियादी और सबसे महत्वपूर्ण इनपुट है। कृषि और बागवानी वस्तुओं विशेषकर अनाज और सब्जी के बीज के निर्यात की अपार संभावना है। भारत में बीज उत्पादन और निर्यात को उच्च विकास उद्योग के रूप में देखा जा रहा है। भारत में निर्यात के लिए जो प्रमुख बीज उगाए जाते हैं, वे हैं मक्का, धान, गेहूं, सोरघम, जौ, टमाटर, ओकरा, फूलगोभी, प्याज, चीनी चुकंदर और मूली। हाल के वर्षों में, बीज को अंतर्राष्ट्रीय व्यापार में एक महत्वपूर्ण वस्तु माना जाता है। बीज बीज जनित रोगजनकों की लंबी दूरी की आवाजाही के लिए वाहक के रूप में कार्य करते हैं जैसे कि कवक, बैक्टीरिया और वायरस। बीज को कीटों और रोगजनकों को रोकने या नियंत्रित करने के लिए नियमित रूप से परीक्षण किया जाता है जो बीज की गुणवत्ता, बीज की गति और नए क्षेत्रों में उनके परिचय को प्रभावित कर सकते हैं। एक बीज स्वास्थ्य परीक्षण राष्ट्रीय पादप संरक्षण अधिकारियों द्वारा लगाए गए महत्वपूर्ण फाइटोसैनेटरी आवश्यकता में से एक है, जिससे बीज को उनके क्षेत्र में प्रवेश करने की अनुमति मिलती है। बीज जनित रोगों को नियंत्रित करने के लिए सबसे प्रभावी तरीका बीज स्वास्थ्य परीक्षण और प्रमाणन है। ड्राई सीड एग्जामिनेशन, सीड वॉशिंग टेस्ट, ब्लोटर टेस्ट, एगर टेस्ट, ग्रो आउट टेस्ट, एंजाइम लिंक्ड इम्यूनो सोरबेंट एसे (एलिसा) और पॉलीमरेज़ चेन रिएक्शन (पीसीआर) फंगी, बैक्टीरिया और वायरस का पता लगाने के लिए इस्तेमाल किए जाने वाले प्रमुख स्वास्थ्य परीक्षण तरीके हैं।

अंतर्राष्ट्रीय बीज परीक्षण संघ (ISTA) और आर्थिक सहयोग और विकास संगठन (OECD) अंतर्राष्ट्रीय संगठन हैं जो अंतर्राष्ट्रीय व्यापार में लगातार उच्च गुणवत्ता वाले बीजों के उपयोग को प्रोत्साहित करने के लिए जनादेश के साथ बीज स्वास्थ्य परीक्षण पर काम कर रहे हैं। NIPHM ने बीज स्वास्थ्य परीक्षण प्रयोगशाला की स्थापना की और विभिन्न हितधारकों जैसे कि प्लांट संगरोध अधिकारियों, बीज स्वास्थ्य परीक्षण प्रयोगशाला में काम करने वाले अधिकारियों, राज्य कृषि विश्वविद्यालयों, ICAR के वैज्ञानिकों और उद्योग के हितधारकों को बीज स्वास्थ्य परीक्षण विधियों पर प्रशिक्षण दिया।

मौजूदा तिमाही में संस्थान में कृषि और किसान कल्याण मंत्रालय के अतिरिक्त सचिव श्री राजेश वर्मा द्वारा जबरन हॉट एयर ट्रीटमेंट फैसिलिटी के उद्घाटन के साथ संस्थान में महत्वपूर्ण गतिविधियाँ देखी गईं। केरल ऑफ-कैंपस PGDPHM का उद्घाटन और दीक्षांत समारोह तिरुवनंतपुरम में आयोजित किया गया था। नए उभरते कीट और उनके प्रबंधन पर विचार मंथन सत्र का आयोजन केसर की फसल में साही प्रबंधन के संबंध में किया गया था और साथ ही पायलट क्षेत्र प्रयोग के रूप में एक सीमित क्षेत्र में आम में फल मक्खी के संदर्भ में estकीट मुक्त क्षेत्र 'दृष्टिकोण पर आरंभ करने के लिए भी किया गया था। समाचार पत्र का वर्तमान मुद्दा बीज स्वास्थ्य प्रबंधन तकनीकों के महत्व और पादप स्वास्थ्य प्रबंधन में इसके महत्व पर केंद्रित है।

**Sd/-**
**(G. Jayalakshmi, IAS)**
**Director General**

# Seed Health Testing and its Importance in Agriculture and Trade

Dr. Girish AGand Dr. J. Alice R.P. Sujeetha

## Introduction

Seed is the basic and most critical input for sustainable agriculture. Seed health testing protocol has essentially been a part of seed pathology. Seeds are the foundation for crop production. Healthy seeds narrate to food production in many ways. Seeds free from seed transmitted pathogens, are a prerequisite for sustainable food production. Seeds often produced in one country, processed and packaged in a second and sold and planted in another. With this movement of seed, seed borne diseases may carry along with the seed and hence movement of seeds may present a pest risk. Therefore, Seeds are routinely tested to prevent or control plant pests and pathogens that may affect seed quality, seed movement, and pest/pathogen introduction into new territories. A seed health test is also frequently a phytosanitary requirement imposed by national plant protection authorities before allowing seed to enter their territory because seeds are both the vectors and victims of diseases. The response of all other inputs depends on quality of seeds to a large extent. The most effective method for controlling seed-borne diseases is via seed health testing and certification (Thomas *et al*., 1998).

## Policy Initiatives in Seed Sector and development of seed industries

The developments in the seed industry in India, particularly in the last 30 years, are very significant. A major re-structuring of the seed industry by Government of India through the National Seed Project Phase-I (1977-78), Phase-II (1978-79) and Phase-III (1990-1991), was carried out, which strengthened the seed infrastructure that was most needed and relevant around those times. This could be termed as a first turning point in shaping of an organized seed industry. Introduction of New Seed Development Policy (1988 – 1989) was yet another significant mile stone in the Indian Seed Industry, which transformed the very character of the seed industry. The policy gave access to Indian farmers of the best of seed and planting material available anywhere on the world. The policy stimulated appreciable investments by private individuals, Indian Corporate and Multi-National Companies (MNCs) in the Indian seed sector with strong R&D base for product development in each of the seed companies with more emphasis on high value hybrids of cereals and vegetables and hi-tech products such as Bt. Cotton. As a result, farmer has a wide product choice and seed industry today is set to work with a 'farmer centric' approach and is market driven.

## Act/ Policies/ Regulations related to seed sector

Enactment of the Seeds Act, 1966Seed Review Team-SRT (1968)
National Commission on Agriculture's Seed Group (1972)
Launching of the World Bank aided National Seeds Programme (1975-85) in three phases
leading to the creation of State Seeds Corporations, State Seed Certification Agencies,
State Seed Testing Laboratories, Breeder Seed Programmes *etc*
Seed Control Order (1983)
Creation of the Technology Mission on Oilseeds & Pulses (TMOP) in 1986 called as
Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)
Production and Distribution Subsidy
Distribution of Seed Mini-kits
Seed Transport Subsidy Scheme (1987)
New Policy on Seed Development (1988)
Seed Bank Scheme (2000)
National Seeds Policy (2002)
Plant Quarantine Order (2003)
The Seeds Bill (2004)
Formulation of National Seed Plan (2005)
National Food Security Mission (2007)
RashtriyaKrishiVikasYojna (2007)
Environmental protection act (1986)
EXIM Committee for export and import of seed

The export/import of seeds and planting material is governed by the Export and Import (EXIM) Policy 2002-07 and amendment made therein.An EXIM Committee was constituted in the Seeds Division to deal with application for exports/imports of seeds and planting materials in accordance with the New Policy on Seed Development and EXIM Regulations. The Committee meets every month, subject to tendency of proposals for import/export of seeds and planting material, and analyses applications and furnishes recommendations to PPA/DGFT for issuing of otherwise of the licence for import/export of seeds and planting material. The minutes of the EXIM Committee are posted on the Seed net Portal *(http://seednet.gov.in)*

As per World Seed Trade Statistics, India has sixth largest size of domestic seed market in the world, estimated to be at about 1300 million dollars. However, India's share in global trade in seeds (import & export) is of only about 37 million dollars only. To give a boost to seed export, India has decided to participate in Organisation for Economic Co-operation and Development (OECD) Seed Schemes for the following

categories of crops:

- Grasses and legumes
- Crucifers and other oil or fibre species
- Cereals
- Maize and sorghum
- Vegetables

OECD Seed Schemes is one of the international frameworks available for certification of agricultural seeds moving in international trade. The objective of the OECD Seed Schemes is to encourage use of seeds of consistently high quality in participating countries. The Scheme authorizes use of labels and certificates for seed produced and processed for international trade according to agreed principles. The Joint Secretary (Seeds) in the Department of Agriculture & Cooperation has been nominated as the National Designated Authority. Further, Heads of Seed Certification Agencies in Karnataka, Andhra Pradesh, Tamil Nadu, Maharashtra, Rajasthan, Uttaranchal, Uttar Pradesh Haryana, Bihar and Assam have been nominated as the Designated Authorities under the Scheme to undertake certification work under OECD Seed Schemes. The department is in the process of completing other formalities under the OECD Seed Scheme guidelines before the certification work gets started.

## Historical development of Seed Health Testing

The first seed health test was developed by Hiltner working in Germany in 1917. Dr. L.C .Doyer and Paul Neergarad, are known as father of seed pathology, who coined the term seed pathology as an important discipline in Plant Pathology. In 1918, first seed health testing laboratory was established at the Government Seed testing laboratory in Wageningen, The Netherlands. At sixth ISTA congress, at Wageningen, proposal for recording sanitary conditions of Seed on the International rules of Seed Testing discussed. The first International Rules for Seed Testing were published by ISTA in 1928. This document contained a special section on Sanitary Condition in which special attention was recommended for *Clavicepspurpurea*, *Fusarium, Tilletia,* and *Ustilagohordei* on cereals; *Ascochytapisi* on peas, *Colletotrichumlindemuthianum* on beans and *Botrytis, Colletotrichumlinicola*, and *Aureobasidiumlini*on flax. In 1957, the Plant Disease Committee established a comparative seed health testing programme aimed at standardizing techniques for the detection of seedborne pathogens. Subsequent symposia have focused on Seed Health Testing - Progress towards the 21st Century (Cambridge, UK 1996) and in August 2003, Disease thresholds and their implication in seed health testing (Ames, Iowa), ISTA Congress also held at Hyderabad from June 29 to July 03, 2019 to strengthen seed research and education about seed testing practices in the seed industry, in order to improve quality seeds supply to Indian farmers as well as to increase international exports by Indian companies. Seed health testing is used primarily to manage diseases by inoculum threshold, to determine the potential effect of seed borne inoculum on stand establishment in the planted field, and to meet the requirements for phytosanitary certification of seed lots to be exported. ISTA, ISHI and NSHS are three primary organizations that publish standardized seed health test methods. Specificity, sensitivity, speed, simplicity, cost effectiveness and reliability are main requirements for selection of seed health tests methods. For seed health testing following methods are routinely used.

## A. Conventional seed health testing methods:

### Field inspection

It requires that the seed production field be examined for symptoms of a disease on growing plants. The method is based on the assumption that incidence of infection on plants and seed are related. Although there are few diseases where this relationship has been validated, procedure remains the back bone of Phytosanitary certification in many countries.

### Direct seed assay

Seed may be examined visually/under magnascopes /stereo microscopes for clear signs or symptoms expressed on the seed surface. Another approach is to soften seed tissues and then examine the internal tissues of the seed microscopically for mycelium of the pathogen.

### Incubation test

It requires that the seed be subject to conditions that select for and optimize growth of target pathogen. Assay usually require pre-treatment with a chemical to surface disinfest the seeds, followed by incubation on blotters or culture medium under precisely defined environmental conditions.

### Grow out test

Seed are planted in the field or green house in the absence of other inoculum sources. Seedlings are examined for symptoms produced by the seed borne pathogens. Even though this test requires much time, space, and labour. It also tends to lack sensitivity, but it can predict well the extent of seed transmission of Pathogens in the planted field.

## B. Advanced seed health testing Methods

### Serological assays

Serological assays for seed borne pathogens were first reported in 1965 with an agglutination test for *Pseudomonas phaseolicola* in beans (Guthrie at al 1965) and double diffusion assay for *barley stripe mosaic virus* (Hamilton 1965).The introduction of Enzyme-Linked Immunosorbent Assay (ELISA) to plant pathology (Seed Health Management for Better Productivity) in 1976 stimulated rapid advances in the

use of serological assays for seed borne pathogens. With diagnostic kits now available from the private sector for ELISA and its variants, serology has become cost- effective and practical to detect seed borne pathogens throughout the world. However, a well-known weakness in serological tests has been the propensity to detect false positive caused by the binding of antibodies to epitopes, which may no longer be a propagule of the pathogen which can be overcome by combining serological assay with a viability test. Serological-based seed assays, such as the enzyme -linked immunosorbent assay (ELISA), continue to be used with some success for fungi and bacteria. However, they lack the specificity and sensitivity needed to detect many seed borne viruses (McGee, 1995). About 20% of the known plant viruses are transmitted through seeds of infected plants and in many cases the rate of transmission is very low. With the introduction of DNA-based assays and polymerase chain reaction (PCR)-based assays, researchers have the ability to detect very minute amounts of a specific DNA sequence on the surface of or internal to a seed. Specificity has also improved through the use of antibiotics and other agents in selective media for recovery of pathogens from seed. Biological reagents such as antibodies and DNA markers also contribute to improve seed health assays. DNA-based polymerase chain reaction (PCR) method has been developed as an alternative to grow- out -test. This test holds great promise for the future of seed health testing. Still very much in the development stage, PCR assays have high sensitivity and specificity and often require as little as 24 or 48 hours to complete. They are applicable to a wide range of pathogens and can be used to separate closely related species.

## DNA hybridization assay

DNA hybridization assay use a DNA probe that is complementary to DNA in the genome of the plant pathogen. The probe is applied to a DNA extract from seed and hybridised material detected by dot blot hybridization assay. The technique has successfully used to detect *Peronosclerosporasorghi* and *P. sacchari* in corn (Yao *et al* 1990) *Pseudomonas syringae*pv. *Phaseolicola in* bean seeds.

## Transmission of seed borne pathogens: Factors involved

### Epidemiological factors affecting seed transmission

Seed transmission for some seed borne pathogens is well defined. Few most promising fungal pathogens such as *Ustilagotritici* a pathogen of wheat, barley and ray and causing loose smut in which no detectable symptoms until heading of plants. Infected plants often produce heads earlier and are taller than non-infected ones. Usually all spikelet's of the ear are transformed into a mass of olive-green teliospores forming smut masses. *Neovossiaindica*is a pathogen of wheat and caused Karnal bunt in which In an ear only few grains are infected. A portion of the grain is converted into black powdery mass. The black powder which gives foul smell due to presence of Trimethyl amine is a mass of thick walled dark brown spores of the fungus known as teliospores. *Peronosporaparasitica* in rape seed mustard, here pathogen will be present in the form of oospores on the seed surface and in the hypodermis of seedcoat tissue in sarson, toria and Indian mustard. *P. parasitica* was seed transmitted in a non-systemic manner in sarson and toria, at rates of 0.9 and 0.4%, respectively, but not in Indian mustard. There are also many seed borne bacteria and viruses. Physiological factors may affect the capacity of the seeds to transmit pathogens. Few examples are: Downy mildew pathogen in maize can be transmitted when seeds are freshly harvested, but not once the seeds are dried. Environmental factors also play a major role in the efficiency of seed transmission of plant pathogens. The seed borne inoculum of *Alternariabrassicae* or *A. brassicicola* in rape seed mustard reduces with the seed storage and at temperature above 35$^0$C the fungus is auto-eliminated in tropical conditions. In Cabbage seedling disease caused by *Alternariabrassicicola* for e..g does not occur below 15$^0$C in heavily infected seed lots .

## Inoculum threshold

Inoculum threshold have been established on a sound epidemiological basis for only a few pathogens, including *Phomalingum* in Crucifers, *Pseudomonas syringaepv. phaseologicola* , and *lettuce mosaic virus*. For many seed borne pathogens, inoculum threshold is determined either arbitrarily or by field observation data (Schaad 1988). To be of value, however the threshold (Seed Health Management for Better Productivity) should be established in well-designed experiments. The first step is to have a suitable seed health assay. But very few methods are thoroughly researched to determine if they are specific, accurate reproducible, and practical. The next step is to plant seed with different infection level in the field and establish a correlation with plant infection. For diseases that have no repeating cycle of infection such as seedling infecting smuts, strong correlation between seed infection and field diseases can usually be expected. It is much more difficult to establish inoculum threshold for diseases for which secondary infections occur from other in oculum sources.

## Certification Programme

This programme exists to protect against spread of disease by seeds with in geographic regions. In this programme seed lots must meet certain minimum standards of quality which includes specific diseases, before seed can be marketed. This programme uses knowledge of the epidemiology of the disease that includes laboratory assays of the seeds and field controls. For example the seed certification standard for barley (*Hordeum vulgare* Linn.) inspections were carried out for loose smut (*Ustilagonuda* (Jens.) Rostr.)for foundation and certified seed plots and the permitted limit is given below (Indian Minimum seed Certification Standards, 2013)

| Contaminants | Minimum permitted % | |
|---|---|---|
| | Foundation | Certified |
| 1 | 2<br>0.10 | 3<br>0.50 |

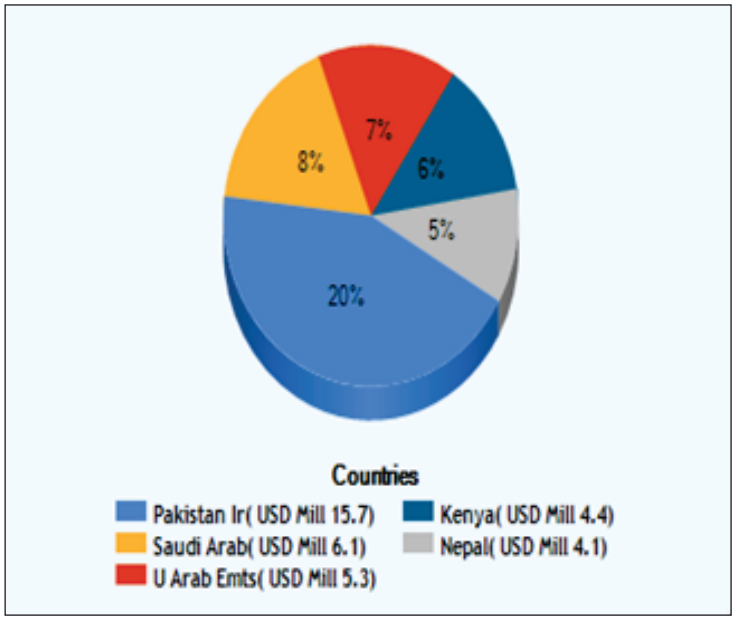
Fields of barley with infection of Loose smut (*Ustilagonuda* (Jens.) Rostr.) disease in excess of 0.10% and 0.50% in Foundation and Certified seed respectively
(Plants affected by seed borne diseases)

## Crop seeds having Export potential

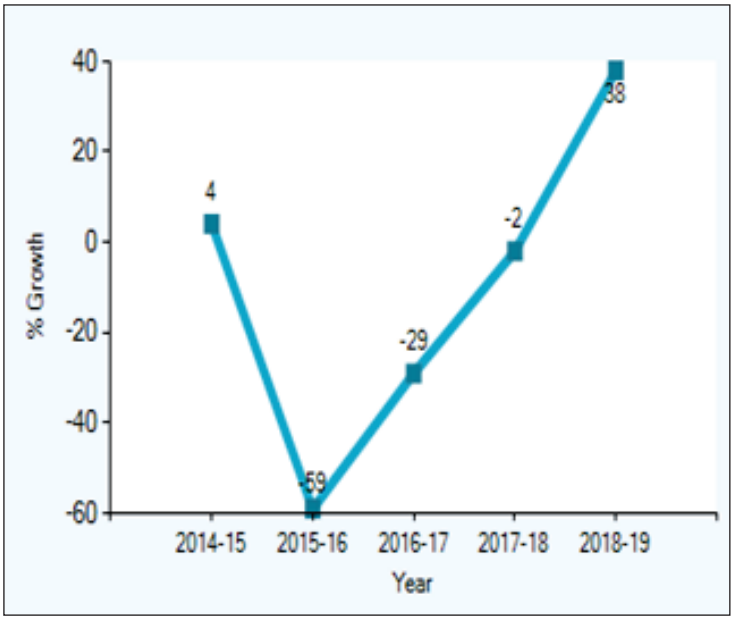
There is immense potential for export of commodities of Agriculture. Fruits and Vegetable Seed in India are being viewed as a high growth Industry. The major seeds which are grown in India for export are as follows.

| S.No | Crop Seeds |
|---|---|
| **Cereals** | |
| 1 | Maize |
| 2 | Paddy |
| 3 | Wheat |
| 4 | Sorghum |
| 5 | Barley |
| **Pulses** | |
| 1 | Pea Seeds |
| **Vegetables** | |
| 1 | Tomato |
| 2 | Okra |
| 3 | Cauliflower |
| 4 | Onion |
| 5 | Sugar Beet |
| 6 | Radish |

Commodities export to major countries (last five years)




India's Export growth trend in last 5 years

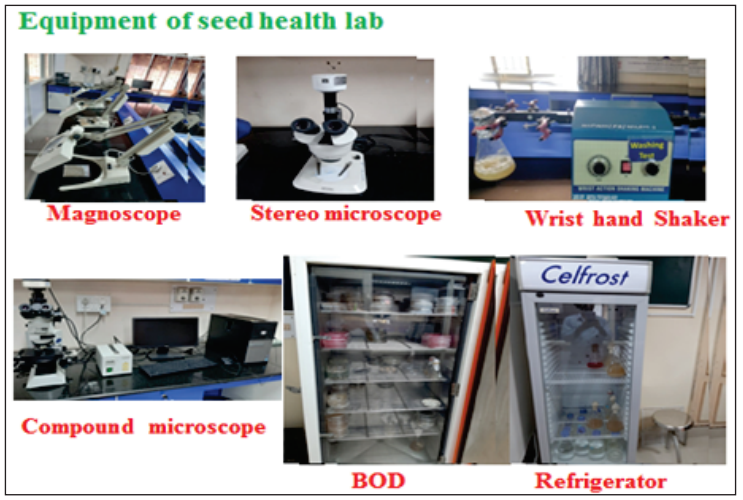



**Source: DGCIS**

## Crop wise important fungal seed borne diseases along with pathogens of quarantine significance while export

| Crops | Diseases | Pathogen |
|---|---|---|
| Maize | Blac k kernel rot | *Botryodiplodiatheobromae* |
| | Cob rot | *Fusarium moniliformae* |
| | Southern leaf blight | *Dreschleramaydis* |
| Paddy | Bunt | *Neovossiahorrida* |
| | False smut | *Ustilaginoideavirens* |
| | Stackburn | *Trichoconiellapadwickii* |
| | Paddy Blast | *Pyriculariaoryzae* |
| | Brown spot | *Bip olarisoryzea* |
| | Leaf spot | *Curvularialunata* |
| Wheat | Loose smut, | *Ustilago segetum var tritici* |
| | Karnal bunt | *Neovossiaindica* |
| | Flag smut | *Urocystisagropyri* |
| Sorghum | Anthracnose | *Colletotrichumgraminicola* |
| | Kernel or grain | *Sphacelothecasorghi* |
| | smut | *Peronoscle rosporasorghi* |
| | Downy mildew | *Sphacelothecasorghi* |
| | Loose Smur | |
| Barley | Anthracnose | *Colletotrichumgraminicola* |
| | Seedlings rot | *Bipolarissorokiniana* |
| | Seedlings rot | *Fusarium graminearum* |
| | Seedlings rot | *Fusarium culmorum* |
| | Downey mildew | *Sclerophthorarayssiae* |
| | Ergot | *Clavicepspurpurea* |
| Peas | | |
| Tom ato | Buck eye rot | *Phytophthoraparasitica* |
| | Damping off | *Phythiumaphanidermatum* |
| | Early Blight | *Alterniasolani* |
| | Late blight or Fruit | *Phytopthorainfestans* |
| | rot | |
| Okra | Cercospora Leaf | *Cercosporaabelmoschi and C. malayensis* |
| | Spot | |
| Cauliflower | Grey and black leaf | *Alternariabrassicae, A. brassicicola* |
| | spot | |
| Onion | Damping off | *Botrytis allii* |
| | Downy mildew | *Peronospora destructor* |
| | Purple blotch | *Alterniaporri* |
| | Stemphylium | *Stemphyliumvesicarium* |
| | Blight | |
| Sugar beet | Anthracnose | *Colletotri chumdematium* |
| | Leaf spots | *Drechslerahalodes* |
| | Leaf spots | *D. rostrata* |
| | Leaf spots | *D. sorokiniana* |
| | Leaf spots | *Cephalosporium sp.* |
| Radish | Grey leaf spot | *Alterniabrassicae* |
| | Leaf spot | *A.Raphani* |

**Seed Health Testing Lab at NIPHM:** Before export of the seed the routine seed health tests are mandatory as a part of phytosanitary measures. Hence, to train the private seed industry technical staff and other Government officials, seed health testing laboratory was established at NIPHM.




**Seed Health Laboratory in NIPHM**

## Development of seed health standards as per the international standards

NIPHM seed health testing lab is developing seed health standards for seed borne pathogens as per the guidelines of International Standards of Phytosanitary Measures No 27 (ISPM 27) and International Seed Testing Association Standards (ISTA).

**Table.1. Following seed health tests developed during 2018-19 based on International standards:**

| Crop/Pathogens | Seed Health test recommended as per International standards | | | | | | | | Developed at NIPHM |
|---|---|---|---|---|---|---|---|---|---|
| | ISPM-27 | | | | ISTA | | | | |
| | VET | BT | AT | WT | VET | BT | AT | WT | |
| **Maize** | | | | | | | | | |
| Fusarium moniliformae | - | - | - | - | + | + | + | - | Yes |
| Dreschleramaydis | - | - | - | - | | + | + | - | Yes |
| **Paddy** | | | | | | | | | |
| Curvularialunata | - | - | - | - | - | + | + | - | Yes |
| Bipolarisoryzea | - | - | - | - | - | + | + | - | Yes |
| **Wheat** | | | | | | | | | |
| Neovossiaindica | + | - | - | + | + | - | - | + | Yes |
| **Sorghum** | | | | | | | | | |
| Sphacelotheca sorghi | - | - | - | - | - | - | - | + | Yes |
| Clavicepspurpurea | - | - | - | - | + | - | - | + | Yes |
| **Tomato** | | | | | | | | | |
| Alterniasolani | - | - | - | - | - | + | + | - | Yes |
| **Cauliflower** | | | | | | | | | |
| Alternariabrassicae | - | - | - | - | - | + | + | - | Yes |
| A. brassicicola | - | - | - | - | - | + | + | - | Yes |
| **Radish** | | | | | | | | | |
| Alternariabrassicae | - | - | - | - | - | + | + | - | Yes |
| A.Raphani | - | - | - | - | - | + | + | - | Yes |
| | | | | | | | | | |

**Indicates standards not developed, + Indicates standards developed, VET-** Visual examination, **BT-** Blotter test, **AT-** Agar test, **WT-**Washing test

**Table.2. Following Seed Health Testing Methods planned to develop during 2019-2020**

| Crop/Pathogens | Seed Health test recommended as per International standards | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ISPM-27 | | | | ISTA | | | |
| | VET | BT | AT | WT | VET | BT | AT | WT |
| **Maize** | | | | | | | | |
| Botryodiplodiatheo bromae | - | - | - | - | - | + | + | - |
| **Paddy** | | | | | | | | |
| Neovossiahorrida | - | - | - | - | | - | - | + |
| Ustilaginoideavirens | - | - | - | - | - | - | - | + |
| Trichoconiellapadwickii | - | - | - | - | - | + | + | - |
| Pyriculariaoryzae | - | - | - | - | - | + | + | - |
| Ustilago segetum vartritici | - | - | - | - | - | - | - | + |
| **Wheat** | | | | | | | | |
| Urocystisagropyri | - | - | - | + | + | - | - | + |
| **Sorghum** | | | | | | | | |
| Colletotrichumgraminicola | - | - | - | - | + | + | + | - |
| Peronosclerosporasorghi | - | - | - | - | - | - | - | + |
| Fusarium culmorum | - | - | - | - | + | + | + | - |
| **Barley** | | | | | | | | |
| Colletotrichumgraminicola | - | - | - | - | - | + | + | - |
| Bipolarissorokiniana | - | - | - | - | - | + | + | - |
| Fusarium graminearum | - | - | - | - | - | + | + | - |
| Fusarium culmorum | - | - | - | - | - | + | + | - |
| **Tomato** | | | | | | | | |
| Phytophthoraparasitica | - | - | - | - | - | - | + | - |
| Phythiumaphanidermatum | - | - | - | - | - | - | + | - |
| Phytopthorainfestans | - | - | - | - | - | - | + | - |
| **Okra** | | | | | | | | |
| Cercosporaabelmoschi | - | - | - | - | - | + | + | - |
| C. malayensis | - | - | - | - | - | + | + | - |
| **Cauliflower** | | | | | | | | |
| Botrytis allii | - | - | - | - | - | + | + | - |
| Peronospora destructor | - | - | - | - | - | - | - | + |
| Alternariaporri | - | - | - | - | - | + | + | - |
| Stemphyliumvesicarium | - | - | - | - | - | + | + | - |
| **Sugar beet** | | | | | | | | |
| Colletotrichumdematium | - | - | - | - | - | + | + | - |
| Cephalosporium sp. | - | - | - | - | - | + | + | - |
| Drechslerahalodes | - | - | - | - | - | + | + | - |
| D. rostrata | - | - | - | - | - | + | + | - |
| D. sorokiniana | - | - | - | - | - | + | + | - |

**Indicates standards not developed, + Indicates standards developed, VET**- Visual examination, **BT**- Blotter test, **AT-** Agar test, **WT**- Washing test

Note: Grow out test required for Phytophthoraparasitica, PhythiumaphanidermatumandCephalosporium sp. pathogens.

**Recent Advances in Seed Health Testing procedures**

Seed health testing is routinely carried out in most countries for domestic seed certification, quality assessment and plant quarantine. The demand for better seed quality of conventional varieties and transgenic, greater sensitivity in detecting seed borne pathogens and shorter times for seed testing is forcing seed health testing laboratories to incorporate new technologies to meet this challenge globally.

**Future Need**

Seed Health Testing is very important both for domestic and international. Seed health quality may be monitored by standardized methods. Inoculum threshold level should be worked out for seed borne diseases of significance for better management of the diseases. Each country should have reproducible and validated methods for seed health testing to ensure reliable, for use by both the seed industry and regulatory bodies. There is need to come up with the ready- to- use kits for detection of seed borne pathogens with standardized protocols. This will prevent the entry, establishment and spread of new pathogens in the country.

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# The 32nd International Seed Testing Association (ISTA)Congress - 2019 in Hyderabad

The 32nd International Seed Testing Association (ISTA) Congress - 2019 in Hyderabad

The International Seed Testing Association (ISTA)is an inter-governmental organisation founded in 1924 at Zurich, Switzerland with the basic philosophy to upgrade accuracy and reproducibility in the seed testing results throughout the world. Thus, ISTA has been linked with history of seed testing in different countries and presently has membership laboratories across the world with global network with an aim to have "Uniformity in Seed Testing".

The mission of ISTA is to work together to achieve 'Uniformity in seed quality evaluation worldwide'. The Association developed internationally agreed rules for seed sampling and testing, accredit laboratories, promotes research, provides international seed analysis certificates and training and disseminates knowledge in seed science and technology. This facilitated seed trade at nationally and internationally and also contributes to global food security. In this direction, the International rules for seed testing are ISTA's main instrument to promote uniformity in seed testing.

The ISTA rules and procedures have been adopted across the globe including India to ensure the supply of quality seeds to the farming community. Currently ISTA has 82 member countries around the world including 18 seed testing laboratories from India. ISTA conducts, Seed Congress once in three years, to provide a platform for exchange of knowledge in seed related aspects by involving world renowned seed experts, policy makers and scientists.

## ISTA Congress:

The 32 nd ISTA Congress was officially inaugurated on June 26, 2019 by Shri Kailash Choudary, Honourable Union Minister of State for Agriculture and Farmers Welfare, Government of India in the presence of Shri S. Niranjan Reddy, Honourable Minister for Agriculture, Government of Telangana, Shri Md. Mahamood Ali, Honourable Minister for Home, Prisons, and Fire Services, Government of Telangana, Shri Sanjay Agarwal, IAS, Secretary (Agriculture), Government of India, Shri C. ParthaSarathi, APC &Prl. Secretary. Government of Telangana and other officials from Government of India and Telangana and ISTA officials.The ISTA Seed Congress was successfully organised by Agriculture and Cooperation Department, Government of Telangana with the support of Ministry of Agriculture, Cooperation and Farmers Welfare, Government of India and in collaboration with International Seed Testing Association (ISTA), from June 26 to July 03, 2019 at Hyderabad, Telangana State, India for the first time in Asia. Dr. K. Keshavulu, Director and Managing Director, Telangana State Seed and Organic Certification Authority and Seeds Development Corporation, Hyderabad is the Nodal Officer for organizing the above event.

In the Seed Congress, more than 270 delegates from India besides the more than 400 foreign delegates from around 75 countries including policy makers, scientists, researchers, representatives of international organisations like International Seed Testing Association (ISTA), Organisation for Economic Cooperation and Development (OECD), International Union for Protection of Plant Varieties (UPOV), Food and Agriculture Organisation (FAO), International Seed Federation (ISF), Asia-Pacific Seed Association (APSA) and other Regional Seed associations have participated.

The inaugural ceremony was followed by the ISTA Seed Symposium with the theme "Seed technology and quality in a changing world", and the following topics were covered by eminent speakers:

- Developments in viability and vigour testing.
- Ensuring seed quality for future generations.
- Ensuring seed health and implications of change for seed pathology.
- Seed production in a changing environment.
- New technology and novel methods for seed quality assessment.

**The following Events were organised in connection with 32nd ISTA Congress-2019 at Hyderabad, Telangana State**

1. Workshop on "Seed production, Quality Control & Marketing" under South-South Cooperation of FAO & Government of Telangana (June 24-25, 2019)
2. International Seed Exhibition (June 26 – 28, 2019)
3. Seed Farmers Meeting (June 27, 2019)
4. Interaction meeting between ISTA and Indian Seed Industry (June 27, 2019)

5. ISTA Workshop on "Seed Morphology and Seed Identification for Purity and OSD Test" (June 22 – 24, 2019)
6. ISTA Workshop on "Seed Sampling, Purity, Germination and Moisture" (July 05 -12, 2019):

The ISTA Seed Congress provided a platform for all the delegates, the opportunity of global interaction, network building and the deliberations were made on the several issues related to Seed production and quality under the theme "Seed Technology and Quality in a Changing World" in five different sessions and the Indian Seed Industry has benefitted much from this congress, in terms of updating the knowledge, skills and understanding of the recent advances in Seed production, testing and seed science research that in turn leads to improvement in the seed production and quality seed supply system in the State as well as country.

The Congress helped the Indian Seed Industry by improving the share in international Seed market, improving the efficiency of seed certification Agencies and Seeds Corporations, accreditation of seed testing labs, and improves global networking of seed companies through OECD, UPOV, FAO, ISF and SAARC in seed production, quality control and marketing globally. Further scope to accomplish the actions required for sustainable and globally competitive seed sector in our country.

Since the Indian seed industry is one of the mature and vibrant industries in the world and is growing at enormous rate. The deliberations of the ISTA Congress would be of great advantage for Indian seed industry that would be helpful in making policy decisions, formulation of regularity frameworks, planning etc. in accordance with international regulations to boost the Seed industry growth and to accelerate the quality Seed production and exports from our country.

The following are possible benefits from the 32nd ISTA Congress;

- Organising 32nd ISTA Congress in India is an esteemed opportunity, helps in focusing the Indian Seed Industry at Global Level
- Provided a platform for Global interaction and network building
- Attracts the private seed industry to investment in the India and thereby generate employment opportunity
- Promotes quality seed production in the Country, more area under seed production and improvement in the farmers income
- Helps in exploring seed export potential of India to the fullest extent
- FAO workshop by involving 25 African countries would promotes seed movement from India to African countries
- Promote and facilitates the seed trade between countries

Based on discussions and interactions with globally renowned seed scientists in the ISTA seed congress suggested the following points for strengthening Indian seed sector.

- Harmonisation of seed regulations.
- Phytosanitary Certification System.
- Strict quality control.
- Online seed data base.
- Uniformity in seed certification procedures.
- Strengthening of public sector seed organisations.
- Promotion of seed exports through the OECD seed schemes
- Promotion of Seed Technology Research.
- Strengthening of Seed Quality Testing.
- Uniformity in Seed Testing.
- Capacity building programmes.
- Technical audit system for STLs.
- Establishment of State of Art Laboratories.
- ISTA Accreditation.
- Seed traceability through modern technologies.
- Support for Seed Bowl Initiatives of Telangana
- Creation of Seed Technology Mission.
- Creation of a regional office for Asia to be established in India to coordinate ISTA activities:

Dr. K. Keshavulu,
Director, Telangana State Seed And Organic Certification Authority
HACA Bhavan, Hyderabad- 500 004

## Inauguration of Forced Hot Air Treatment Facility:

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. NIPHM is the only Institute in India to offer a specialized training programme on FHAT for industry stakeholders. In view of this, a Forced Hot Air Treatment Facility is established at NIPHM.

The Forced Hot Air Treatment Facility was inaugurated by Shri. Rajesh Verma, IAS, Additional Secretary, Ministry of Agriculture and Farmers Welfare on 27.09.2019. Smt. G. Jayalakshmi, IAS, Director General, NIPHM and other dignitaries also graced the occasion. A live demonstration was also conducted in the presence of guests.



## USDA officials and honourable Director General with NIPHM staff visited NIPHM laboratories on 22.08.2019.


## International Satellite Seminar

The division has organized a satellite seminar on behavior-modifying chemicals in pest management on 25.07.2019 at ICAR-IIHR Bangalore as part of the international conference on Plant Protection in Horticulture Crop (ICPPH 2019) held from 24th to 27th July 2019.

The workshop was inaugurated by Smt.G.Jayalakshmi, (IAS), Director General, NIPHM, Hyderabad. She advised both technocrats and entrepreneurs to work together to take the semiochemicals based green technologies assist the farming community which desperately needs safe alternatives to the toxic insecticides towards a more sustainable livelihood.

During the inaugural session, a folder on *"NIPHM initiative for converging plant health management technologies through multi-institutional collaboration*" was released by Director General, NIPHM.

### The important recommendations of the session are as follows:

1. The scope for using semiochemicals should be promoted by supporting R&D and policy harmonization towards improved commercialization.
2. There is a need for further R&D in improving the controlled release system options for dispensing pheromones over the extended duration and so minimizing need for replacing the lures within the relevant crop phenological phase.
3. Policy issues both for harmonizing the regulatory guidelines as well as for supporting the technology promotion initiatives were raised and it was recommended that NIPHM constitutes experts panel to assist the CIBRC in relevant matters.
4. It was also recommended that NIPHM takes the leadership in bringing together the stakeholders inappropriate for a and also supports scientific newsletters and preferable also a journal for sharing experiences and new information among the end-ers.






## Partheniumawareness week

NIPHM has organized the '*Parthenium* Awareness Week' from 16th to 22nd August 2019. During this week various activities to create awareness about *Parthenium*were organized as summaries below; During the week, a video film show on *Parthenium* management was arranged for all the staff of NIPHM, trainees, and students. All the farm laborers were explained about the nature and control methods of the weed. An awareness programme was organized in Amdapur village involving farmers and school children. Dr OP Sharma explained about growth habit of *Parthenium*, its impact on environment, agriculture and methods of *Parthenium* management. Dr Alice P Sujeetha Director PBD addressed the gathering and explained about effect of *Parthenium* on human health. Later, all the farmers, students, and NIPHM faculty performed *Parthenium* removal activity in the School premises and cleaned up the area. A demonstration of compost making with Parthenium was carried out and displayed to farmers and students. In the concluding session on 22nd August, a Mass Removal of *Parthenium* weed from NIPHM campus by all staff members was organized under the leadership of Smt G Jayalakshmi IAS DG, NIPHM. On this occasion, Director General Madam also released a brochure on 'Management of Parthenium Weed' and appreciated the efforts made by Dr G Ravi Director PHM and his team to keep the NIPHM campus Parthenium free. Director-General also recognized few staff members for their significant contribution in removal of Parthenium from NIPHM campus.

**Glimpses of *Parthenium* Awareness (16th to 22nd Aug. 2019) Week at NIPHM**







## Honey bee day

Organized Honey bee day on 17th August at NIPHM, in this connection invited a Guest speaker Ravindra Kumar Pydi, Director, Apiculture technology center (Beekeeping) from NIRD, Rajendranagar. Guest speaker and delivered a valuable presentation regarding Honey bees importance in sustainable Agriculture and marinating the biological diversity.

## Brain Storming Sessions

**Porcupine Management in Saffron Crop:**

A brainstorming session on "Porcupine Management in Saffron Crop" was organized at NIPHM on 13.09.2019 under the Chairmanship of DG NIPHM and deliberations were held with the expertise on issues related to management practices of Porcupine in field crops.


**Brainstorming session on Porcupine Management in saffron crop**

**Pest Free Area (PFA)**

The establishment of a "Pest Free Area (PFA)" by a national plant protection organization (NPPO) provides for the export of plants, plant products and other regulated articles from the country in which the area is situated (exporting country) to another country (importing country) without the need for application of additional phytosanitary measures when certain requirements are met. Consequently, the pest free status of an area may be used as the basis for the phytosanitary certification of plants, plant products and other regulated articles with respect to the specified pest.

Brainstorming meeting on "Pest Free areas" was organized on 26.09.2019 and a total of 17 experts were participated. The discussions were held on the concerns related to identification, establishment and recognition of pest free areas.


**Brainstorming session on Pest Free Area**

**"Rodent Pest Management" workshop at Agartala, Tripura:** As per the production oriented survey conducted during 2017-18, it revealed that rodent pest is one of the key concerns for the rice growing farmers in Tripura. Early maturing varieties suffer more (25-50%) damage in lowland. The rodents are also damaging and causing losses to pine apple, vegetables and also grains in storage go-downs. NIPHM has organized a two day State level workshop on Rodent Pest Management in Tripura during 05th - 06th September 2019 at PragnaBhawan, Agartala. Resource person support from the ICAR Research Complex for NEH Region, Tripura Centre, Lembuchhera and Central Integrated Pest Management Centre, Agartala, under Directorate of Plant Protection, Quarantine & Storage, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Govt. of India were also taken.

Training was given on Rodent ethology, breeding profiles and species identification, chemical and non-chemical rodent management. On second day field practical was conducted at two villages namely Krishnanagar under Jirania block and Radhanagar under Old Agartala Block along with local farmers. Survey was conducted by all the participants for damage estimation. Live burrow count method to assess the population level, bait preparation and application in the field was done.


## Projects

### 1. DAC Project:

In the DAC funded project on Study on impact of indiscriminate use of chemical fertilizers and pesticides, NIPHM officials,Dr. K. Loka Reddy and Dr. K. Damodara Chari visited AdilabadResearch Station, Adilabad on 16th and 17th September 2019 to monitor the Soybean field trials. Dr. M. Narsi Reddy, ASO (Ento) and Dr. K. Damodarachari, ASO (Micro) to VNMKV, Parbhani from 23rd to 26th September 2019 to monitor Brinjal and Soybean field trials. Dr. K. Loka Reddy and Dr. K. Damodarachari, ASO (Micro) to RARS, Jagityal, PJTSAU on 30th September 2019 to monitor Paddy field trials.


**Soybean field visit at Adilabad, PJTSAU- Interaction with the farmers**


**VNMKV, Parbhani visit**


**RARS,Jagityal,PJTSAU visit**

## 2. DPMP Project:

The data analysis and final report preparation are in progress. A review meeting on the project completion report was conducted by Director General NIPHM on 17.07.2019. Dr.Mahenthesh (Deputy Director) MANAGE and scientist-in-charge of NIPHM have participated

## 3. AICRP Biocontrol:

Work on the evaluation of NIPHM white media for the production of *Nomuraearileyi* (*Metarhiziumrileyi*) NIPHM MRF-1 strain for management of Maize Fall Army Worm (*Spodopterafrugiperda*) was initiated. Studies on Mass production of *Metarhiziumanisopliae*and *Beauveriabassiana*on NIPHM media, studies on ovipositional fecundity & life cycle of *Spodopterafrugiperda.*

For the biodiversity studies of predators in maize ecosystem, started field observation data and field-collected predators were preserved for further purpose

## 4. Villageadoption

Under Village Adoption Programme, Director General Madam, Director (PHM) and other NIPHM staff with KVK, EkalavyaFoundation, Tuniki, MedakMedak visited Mohammednagar village, Medak district. The honourable DG madam inaugurated the programme successfully. Later visited NIPHM staff with PGDPHM students and taken plant protection data in Paddy, Cotton, Maize fields of host Farmers. On 27.08.2019 NIPHM staff and KVK staff explained importance of Ecological engineering techniques in Plant Health Management like growing marigold plantlets and sunflower seeds around the paddy crop and explained the importance of *Pseudomonas &Trichoderma* in controlling soil-borne diseases of major crops, demonstrated seed treatment of sunflower seeds with *Pseudomonas&Trichoderma* and distributed the same to farmers. After NIPHM team & KVK staff visitedfarmers fields and planted marigold plants around the bunds of paddy crops. The importance of Azolla in paddy cultivation was demonstrated by NIPHM team. In the end, NIPHM team visited Ekalavya foundation KVK and distributed marigold plantlets and sunflower seeds to develop ecological engineering at demo plot of paddy. Installed Pheromone traps activity carried out.




## 5. Institutional IPM instruction farm

Maize crop was sown by using Push & Pull strategy to control Fall Army Worm and experiment on mulching & without mulching in Maize crop was sown with different spacing. Maize crop with intercrops like cowpea and Red gram was sown andecological engineering plants like Marigold and sunflower were sown as border crops. EPF and EPN solutions sprayed on Mulching and Non-mulching Maize fields for Fall Army Worm control and also collected data of recovered plants and dead/infected larvae collected. Bioenriched FYM and vermicompost were applied to all maize plots. Paddy transplanted with SRI method and Ecological Engineering planting was done.A different type of leafy vegetables was sown at greens garden. *Azolla* micro demonstration plot was prepared

Practicing Dhabolkar method of Green manuring practice method was done in the field. In this method, 20-25 kg of mixed seed from 5 categories are sown.1. Grains: 4Kg (1Kg Sorghum, 1Kg Pearl millet, 1Kg Foxtail millet, 1Kg Little millet). 2. Pulses: 4Kg (1Kg Black gram, 1Kg Green gram, 1Kg Pigeon peas, 1Kg Bengal gram). 3. Oilseeds: 4Kg (1Kg Sesame(gingelly), 1Kg Peanuts(groundnuts), 1Kg Sunflower seeds, 1Kg Castor Seeds). 4. Green manure seeds: 4Kg (1Kg Daincha, 1Kg Sunhemp, 1Kg Green gram, 1Kg Horsegram). 5. Spices: 4Kg (1Kg Mustard, 1Kg Coriander, 1Kg Methi, 1Kg Ajwain).







# Capacity Building Programs

## Plant Bio-Security Division

The division has organized following training programmes during the month of July to September, 2019.

### Officer s training programme.

| S.No. | Name of Training Program | From | To | Duration (days) | Number of Participants |
|---|---|---|---|---|---|
| **On campus training programmes** | | | | | |
| 1 | Rodent Pest Management in Food Grain Warehouses | 01.07.2019 | 05.07.2019 | 5 | 33 |
| 2 | Online tools for Plant Protection | 03.07.2019 | 05.07.2019 | 3 | 15 |
| 3 | Pest Surveillance | 08.07.2019 | 12.07.2019 | 5 | 31 |
| 4 | Plant Quarantine (PQ) National Regulations and Procedures | 15.07.2019 | 19.07.2019 | 5 | 32 |
| 5 | Plant Quarantine (PQ) Procedures for Import and Export | 15.07.2019 | 19.07.2019 | 5 | 32 |
| 6 | Non-Insect Pest Management - Mites, crabs, snails and slugs and avian | 22.07.2019 | 24.07.2019 | 3 | 19 |
| 7 | Orientation for Phytosanitary Certificate (PSC) Issuing Authority | 29.07.2019 | 02.08.2019 | 5 | 25 |
| 8 | Customized Training program on Stored Grain Pest Management for Quality Control Officials of FCI (Special program) | 29.07.2019 | 02.08.2019 | 5 | 24 |
| 9 | Certificate Course on Urban Integrated Pest Management | 30.07.2019 | 13.08.2019 | 15 | 12 |
| 10 | Forced Hot Air Treatment | 26.08.2019 | 30.08.2019 | 5 | 35 |
| 11 | Phytosanitary treatments (MBr& ALP) | 03.09.2019 | 17.09.2019 | 15 | 37 |
| 12 | Stored grain pest detection, identification and management | 16.09.2019 | 20.09.2019 | 5 | 29 |
| 13 | Quarantine pathogens: Seed Health Testing and Molecular Diagnostic Techniques | 23.09.2019 | 27.09.2019 | 5 | 20 |
| 14 | Customised training programme on Stored grain pest management for QC Cat III staff of FCI **(Special program)** | 23.09.2019 | 27.09.2019 | 5 | 32 |
| 15 | Rodent Pest Management | 23.09.2019 | 27.09.2019 | 5 | 16 |
| **Off campus Training programmes** | | | | | |
| 16 | Farmers training on Preparation of Low Cost Bottle Trap and Lures for Fruit fly trapping at KVK, Bareilly, UP | 20.08.2019 | | 1 | 120 |
| 17 | Farmers training on Preparation of Low Cost Bottle Trap and Lures for Fruit fly trapping at KVK, Bareilly, UP | 21.08.2019 | | 1 | |
| 18 | Farmers training on Rodent Pest Management at KVK, Bareilly, UP | 20.08.2019 | | 1 | 120 |
| 19 | Farmers training on Rodent Pest Management at KVK, Bareilly, UP | 21.08.2019 | | 1 | |
| 20 | Stored grain pest management for farmers of Mahabubnagar, Telangana | 27.09.2019 | | 1 | 140 |

## DETAILS OF TRAINING PROGRAMMES

1. **Rodent Pest Management in Food Grain Warehouses:** Five days training programme on Rodent Pest Management in Food Grain Warehouses was conducted during 1st - 5th July, 2019. The programme was attended by 33 officers and they were imparted skills in diagnosis of rodent pest species, infestation measurement, bait preparation and baiting techniques. Further, the participants acquired knowledge on the role of reproductive biology and ethology in scientific management of rodent pests in storage structures. Participants were taken to scientific storage godowns to learn practices of preventive and integrated rodent pest management.
2. **Online tools for Plant Protection:** A three days' training programme on online tools for Plant Protection was conducted from 03.07.2019 - 05.07.2019 at NIPHM. The programme was attended by 15 officers andgot well conversant with different and recent online tools which are in practice for plant protection.
3. **Pest Surveillance**: Five days programme on Pest Surveillance from 8th -12th July, 2019 was organized. The 31 participant learned different strategies (detection, monitoring and delimiting survey), tools required for surveillance of target pest including basic procedure to set up Pest Free Areas (PFA) and Area of Low Pest Surveillance (ALPP). Trainees learnt adequate use of various traps and lures to carry out surveillance.

4. **Plant Quarantine (PQ) National Regulations and Procedures & Plant Quarantine (PQ) Procedures for Import and Export** : Five days training programme on plant quarantine procedures in two modules for Govt. officials and for private officers were conducted from 15-19th July, 2019. The 32 participants (Govt.-28 & Private-4) learnt SPS agreement, international conventions, National regulations, SOPs on export and import, procedure for export and import of agriculture commodities through mock exercises &practical procedure for use of on-line PQIS software for export and import of seeds, plants, grains, fruits, GMOs, germplasm and bio-control agents.
5. **Non-Insect Pest Management - Mites, crabs, snails and slugs and avian**: A three days programme on non-insect pest management to practice different measure to manage at various levels was organized at NIPHM from 22th – 24th, July 2019. The programme was attended by total of 19 officers during the period.
6. **Orientation for Phytosanitary Certificate (PSC) Issuing Authority**: A Five days training programme from 29th July to 2nd August, 2019 was organized and 25 participants from various departments have attended the training to understand the basic measures employed by IPPC countries to prohibit movement of exotic pests during agricultural goods trade
7. **Certificate Course on Urban Integrated Pest Management:** Fifteen days training programme on urban integrated pest management was organized from 30th July – 13th August, 2019 at NIPHM. A total of 12officers from the pest control industry were attended. The programmes were organized with an objective to build technical manpower to undertake commercial urban pest control services in human habitations, institutions and industrial premises for structural pest management professionals.
8. **Forced Hot Air Treatment**: Five days training programme from 26th- 30th August, 2019 on Forced Hot Air Treatment was organized at NIPHM. Thirty five trainees have participated in the programme and training covered requisites associated with Solid wood packing material (SWPM), its associated pests (fungi, insects and nematodes), phytosanitary treatments, design and construction of FHAT, equipments and their specifications, accreditation and audit protocol and calibration of sensors and treatment procedures. NIPHM is the only resourceful institute specialized in offering training on FHATin accordance with ISPM-15 and NSPM-9.
9. **Phytosanitary treatments (MBr& ALP):** A 15 days training programme on Phytosanitary treatments (MBr& ALP) from 3rd – 17th September, 2019 was organised and 37officers from private industries have attended the training programme at NIPHM. Fumigation with Methyl Bromide and Phosphine is most common Phytosanitary treatment. Trainees had an overview of guidelines of NSPM-11, 12 (MBr fumigation) and NSPM-22 (Phosphine fumigation) to conduct fumigation accurately and effectively as well accreditation procedure followed by DPPQ&S.

10. **Stored grain pest detection, identification and management:** In order to excel in international market detection, identification and management of significant pests are mandatory to determine the appropriate phytosanitary treatment/measures. Taking necessity of detection and identification of pests. The programmes on stored grain pest detection, identification and management were organised during16th-20th September, 2019, attended by 29 govt. officers.
11. **Quarantine pathogens: Seed Health Testing and Molecular Diagnostic Techniques:** A seed health test is a phytosanitary requirement imposed by national plant protection authorities before allowing seed to enter their territory in order to prohibit the entry/establishment/spread of exotic pests/pathogens. Five days training programme was organized on Quarantine pathogens: Seed Health Testing and Molecular Diagnostic Techniques from 23rd – 27th September, 2019. TwentyOfficials got hands-on training for seed health testing including molecular diagnostic techniques to detect fungal, viral and bacterial pathogens.
12. **Rodent Pest Management**: Sixteen officers have attended 5 days training programme on rodent pest management from 23rd – 27th September, 2019.The participants were trained on various aspects like biology, ethology and integrated rodent management principles. The participants acquired skills in safe and judicious preparation and application of poison baits. Participants were exposed to crop fields and carried out exercises on diagnosis of rodent pest species, measurement of their infestation and crop damage. Participants were also involved in preparing action plans for organizing mass rodent control campaigns for endemic districts of their jurisdictions.

## Exclusive Programmes:

**1. Customized Training program on Stored Grain Pest Management for Quality Control Officials of FCI (Special program):** In order to create responsiveness regarding importance of stored grain pests in international trade and their management, NIPHM organised two additional customized training programmes on Stored Grain Pest Management for FCI Quality Control Officials for 5 Days during 29th July-2nd August, 2019. Total 24 FCI officials have attended the training.

**2. Customised training programme on stored grain pest management for QC Cat III staff of FCI (Special program):** In continuation one more programme exclusively for FCI officials was organized during 23rd-27th September, 2019 and the training programme was attended by 32 officials.

## Off Campus Training Programme

**1. Farmers training on Preparation of Low Cost Bottle Trap and Lures for Fruit fly trapping at KVK, Bareilly, UP:** The officials from NIPHM conducted one day workshop cum training programme at KVK, IVRI, and Bareilly, Uttar Pradesh on 20th and 21st August, 2019. The one day workshop cum training programme was organized in collaboration with KrishiVigyan Kendra, Indian Veterinary Research Institute, Bareilly, Uttar Pradesh. The programme was attended by 120 farmers.

NIPHM officials explained the importance and damages caused by fruit flies, benefit of continuous trapping of fruit flies from flowering to harvest, how prepare low cost bottles trap, preparation of Methyl Eugenol and Cue Lures by farmers themselves, installation of fruit fly traps in mango orchard and vegetable gardens etc. Practical field demonstration on the preparation of low cost bottle trap and lures were also done during the programme.

**Farmers training on Preparation of Low Cost Bottle Trap and Lures for Fruit fly trapping at KVK, Bareilly, Uttar Pradesh**

**2. Farmers training on Rodent Pest Management at KVK, Bareilly, Uttar Pradesh:** Two programmes on Rodent Pest Management were conducted at different locations of KVK, Bareilly, UP on 20th& 21st of August, 2019. The programe was attended by 120 farmers. NIPHM officials explained the farmers on the ethology of rodents in paddy field, coconut gardens, storage places and homes; different species of rodents; damages and diseases caused by them; procedure of poison bait preparation, application; importance of bait stations; effective management of rodents by following integrated approaches. A practical demonstration was given to farmers about rodent kill traps application, bait stations importance in application of poison baits, and farmers prepared the rodent poison bait using bromadiolone (packeting, pocketing).

**3. Stored grain pest management for farmers of Mahabubnagar, Telangana:** One day off campus programme on "**Stored Grain Pest Management"** was organized on 27.09.2019 at DAATT centre, Yeruvaka, PJTSAU, Mahabubnagar. The programme was inaugurated in the presence of Sh. HukyaNayak, Project Director-ATMA and Scientists from DAATTC & APMC officials. About 40 farmers from different Mandals of Mahabubnagar were present in the programme.


*Farmers training on stored grain pest management*

## Plant Health Management division

PHM division conducted seven officers programme and three farmers training programme from July to September 2019. In the officer training programme 193 officers were trained, in the farmers training programme 62 farmers were trained. The trainees and farmers were given training on the mass production of various parasitoids (Trichogramma sp., Bracon sp., Chelonus sp.), predators (Reduviids, Anthocorid bugs, Coccinellids, Chrysoperla, etc.), The mass production of EPN, EPV, EPF, antagonistic fungi, and biofertilizers were also covered during the training programme. They were also familiarised with the vermicompost preparation, pesticide application techniques. In addition, they were also taught about the new concepts of pest management i.e. Ecological engineering for pest management.

## Officers training programme.

| S.No. | Name of Training Program | From | To | Duration (days) | Number of Participants |
|---|---|---|---|---|---|
| 1. | Advances in weed management | 15.07.2019 | 19.07.2019 | 5 | 15 |
| 2. | Refresher training program on Pest and Disease diagnostic techniques for established agripreuneurs | 16.07.2019 | 19.07.2019 | 4 | 33 |
| 3. | Production protocol for Predators and Parasitoids | 22.07.2019 | 27.07.2019 | 6 | 17 |
| 4. | Training to Pest Monitors for Pest Diagnosis in IPM under CROPSAP Maharashtra | 29.07.2029 | 02.08.2019 | 5 | 33 |
| 5. | Pest Monitors on Field Diagnosis for IPM under CROPSAP | 5.08.2019 | 9.08.2019 | 5 | 28 |
| 6. | Production Protocol for Bio fertilizers. | 19.08.2019 | 23.08.2019 | 5 | 23 |
| 7. | On-Farm Production of Biocontrol Agents and Microbial Biopesticides | 16.09.2019 | 25.09.2019 | 10 | 44 |


**Farmers training Programme**

| S.No. | Name of Training Program | From | To | Duration (days) | Number of Participants |
|---|---|---|---|---|---|
| 1. | On-farm production of Biocontrol agents On-farm | 15.08.2019 | 07.08.2019 | 3 | 21 |
| 2. | production of Biocontrol agents On-farm production of | 16.09.2019 | 06.09.2019 | 3 | 11 |
| 3. | Biocontrol agents | 22.09.2019 | 25.09.2019 | 3 | 30 |

## Off-campus farmers training programme

The visit was organized with the prior permission of Director PHM, G. Ravi and organized central farm, VNMKV, Parbhani, Maharashtra. For this training programme Director, PHM of NIPHM deputed Dr. M. Narsi Reddy, Assistant scientific officer (Entomology) &Dr. K. Damodara Chari, Assistant Scientific Officer (Microbiology) from Plant Health Management, respectively. We brought all bioagent mother cultures and leaflets / technical brochures especially in Marathi (40 numbers) each for different types of Bio-fertilizers, Bio-agents, etc.

Dr. G. More, Assistant professor (Entomology) and Dr. Karate, Assistant professor (Entomology) headed host the training programme to provided overall support to demonstrate On-farm bio-fertilizer & Bio-agents production. A total 30 participants have attended the training programme from different mandals of Nanded district, Maharastra. Farmers are put very keen interest to know the on-farm production techniques of Biofertilizers &Biopesticides. We gave demonstration on On-farm production of Parasitoids& Predators, On-farm production of Biofertilizers &Biopesticides and role of Ecological Engineering concept in plant protection. Interested farmers provided mother cultures by NIPHM staff. We are also discussed on establishment of on-farm production unit for bio-fertilizers, bio pesticides& Biocontrol agents (predators, parasitoids).


Demonstrating on farm production process of Biofertilizers &Biopesticides


Demonstrating on On-farm production of biocontrol agents

## PGDPHM :On-Campus:

Organized convocation for the 8th batch of PGDPHM course on 2nd August 2019. Diploma Certificates were awarded by Director General NIPHM to18 successful students with medals to 3 meritorious students. Coordinated and Completedthe admission process for 9th batch of PGDPHM / DPHM. Total 24 students are admitted to the course.New academic year PG Diploma in PHM/ DPHM was started, in that total 24 Graduate & Post Graduate in Agriculture/ Life sciences eligible students from different states were got admission PGDPHM 20 (13 male, 7 female) DPHM 04 (2 male, 2 female) respectively.


## PGDPHM: Kerala Off campus

The convocation for the III Batch PGDPHM of Kerala off-campus programme was organized on 30.07.2019 at SAMETI, Thiruvananthapuram. The honorable Minister of Agriculture government of Kerala, Shri. V S Sunil Kumar, Shri. Devandra Kumar Singh, IAS., Additional Chief Secretary as well as Agricultural Production Commissioner and Dr.Rathan U Kelkar, IAS Special Secretary to Agriculture and Director of Agriculture have participated. Smt. G. Jayalakshmi, IAS, Director General, NIPHM and Dr. G. Ravi, Director (PHM), NIPHM have participated. Dr.Sakthivel, ASO (VPM), the Course Coordinator, NIPHM and Smt. FazeelaBeegum. S, Director SAMETI have coordinated the program. A total of 27 officials were awarded the PGDPHM Degree of NIPHM.The inauguration of the new batch (V batch) PGDPHM was also made during the programme.


Inaugural address by Hon'ble Minister for Agriculture

Distribution of cash price to the winners

Induction of New batch(V Batch) officers

Convocation batch ( III batch)

## Pesticide Management Division

PMD conducted four training program during July to September 2019. In the training program "Laboratory Quality System Management and Internal Audit as per ISO/IEC 17025:2017", a total of 35 trainees including private laboratory were trained ongeneral requirements for thecompetence of testing and calibrationlaboratories as per the new standard guidelines ISO/IEC 17025:2017. In the training on "Method Validation in Pesticide Residue Analysis and Measurement of Uncertainty" laboratory analysts were given hands on training on Method Validation which is an important parameter for quality assurance. Five days training program on "Inspection, Sampling and Prosecution Procedures under Insecticide Act, 1968 (ISPP)" was conducted and 36 participants were participated the program. In the training program"Sampling of Fruits, Vegetables and other items & Calibration of Laboratory Equipment for Pesticide Residue Analysis (PRA)" a total of 9 trainees was trained on sampling of agricultural commodities as per Codex Alimentarius guidelines and calibration of laboratory equipment which is a requirement for accreditation body.

The following training programmes were organized by Pesticide Management Division during July to Sept. 2019.

| Sl . No. | Name of the Programme | Duration in Days | From To | Number of Participants |
|---|---|---|---|---|
| 1. | Laboratory Quality System Management and Internal Audit as per ISO/IEC 17025:2017 | 5 | 15.07.19 to 19.07.19 | 35 |
| 2. | Method Validation in Pesticide Residue Analysis and Measurement of Uncertainty | 5 | 19.08.19 to 23.0 8 .19 | 5 |
| 3. | Inspection, Sampling and Prosecution Procedures under Insecticide Act, 1968 (ISPP) | 5 | 16.09.19 to 20.09.19 | 36 |
| 4. | Sampling of Fruits, Vegetables and other items & Calibration of Laboratory Equipment for Pesticide Residue Analysis (PRA) | 5 | 23.09.19 to 27.09.19 | 9 |

## Plant Health Engineering Division

### Training on Pesticide Application Techniques and Safety Measures

Training to officers in developing the skill in selecting the appropriate application techniques and maintenance of plant protection equipment for guiding farmers in proper selection of PP equipment, sprayer's calibration and application of pesticides to achieve optimum pest management was conducted. This training, entitled **'Pesticide application Techniques and Safety Measures'** was organized for 5 days duration from 15.07.2019 to 19.07.2019 & 16.09.2019 to 20.09.2019 in which 45 participants from 10 states participated.

The training emphasized the operator's safety before, after and during spraying by minimizing the contamination of getting exposure towards the toxic chemicals. During the training programme, visit was organized to ICRISAT where participants were exposed to advanced sprayers and farm equipment.


**Field practical**

**Hon'ble DG,s NIPHM interacting with participants during Drone Sprayer practical**

## Training on 'Advanced Irrigation System' (19.08.2019 to 21.08.2019)

Water is the important natural resources which maintain the plant health. Efficient utilization of water is a challenging job in agriculture sector. Advanced irrigation technology such as micro irrigation viz. drip and sprinkler irrigation which increases overall irrigation efficiency.Hence a training programme on Advance irrigation system was organized by the division and 21 participants from 06 different states undergone the programme. This training emphasized on the advancements, design, fertigation, subsidies and maintenance of irrigation systems.

Visit was organized to M/s Jain irrigation adopted research field for gave awareness on water saving technology and an exposure to installation and maintenance of micro irrigation system.


**Practical on drip system operation and maintenance**

## Training on 'Farm Equipment for Plant Health Management' (27.08.2019 to 29.08.2019)

Day by day, availability of farm labours are decreasing and the area of cultivation land is becoming limited. Effective usage of equipment and selection shall be a big task in front of agriculture community to meet the demand of food with the increase in population and decrease in the natural resources. Mechanization of agriculture is an essential input to the modern agriculture. To address these issues, a programme was conducted for 3-days duration from 27.08.2019 to 29.08.2019. Twenty four participants from 12 states participated in this programme.

This training helped them in developing the skills on selection of proper equipment at field level based on the types of soil, crop and crop density. During the training programme, visit was also organized at ICRISAT, Patancheru, Hyderabad.

**Farm Yard visit at ICRISAT**

## Training under 'Model Training Course', sponsored by Ministry (27.08.2019 to 29.08.2019)

This training, entitled **'Good Agriculture Practices in Spraying' under 'Model Training Course'** was organized for 8 day duration from 23.09.2019 to 30.09.2019 in which 14 participants from 08 states participated. Training to officers in developing the skill in selecting the appropriate application techniques and maintenance of plant protection equipment for guiding farmers in proper selection of PP equipment, sprayer's calibration and application of pesticides in agriculture field to achieve optimum pest management was conducted.

This training helped the stake holders/officer to bridge the gap and address the lacunas in the area of Plant Protection Techniques.

**MTC training visit at ICRISAT**

**MTC training field practical at NIPHM**

## In-Plant training programme for B. Tech (Ag) students

Ten students from Agricultural Engineering College, Bapatla undergone two and a half month in plant training programme in the division. The students were given two different projects viz, efficacy evaluation of drone sprayer and development of a new ultra-low volume sprayer.

A handheld ULV sprayer was developed using locally available materials The major components included the tank, spray head, battery case and extension pipe, delivery tube and strap. The spray head was powered by a battery or motor. Laboratory and field tests were carried out to determine flow and application rates. The convenience and ease with which the machine can be put to use will make it suitable for both rural and large scalefarmers.

A remote control operated drone to spray pesticides on crops which was earlier developed in the division was field tested for maize crops. Three plots were selected to compare the efficiency of spraying where, one was identified as control plot and other two being sprayed with manual back pack sprayer and drone sprayer. Spray efficacy was compared for fall army worm in maize crops. Average field efficiency of battery-operated sprayer was found to be 89.28% whereas for spraying drone was 91.46%.

## Village Adoption Highlights

1. Er. GovindMaurya, ASO (PHE) and Dr. Girish AG, Deputy Director visited Amdapur village as a part of Spray man project & Plant Health Clinic and interacted with village farmers.

**PHE & PBD staffs interacted Amdapur village farmers during visit**

## Institutional visits

Trainees of 'PAT and MTC training on Good Agriculture Practices in Spraying' and 'Farm equipment for plant health management' programmes were taken to ICRISAT and were exposed to different tractor operated, self-propelled sprayers and farm implements.

## Faculties training/workshop/Seminar/meeting/Visit

- Er .M. UdayaBhanu, SO (PHE) and Er. Govind Kumar Maurya, ASO(PHE) visited Jain Irrigation Pvt. Ltd and interacted with officials in the connection of Advance Irrigation System training practical exposure and installation of drip system in NIPHM field.
- As part of advanced irrigation systems training, Er. Govind Kumar Maurya, ASO(PHE) along with 21 participants visited M/s Jain Irrigation System Ltd at Gatkeswar and visited a micro irrigation field where farmer have adopted drip and sprinkler technology on 20th August, 2019

## Farmers/Students visit at PHE-Workshop

- Trainees from other divisions visited PHE workshop and got acquainted with different implements developed by the division and also the plant protection equipment.
- 83 students along with faculty from JKKMCAS, Paleyam, College of Agriculture, Erode district Tamilnadu, 65 students of PRIST University, Tanjauur, Tamilnadu, and 46 students from JSA College of Agriculture and Technology, Tittagudi, Tamilnadu visited PHE workshop on 17th September 2019 as a part of study tour and got exposed to various activities of the division and equipment developed by PHE

## हिंदी पखवाड़ा 2019-20

हिंदी पखवाड़ा : वनस्पति स्वास्थ्य प्रबंधन संस्थान (एनआईपीएचएम) में दिनांक 04-09-2019 से 18-09-2019 तक 'हिंदी पखवाड़ा-2019' मनाया गया। हिंदी पखवाड़ा के दौरान संस्थान के कर्मचारियों एवं अधिकारियों के लिए विभिन्न प्रतियोगिताएं : हिंदी निबन्ध लेखन, हिंदी अनुवाद, हिंदी वाक् प्रतियोगिता, प्रशासनिक शब्दावली लेखन, हिंदी श्रूतलेखन, कंप्यूटर पर हिंदी टंकण प्रतियोगिता का आयोजन किया गया।

हिंदी निबंध लेखन प्रतियोगिता : दिनांक 04-09-2019 को हिंदी निबंध लेखन प्रतियोगिता का आयोजन किया गया । प्रतियोगिता आरंभ होने से पहले संस्थान के रजिस्ट्रार ने उपस्थित सभी प्रतिभागियों को शुभकांमनाएं दीं एवं कर्मचारियों एवं अधिकारियों से हिंदी पखवाड़ा के दौरान आयोजित होने वाले सभी प्रतियोगिताओं में भाग लेने का आग्रह किया एवं कर्मचारी अपने कार्यालयीन कामकाज में अधिक से अधिक राजभाषा हिंदी का इस्तेमाल करें । वर्तमान परिप्रेक्ष्य में हिंदी की महत्ता को देखते हेतु 'राष्ट्रीयएवं अन्तर्राष्ट्रीय स्तर पर हिंदी का महत्व' एवं 'एक देश एक भाषा' संबंधित इन दो विषयों में से किसी एक शीर्षक विषय पर निबंध लिखने को दिया गया था।

**हिंदी वाक् प्रतियोगिता एवं हिंदी कार्यशाला :** दिनांक 06-09-2019 को हिंदी कार्यशाला एवं हिंदी वाक् प्रतियोगिता का आयोजन किया गया । प्रथम सत्र में हिंदी कार्यशाला का आयोजन किया गया, जिसमें आमंत्रित अतिथि वक्ता जयशंकर प्रसाद तिवारी, केन्द्रीय हिंदी प्रशिक्षण उपसंस्थान, सिकंदराबाद ने यूनिकोड हिंदी एवं राजभाषा नीति से संबंधित नियमोंपर संक्षिप्त व्याख्यान प्रस्तुत किया । उन्होंने कार्यशाला के दौरान पॉवर प्वाइंट के जरिए अपने कंप्यूटर पर यूनिकोड अपलोड करने एवं फॉनेटिक टाईपिंग के जरिए हिंदी में शब्द लिखने के बारे में जानकारी दीं। कार्यक्रम के द्वितीय सत्र में हिंदी वाक् प्रतियोगिता आयोजित की गई, जिसका विषय था-**'आज का आधुनिक भारत एवं युवा पीढ़ी'** एवं **'आधुनिक भारत निर्माण में महिलाओं का योगदान'**। प्रतिभागी को इन दो विषयों में से किसी

एक विषय पर अपनी प्रस्तुती देना था । उक्त प्रतियोगिता में डॉ.ओपी शर्मा, संयुक्त निदेशक(कृषि), एनआईपीएचएम एवं श्री जयशंकर प्रसाद तिवारी, सहायक निदेशक ने निर्णायक की भूमिका निभायी। संस्थान के हिंदी अनुवादक श्री राठौड़ मोहन ने कार्यक्रम संचालन में सहयोग प्रदान किया।



**प्रशासनिक शब्दावली लेखन प्रतियोगिता :** दिनांक 09-09-2019 को हिन्दी पखवाड़ा-2019 के तहत् 'प्रशासनिक शब्दावली लेखन प्रतियोगिता का आयोजन किया गया । इन प्रतियोगिताओं के आयोजन करने का उद्देश्य संस्थान में राजभाषा हिन्दी के कार्यान्वयन एवं कार्यालयीन कामकाज में राजभाषा हिंदी को बढ़ावा देना एवं कर्मचारियों में हिन्दीप्रशासनिक शब्दावली के उपयोग, इनकी समझ एवं हिन्दी के प्रति रूचि बढ़ाना है। इसे ध्यान में रखते हुए दैनिक सरकारी कामकाज में प्रयुक्त हिन्दी प्रशासनिक शब्दों जैसे अधिसूचना, सत्यापन, एवं आयोग आदि को हिंदी में तथा घोषणापत्र, करार आदि जैसे शब्दों को अंग्रेजी में लेखन कार्य दिया गया।

**हिंदी टिप्पण एवं मसौदा लेखन तथा हिंदी श्रुतलेखन प्रतियोगिता :** हिंदी पखवाड़ा के निर्धारित कार्यक्रम के अनुसार दिनांक 12-09-2019 को संस्थान के कर्मचारियों एवं अधिकारियों के लिए हिंदी में टिप्पण और मसौदा लेखन एवं हिंदी श्रुतलेखन प्रतियोगिता के आयोजन का किया गया । प्रतिभागियों को दैनिक सरकारी कामकाज में प्रयुक्त हिंदी मसौदा लेखन जैसे कार्यालय आदेश, परिपत्र, एवं नोट आदि के मसौदा लेखनलिखने के लिए प्रश्नपत्र दिये गये थे। उक्त प्रतियोगिता के समापन के तत्पश्चात् दूसरी प्रतियोगिता हिंदी श्रुतलेखन का भी आयोजन किया गया। इन प्रतियोगिताओं में अधिकारियों एवं कर्मचारियों ने उत्साह के साथ बढ़-चढ़कर भाग लिया।

**कंप्यूटर पर हिंदी टंकण प्रतियोगिता :** हिंदी पखवाड़ा-2019 मानये जाने के क्रम दिनांक 16-09-2019 को अधिकारियों एवं कर्मचारियों के लिए 'कंप्यूटर पर हिंदी टंकणप्रतियोगिता' का आयोजन किया गया। अधिकारियों एवं कर्मयारियों को हिंदी टंकण में कुशलता का बढावा देने तथा प्रोत्साहित करने के लिए 'कंप्यूटर पर हिंदी टंकणप्रतियोगिता' का आयोजन किया गया । अधिकारियों एवं कर्मचारियों ने प्रतियोगिता में उत्साह के साथ भाग लिया। इस प्रतियोगिता के आयोजन का उद्देश्य कर्मचारी अपने दैनिक सरकारी कामकाज कंप्यूटर पर यूनिकोड एवं फॉनेटिक टाईपिंग के माध्यम से हिंदी में कार्य कर सके । इस प्रतियोगिता में कुल 22 प्रतिभागियों ने भाग लिया, जिसकी वजह से प्रतियोगिता को तीन चरणों में संचालित की गई । संस्थान के हिंदी अनुवादक श्री राठौड़ मोहन ने कार्यक्रम का संचालन किया।

## 'हिन्दी दिवस एवं पुरस्कार वितरण समारोह-2019'

संस्थान में दिनांक 18-09-2019 को हिंदी दिवस मनाया गया । इस कार्यक्रम की अध्यक्षता श्रीमती जी. जयलक्ष्मी, भा.प्र.से., महानिदेशक-एनआईपीएचएम ने की। संस्थान के हिन्दी अधिकारी विजय कुमार साव ने मंचस्थ अधिकारी महानिदेशक सहित उपस्थित अधिकारियों एवं महानिदेशक ने अपने कर-कमलों से हिन्दी पखवाड़ा के दौरान आयोजित हिंदी प्रतियागिताओं में सफल प्रतिभागियों को नकद पुरस्कार एवं प्रमाणपत्र वितरित कीं । उन्होंने अधिकारियों एवं कर्मचारियों को संबोधित करते हुए कहा कि भाषा सीखना एक स्वैच्छिक शिक्षण प्रक्रिया है । इस प्रक्रिया से हम सहजता से दूसरी भाषाओं को सीख सकते हैं । उन्होंने कहा कि भाषा लोगों को एक-दूसरे के साथ जोड़ती है और सेतु की तरह काम करती है । हिंदी जनसंपर्क की भाषा है । हिंदी को और अधिक सरल बनाये जाने की आवश्यकता है, जिसका लाभ जन समान्य को मिल सके । लोग अपनी दिनचर्या के दौरान सामान्य हिंदी का उपयोग करना चाहिए । उन्होंने दूसरे भारतीय भाषाओं को सीखने पर भी बल दिया । ताकि,उस भाषा के साहित्य सामग्री, वैज्ञानिक, शोधों एवं अनुसंधानों से ज्ञान हासिल हो और इससे हम अपनी सोच एवं समझ को और अधिक विकसित कर सकें ।


संस्थान के रजिस्ट्रार ने कहा कि संस्थान में राजभाषा संबंधी नीति, दिशा-निर्देशों एवं नियमों का क्रियान्वयन समुचित तरीके से किया जा रहा है एवं 'ग' क्षेत्र हेतु निर्धारित लक्ष्यों को हासिल करने के लिए निरंतर प्रयासरत् हैं ।कार्यक्रम में उपस्थित अतिथि वक्ता श्रीमती बेला, सहायक निदेशक, केन्द्रीय हिंदी प्रशिक्षण उप-संस्थान, कवाड़ीगुडा ने कहा कि भारत एक बहुभाषी एवं सामासिक संस्कृति वाला देश है । सभी भाषाओं की महत्ता एवं संस्कृति है । हिंदी को राजभाषा बनाये जाने संबंधी प्रावधानों एवं अनुपालनों से संबंधि अधिनियम एवं नियमों के बारे में जानकारी दी । हिंदी अधिकारी ने उपस्थित अधिकारियों एवं विजित प्रतिभागियों का धन्यवाद ज्ञापित किया । हिंदी पखवाड़ा के दौरान आयोजित समस्त क्रियाकलापों को हैदराबाद स्थानीय हिंदी डेली मिलाप समाचारपत्र में प्रकाशित किया गया ।

# हैदराबाद स्थानीय समाचारपत्र में प्रकाशित क्रियाकलापों

प्रकाशित समाचार
दिनांक : रविवार, 22 सितंबर ,2019
पृष्ठ संख्या : 04

डेली हिन्दी मिलाप
DAILY HINDI MILAP
Hyderabad

## हिन्दी दिवस एवं पुरस्कार वितरण समारोह सम्पन्न

हैदराबाद, 21 सितंबर-(मिलाप ब्यूरो)

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दिनांक : सोमवार,09 सितंबर ,2019
पृष्ठ संख्या : 14

डेली हिन्दी मिलाप
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## हिन्दी कार्यशाला एवं वाक् प्रतियोगिता संपन्न

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पृष्ठ संख्या : 03

डेली हिन्दी मिलाप
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(मिलाप ब्यूरो)

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प्रकाशित समाचार
दिनांक : गुरुवार,12 सितंबर ,2019
पृष्ठ संख्या : 03

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## एनआईपीएचएम में कंप्यूटर पर हिन्दी टंकण प्रतियोगिता आयोजित

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(मिलाप ब्यूरो)

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## कविता

रह रहे थे बिखरे से, यह प्रक्षिक्षण का अनोखा संगम है,
नए पुराने साथियों से मिलने का, यह अनोखा संगम है |
कुछ लोगों के चेहरे बदले, कुछ की आवाज ही पहचान है,
कुछ से तो यह प्रथम बार का, अलबेला सा संगम है |
सावन की यंहा झड़ी लगी है, रिमझिम पवन फुहार है,
त्योहारों की मस्ती में डूबा, इस शहर का हर परिवार है |
कॉलेज के दिनों की याद दिलाता, यह हॉस्टल का माहौल है,
सख्त अनुशासन का पहरा, कक्षाओं की भरमार है |
आते ही पूर्व परीक्षा का डर, फिर जमके लगती क्लासें दिनभर,
योगा से तरोताजा होने पर, फिर नाश्ते की लम्बी कतार है |
देखकर खपरा की चालाकी, विस्मय हुआ अपार है,
दंग रह गए सभी जानकार, चूहों का ऐसा व्यवहार है |
"वेट हीटिंग" "ड्राई हीटिंग" , फिर लेक्चर व टीचर की "रेटिंग",
पोस्ट एग्जाम की जुगत में हर ट्रैनी, भूला घर संसार है |
कोई खपरा को नमक लगाता, कोई करता लिलिस्मी तेल अविष्कार है,
रोज़ शाम को बाजार में मस्ती, झूमता चारमीनार है |
कक्षाओं में हास्य का रस, दिन भर मौज बहार है,
हम सीखने व् सिखाने वालों में, क्या खूब ही प्यार है |

- Kailash Chand Bairwa, AGM(QC), FCI, Haryana

## आई दिवाली दीप मालिका

**आई दिवाली दीप मालिका जगमग जगमग दीपजले।**
**उत्सव ऐसा नही दूसरा पृथ्वी और आकाश तले।।**

पर्व राज है पांच दिनों का हर दिन नव संचार करे
द्वे षदो षना रहे कहीं भी सर्व धर्म सम भाव भरे
साफ सफाई घर बाहर की स्वच्छ भारत साकार करे
धन तेर सपर धन की वर्षा अन्न धन का भण्डार भरे
धन वंतरी जी प्रगट हुए जोल क्ष्मीजीभीसाथचले। 1।आई दिवाली दीप मालिका...
दिव सदूसरारूपचतुर्दसीस पनो का संसार मिले
श्रंगा रित हर बाला जैसे संस्कार केसु मन खिले
रंगोली कीरोन कले करनू तन वस्त्र पहन चले
बाजारोंकी चहल पहल मे आति शबाजी खूब जले

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राम चन्द्रजी लौटके आए रावण राक्ष सराज मरे

शुभ मुहुर्त मे पूजन करते लक्ष्मी का आह्वान करे

सभी देव धरती पर उतरे जन जनमे उत्साह भरे

घर घर दीप कजले खुशी केरा मराज्य दिन रात फले।3।आई दिवाली दीप मालिका...

पडवाकादिनशुभफलदायकप्रेमकीनदियाभरीबहे

गोव धर्न अन्नकू टकी पूजाधन धान्यभर पूर रहे

कृषकजनोंकीमेहनतखिलतीशस्यश्यामलास्वयंकहे

देश की रक्षास र्वसु रक्षा सै निक का सम्मान रहे

सीमापरउनकेसाहससेआतंकीरावण रोज जले।4।आई दिवाली दीप मालिका...

यमद्वितीया है दिवसपांचवामेलजोलका भावभरे

मातपितागुरूवरिष्ठजनोकेवरदहस्तमेहमनिखरे

**ओम**सभीसेमिल तेरह तेसारे शिकवे किये परे

नरकासुर का वध कर कृष्णा पहूँचे बहिन सुभद्रा घरे

भाई बहिन का स्नेह बढेयहयुगयुगलोकाचार चले।5।

**आई दिवाली दीप मालिका जगमग जगमग दीप जले।**

**उत्सव ऐसा नही दूसरा पृथ्वी और आकाश तले।।**

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राजेन्द्रनगरहैदराबाद500 030
8978778701op.gorkhana@yahoo.com

**Chief Editor**
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Department of Agriculture, Cooperation & Farmers Welfare,
Ministry of Agriculture & Farmers Welfare, Govt. of India
Rajendra Nagar, Hyderabad - 500 030, Telangana, India.
Tel Fax : +91 04 24015346, niphm@nic.in