



# *Prospectus* 2015-16 **CERTIFICATE COURSE**



MODERN NURSERY MANAGEMENT PRACTICES OF HORTICULTURAL CROPS  
ORGANIC FARMING & CERTIFICATION  
POST HARVEST MANAGEMENT OF HORTICULTURAL CROPS  
PROTECTED CULTIVATION OF HORTICULTURE CROPS

**CENTRAL INSTITUTE OF HORTICULTURE**  
Medziphema, Nagaland - 797106



Published by

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## DIRECTOR'S MESSAGE



*The North East states of India have huge prospects in the horticulture sector. To tap this potential a vast pool of skilled manpower is required. Therefore, with the objective to work towards building a strong workforce with technical knowhow about horticultural practices, the Institute has initiated in providing three months certificate course in different fields of horticulture.*

*Initially, courses would be provided on “Modern Nursery Management Practices of Horticultural Crops”, “Organic Farming & Certification”, “Post Harvest Management of Horticultural Crops” & “Protected Cultivation of Horticulture Crops”.*

*The courses, being offered, will enhance the skills of the unemployed youth of the region thereby creating avenues for entrepreneurial growth and self employment opportunities. All the courses are designed with primary focus on hands on experience & knowledge on various horticultural practices. Understanding the underlying principles to run and manage horticultural farms & nurseries will provide an edge to the trainees in the sector.*

*I am certain that the trainees would contribute significantly towards the development of horticulture in the region.*

  
**Dr. Lallan Ram**  
Director

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### ABOUT THE INSTITUTE

Recognizing the huge potential for development in the North-Eastern region and to provide institutional support to tap this potential, Government of India has set up the “Central Institute of Horticulture” at Medziphema, Nagaland in the year 2005-06 under the Central Sector Scheme. This Institute is set up for holistic development of horticulture in NE Region of India.

The Institute is being set up at Medziphema in an area of 43.50 ha, which is situated at 35 kms from Dimapur and 45 kms from Kohima city on National Highway 39. It has an elevation ranging from 250 to 300 metres having temperature between 12 to 35 degree centigrade and average rainfall of 2500 mm. The area has low hilly terrains with good soil suitable for growing most of the sub tropical horticultural crops.

#### VISION:

To emerge as the pioneering, innovative, farmer focused and self-supporting Institute in the country.

#### MISSION:

To provide excellent, innovative and relevant training to all the stakeholders so as to empower individuals and enable horticulture industry to bring about socio-economic development and sustainability in North East Region.

### OBJECTIVES & PROGRAMMES OF THE INSTITUTE

- ❖ Capacity building by training of trainers and farmers/beneficiaries.
- ❖ Demonstration of improved production technologies.
- ❖ Accreditation and Certification of Nurseries in NE region.
- ❖ Follow-on extension support in the field of horticulture.
- ❖ Promotion of organic cultivation of horticulture crops.
- ❖ Establishing convergence and synergy among programmes in the field of horticulture.
- ❖ Monitoring of Centrally Sponsored Programmes in the area of horticulture.

### INFRASTRUCTURE & OTHER FACILITIES

#### *Classroom*

*The Institute has well furnished state of art classroom with modern teaching equipments. Multimedia and audio visual facilities are in place for effective learning.*

#### *Hostel*

*A model treated bamboo structure unit with essential facilities would be provided to the trainees. The rooms are well furnished.*

#### *Library*

*It consists of collection of books & periodicals on horticulture related subjects. The trainees can avail the facility to update themselves on modern technologies in horticulture.*

#### *Laboratory*

*A mini laboratory is available in the Institute with facilities for conducting of basic analysis.*



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### **Practical**

*The Institute has well established demonstration plots, polyhouses & nurseries. Practical classes would be conducted by skilled technical staffs of the Institute.*

### **Course structure**

*The course has been designed to equip the trainees with the skills to run horticultural nurseries and to promote self employment opportunities and entrepreneurship. Both theory and practical classes would be provided to the trainees.*

### **Exposure visits**

*Subject related exposure visits would be organized for the trainees in renowned establishments. The purpose of the visit is to enhance their understanding and skill through live experiences.*

## **ADMISSION PROCESS**

### **Eligibility:**

*The minimum qualification for admission to the course is Class X pass.*

### **Age:**

*The age of the applicant should not be less than 20 years and not more than 30 years.*

## **COURSES**

### **A. MODERN NURSERY MANAGEMENT PRACTICES OF HORTICULTURAL CROPS** (Three months training course)

### **INTRODUCTION**

*Quality planting material production is one of the most important activities for promoting sound crop husbandry in the N.E. Region. Low productivity of horticultural crops in this region is often linked with non-availability of quality planting materials including seeds of improved varieties.*

*Nursery is a place where plants are raised by seed or vegetative means under intensive care for later transplanting to the field or for sales. Establishment of nursery involves different steps i.e. selection of site, creating water source, planning and layout of the nursery, establishment of mother plants, placement of plant propagation structure, office, stores, irrigation, pipe lines etc. Efficient utilization of these developed infrastructures in the commercial propagation of different horticulture crops throughout the year is the prerequisite for successful nursery entrepreneurship.*

*Multiplication of true to type planting materials or seed material and making it available to the consumer is the primary responsibility of the nursery industry. There is increasing demand for planting materials in Horticultural crops. Although government agencies and number of private industries are involved in this industry, there exists a great potential to meet the ever growing demand for planting material.*

*Hence, the institute intends to impart hands on training to the youth on this vital activity of crop production chain i.e. nursery management & plant propagation, whereby the trained person can contribute immensely towards the improvement of horticulture crop production in addition to finding employment opportunities for themselves.*

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### COURSE OBJECTIVES

- ❖ *To provide basic and practical knowledge on management of nursery.*
- ❖ *To impart hands on training on the commercial methods of propagation.*
- ❖ *To equip the students on management of commercial nurseries.*

### DURATION:

*Three months (Class room/ lecture / practical/ field visits, internship)*

### BATCH STRENGTH:

*20 students per batch*

### LOCATION:

*Central Institute of Horticulture, Medziphema, Nagaland*

### MEDIUM OF INSTRUCTION:

*English*

### ELIGIBILITY:

*Minimum qualifications of class X pass and above.*

### COURSE CONTENT

#### THEORY

- ❖ *Importance and scope of horticulture crop nurseries.*
- ❖ *Selection of site for establishment of nursery.*
- ❖ *Layout of nursery.*
- ❖ *Preparation of land. & seed beds*
- ❖ *Digging and filling of pits, planting of saplings for scion block.*
- ❖ *Soil sampling technique.*
- ❖ *Nursery management practices viz. mulching, training, pruning, fertilizer application, irrigation.*
- ❖ *Use of Bio fertilizers in Nursery.*
- ❖ *Integrated Nutrient Management.*
- ❖ *Maintenance of mother blocks, rootstock & bud rootstock*
- ❖ *Integrated Pest and disease management.*
- ❖ *Transplanting of nursery plants.*
- ❖ *Symptoms of mineral deficiency and their management*
- ❖ *Containers and structures for propagation.*
- ❖ *Types of propagation: seeds, specialized plant parts, cutting, layering, budding and grafting of horticultural crops, maintenance of newly propagated plants in nursery.*
- ❖ *Use of Growth Regulators in propagation of Horticultural crops.*

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- ❖ *Nutrient and water translocation*

### **PRACTICAL**

- ❖ *Layout of nursery.*
- ❖ *Soil sampling/soil sterilization/ media preparation/ bud wood collection/ budding & grafting operations*
- ❖ *Seed bed preparation.*
- ❖ *Seed sowing/planting.*
- ❖ *Techniques in transplanting of nursery plants*
- ❖ *Propagation techniques: specialized parts, cutting, layering, budding and grafting.*
- ❖ *Use of bio fertilizers, growth regulators etc.*
- ❖ *Various intercultural operations.*
- ❖ *Visit to commercial nurseries.*
- ❖ *Internship in commercial nurseries.*

### **INTERNSHIP**

*The enrolled trainees would undergo an internship for a period of 15 days in commercial nurseries.*

### **CAREER OPPORTUNITIES:**

*Supervisors, technical assistants in nurseries, self employment.*

### **B. ORGANIC FARMING & CERTIFICATION (Three months training course)**

#### **INTRODUCTION**

*Organic agricultural practices, as it is well known, provide long term benefits to the people and the environment. The agriculture in India has shown a rapid increase in the production of organic foods. The growing awareness on organic agriculture has itself been a significant driver for the increase in demand for organic products. With the world moving towards healthy food and safe environment, the role of organic farming has become very significant.*

*Keeping in note the importance of the sector, the institute is introducing a new certificate program in organic agriculture. This program is a vocational course of three months and successful completion of this course will lead to placement in companies & organization that implements projects on organic adoption & certification.*

*The certificate program will emphasize experiential learning and provides opportunities for students to combine theory and practice both in the classroom and on the certified organic farm that is a critical part of the overall certificate program.*

*This training will help the participants in gaining a deep understanding of wide range of organic agriculture, techniques, including soil improvement, organic methods of pest & diseases management, understanding the market & market linkages.*

#### **COURSE OBJECTIVES**

- ❖ *To provide the basic concept of principles of organic agriculture*
- ❖ *To gain skills in organic, sustainable and holistic management of organic systems of crop production.*



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- ❖ *To equip the students with wide range of organic farming technologies*
- ❖ *To impart technical knowhow on production of organic inputs.*
- ❖ *To develop competency in management of ICS*
- ❖ *To equip the students on knowhow of marketing and market linkages of organic produce*

### **DURATION:**

*Three months (Class room/ lecture / practical/ field visits, internship)*

### **BATCH STRENGTH:**

*20 students per batch \_*

### **LOCATION:**

*Central Institute of Horticulture, Medziphema, Nagaland*

### **MEDIUM OF INSTRUCTION:**

*English*

### **ELIGIBILITY:**

*Minimum qualifications of class X pass and above.*

### **COURSE CONTENT**

#### ***THEORY***

- ❖ *Fundamentals & principles of organic agriculture*
- ❖ *Organic soil improvement technique*
- ❖ *Importance & use of organic inputs*
- ❖ *Organic package of practices for important horticulture crops*
- ❖ *Organic pest & diseases management*
- ❖ *Introduction to Organic certification*
- ❖ *Organic certification standards: NSOP, EU & NOP*
- ❖ *Small holder group certification program*
- ❖ *Internal control system: Record keeping & trace net*
- ❖ *Marketing opportunities in organic farming*
- ❖ *Providing market-linkage: Aggregation & procurement/ Processing & value addition*

#### ***PRACTICAL***

- ❖ *Methods of use of organic inputs*
- ❖ *Practical demonstration on preparation of bio inputs*
- ❖ *Demonstration on aggregation & procurement of organic produce*
- ❖ *Preparing & designing of project for organic adoption*
- ❖ *Visit to Organic farm*



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- ❖ Visit to organic retailing stores

### **INTERNSHIP**

The enrolled trainees would undergo an internship for a period of 15 days on organic farm, certification agency, NGOs to learn organic procedures, production, certification, maintenance & business management.

### **CAREER OPPORTUNITIES:**

Field supervisor, field executives, ICS inspectors, internal auditors, organization related to organic certification companies, NGOs in the field concern.

### **POST HARVEST MANAGEMENT OF HORTICULTURAL CROPS**

(Three months training course)

### **INTRODUCTION**

Fresh fruits and vegetables comprise almost 35% of the world trade in horticulture. Being highly perishable in nature, efficient post harvest has become an absolute necessity. The magnitude of loss in food grains is to the tune of 10% whereas for fruits and vegetables losses are estimated at 35-40% due to improper Post Harvest Management (PHM). It not only amounts to a loss estimated at crores of rupees per year but also wastage of labour, energy and inputs involved in production.

With the need to have a strong post harvest loss awareness, conscious of these perishables, the Central Institute of Horticulture is introducing a new certificate course in “Post Harvest Technology of Horticultural Crops”. The certificate course is for three months duration and successful completion of the course will enable the individual for placement in the field of post harvest technology. It will also enable the individual for self employment opportunities with assistance from various organizations.

The participants or trainees will be equipped with the basic knowledge on post harvest technology applicable to agricultural/ horticulture produce after harvest for its protection, conservation, processing, packaging, distribution, marketing, and utilization an important factor to meet the food and nutritional requirements of the people in relation to their needs.

### **COURSE OBJECTIVES**

- ❖ To provide basic knowledge of postharvest management of horticultural crops, including postharvest losses and their control.
- ❖ To familiarize students with the post harvest handling techniques for maintaining product quality.
- ❖ To equip students in handling fresh and processed horticultural crops.
- ❖ To popularize home scale value addition of horticultural crops through hands on training.

### **DURATION:**

Three months (Class room/ lecture / practical/ field visits, internship)

### **BATCH STRENGTH:**

20 students per batch

### **LOCATION:**

Central Institute of Horticulture, Medziphema, Nagaland

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### MEDIUM OF INSTRUCTION:

*English*

### ELIGIBILITY:

*Minimum qualifications of class X pass and above.*

### COURSE CONTENT

#### ***THEORY***

- ❖ *Importance of post harvest management of horticultural crops.*
- ❖ *Maturity indices, harvesting of horticultural crops*
- ❖ *Pre harvest factors affecting post harvest life of horticultural crops*
- ❖ *Cooling of horticultural crops*
- ❖ *Packing and pack house operations*
- ❖ *Packaging technology*
- ❖ *Cushioning materials*
- ❖ *Storage and transportation of horticultural crops*
- ❖ *Management of Post harvest pest & diseases of horticultural crops*
- ❖ *Food safety practices*
- ❖ *Handling at destination markets*
- ❖ *Post harvest handling of vegetables, fruits, flowers, spices*
- ❖ *Processing and value addition of horticultural crops*

#### ***PRACTICAL***

- ❖ *Judging right stage of maturity in various horticultural crops*
- ❖ *Grading of horticultural produce,*
- ❖ *Post harvest treatments of horticultural crops.*
- ❖ *Packaging & storage of fruits, vegetables, flowers, spices*
- ❖ *Post harvest disorders in horticultural produce.*
- ❖ *Identification & management of storage pests and diseases*
- ❖ *Value addition in horticulture crops*
- ❖ *Visit to markets, packaging houses, processing and cold storage units.*

### ***INTERNSHIP:***

*The enrolled trainees will undergo internship for a period of 15 days in selected processing units/ cold storages or in field. The internship would enable them to gain practical experience of what has been learnt in a factual way.*

### **CAREER OPPORTUNITIES:**

*Supervisors, technical assistants in processing units, factories, cold storage units etc., self employed*



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*or work with NGOs in the field concern.*

### **PROTECTED CULTIVATION OF HORTICULTURE CROPS**

*(Three months training course)*

#### **INTRODUCTION**

*Protected cultivation was introduced in India and china in 1980, with the emergence of the industries manufacturing U.V. stabilized Low Density Poly Ethelene (L.D.P.E.) and the development of the indigenous technology for low cost green houses. Indian Petro Chemicals Limited (I.P.C.L) was one of the foremost industries operating in collaboration with the agricultural scientists in this field. In 1985, Indian Agricultural Research Institute (I.A.R.I) designed and set up green house at Leh (J&K). Presently the leading states in protected horticulture are Maharashtra, and Karnataka (cut flower), however other states like H.P., Punjab, Gujarat, Utrakhand, North Eastern State (Mizoram, Sikkim and Nagaland) are also coming up.*

*Protected cultivation practices can be defined as a cropping technique wherein the micro climate surrounding the plant body is controlled partially/ fully as per the requirement of the plant species grown during their period of growth. With the advancement in agriculture various types of protected cultivation practices suitable for a specific type of agro-climatic zone have emerged. Among these protective cultivation practices, Green house/poly house cum rain shelter is useful for the hill zones*

*Protected cultivation technology can be utilized for year around production of high value and quality vegetable crops, floriculture crops, raising of virus free high quality planting material, seedling and production of off-season vegetable, hybrid seed production and also as a tool for disease resistance breeding program.*

*Vegetable has tremendous scope in urban area of the country because of the continuous increase in availability of up markets and continuous changing choice of consumers towards rare vegetable in the diet. Green house have tremendous potential in increasing production and productivity of vegetable like in size and shape f tomatoes colour during sweet pepper, parthenocarpic cucumber off-season musk melon, in the use net house. By this way the growers can directly reduce the use of insecticides and they can grow virus free and borer free crops.*

#### **COURSE OBJECTIVES**

- ❖ *To provide basic and practical knowledge on Greenhouse constructions.*
- ❖ *To impart hands on training on the commercial protectedcultivation of flowers and high value Vegetable.*

*To equip the students on management of protected cultivation.*

#### **DURATION:**

*Three months (Class room/ lecture / practical/ field visits, internship)*

#### **BATCH STRENGTH:**

*20 students per batch*

#### **LOCATION:**

*Central Institute of Horticulture, Medziphema, Nagaland*

#### **MEDIUM OF INSTRUCTION:**

*English*

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### ELIGIBILITY:

*Minimum qualifications of class X pass and above.*

### COURSE CONTENT

#### ***THEORY***

- ❖ ***General greenhouse management.***
  - a) *Soil sterilization and preparation of cultural practices.*
  - b) *Climate control and CO<sup>2</sup> management.*
  - c) *Irrigation and fertigation technology.*
  - d) *Crops protection.*
  - e) *Post-harvest management.*
- ❖ ***Automation in protected cultivation.***
  - a) *Automation in green house structures.*
  - b) *Climate control.*
  - c) *Automated irrigation and fertigation system.*
- ❖ ***Crops specific crops.***
  - a) *Rose/ gerbera/Anthurium/orchids*
  - b) *High value vegetable like capsicum, tomato & cucumber*
  - c) *Green house construction.*
  - d) *Economics.*
  - e) *Cultivation of open field flowers, fillers and greens.*

#### ***PRACTICAL***

- ❖ *Practical demonstration on soil sterilization.*
- ❖ *Practical demonstrations on bed preparation.*
- ❖ *Practical demonstration of atomization of fertigation.*
- ❖ *Practical on drips system operation & fogging.*
- ❖ *Practical on flowers grading and packaging.*

#### ***INTERNSHIP***

*The enrolled trainees would undergo an internship for a period of 15 days in commercial nurseries.*

### CAREER OPPORTUNITIES:

*Supervisors, technical assistants in nurseries, self-employment.*



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### **RULES & REGULATIONS**

#### **A. DISCIPLINE:**

1. All the trainees are expected to maintain perfect discipline, decorum and proper atmosphere of study in the campus and in the hostel.
2. Any kind of disturbance caused within the campus or outside will be strictly dealt with.
3. Trainees are expected to maintain study hours in the morning and in the evening.
4. All disputes amongst trainees should be brought to the notice of higher authority.
5. Use of liquor, drugs or intoxicants of any kind is strictly prohibited.
6. All boarders must be back to hostel by :
  - a. 6:30 pm- March to August
  - b. 5:30 pm – September to February
7. Outsiders are not allowed to stay in the hostel.

#### **B. ALLOTMENT:**

1. Rooms would be allocated to the trainees by the management committee through proper review.
2. Trainees are not allowed to change room on their own.

#### **C. FURNITURE**

1. All trainees would be provided the basic furniture required in the hostel.
2. Furniture should not be shifted from one room to another in any case.
3. Trainees are responsible for proper upkeep of the allotted furniture.

#### **D. VISITING DAYS**

1. Visiting days: Saturday & Sunday - 07.00 am to 06.00 pm.
2. Permission from higher authority should be taken for visits on other week days.
3. The visitors should always enter their particulars in register kept in the hostel.

#### **E. CLEANLINESS:**

1. Trainees are expected to keep their rooms neat and clean.
2. Waste materials should be disposed properly and at appropriate place.

#### **F. RESPONSIBILITIES:**

1. The students are expected to show a sense of responsibility by making proper use of the common facilities available in the Institute.
2. Sickness of any kind should be reported to higher authority.

#### **G. LEAVE RULES:**

1. Leave of any kind should be approved by authority concerned.
2. Absence from hostel for a night without prior permission of the warden would be considered as an act of gross negligence and misconduct and would be dealt seriously.

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### **H. GUEST:**

1. Guests are not allowed to stay in the hostel.

### **I. MESS RULES:**

1. Trainees are expected to follow mess timings for meals.
2. No room service would be provided.
3. The mess crockery utensils etc. must not be taken out of the kitchen and dining hall.
4. Meals served in the hostel are strictly for the trainees.

Trainee(s) found guilty of disrupting the atmosphere in the hostel/ campus will be expelled immediately. Ignorance of rules shall not be considered as an excuse.

All decisions taken by the Director, Central Institute of Horticulture, Nagaland shall be final and binding.

Sd/-  
Director







**Dr. Lallan Ram, Director**

**CENTRAL INSTITUTE OF HORTICULTURE**

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