

ACHIEVEMENTS OF CIH (2006- 2015)

Central Institute of horticulture was established in the year 2006 for the holistic development of horticulture sector in the North East Region. Located at Medziphema, Nagaland about 30 km from Dimapur city and 44 km from the capital city Kohima the Institute spreads over an area of 43.50 hectare. The main thrust areas of the Institute are refinement and demonstration of identified technologies pertaining to the region; production and supply of quality seed and planting material; training and capacity building of state govt. officials, field functionaries and farmers on different aspects of horticulture development including organic farming, monitoring of centrally sponsored programmes in the area of horticulture, post harvest management, processing, value addition, marketing and agribusiness promotion.

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

- ⊙ Capacity building by training of trainers and farmers/beneficiaries.
- ⊙ Demonstration of improved production technologies.
- ⊙ Accreditation and certification of nurseries in NER
- ⊙ 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.

FOCUS AREAS

- ⊙ Training of State Govt. officials and farmers/beneficiaries of North Eastern Region.
- ⊙ Production and supply of quality planting material.
- ⊙ Accreditation and certification of nurseries in NER
- ⊙ Transfer of technology through method and result demonstration and publication of folders, manuals, leaflets etc
- ⊙ Promotion of organic farming.
- ⊙ Post harvest, marketing and agri-business promotion through exhibition, seminars, workshop, exposure trip, buyers' seller meet.
- ⊙ Coordination with state horticulture departments of NER and other National organizations.
- ⊙ Monitoring of centrally sponsored programmes in the area of horticulture

I. PLANTATION AND DEMONSTRATIONS OF PRODUCTION TECHNOLOGIES

The strength of the Institute lies in its farm and the Institute has been focusing on plantation of important crops of NER in its farm. It now has about 14 ha area under plantation of various horticulture crops

ON FARM DEMONSTRATION

For transfer of technology, CIH has established various demonstration plots on identified technologies. The technologies demonstrated are as follows

Protected cultivation

❖ Flowers

- Plantation of gerbera (var. Daphane, Kozak, Jaffana, Shania, Easy Lover, Torbin, Fanna, Wall street) under polyhouse in 1,000 sqm
- Plantation of rose (var. Avalanche, Boardeux) under polyhouse in 1,000 sqm
- Plantation of carnation (var. Domingo, Dumas, Kero ,Baltico, Verna,Master) under polyhouse in 1,000 sqm
- Anthurium, varieties like Evita Red, Evita White, New Orange and Floriana has been planted in an area of 1000 sq m



Cultivation of Gerbera



Carnation cultivation



Cultivation of Rose



Cultivation of Anthurium

❖ Vegetables

- Cultivation of tomato and capsicum and tomato in an area of 100 sqm each
- Varietal performance of var. Kian and local variety of cucumber under polyhouse in 1000 sqm
- Plantation of cherry tomato var. Omaxe in an area of 100 sqm
- Cultivation of tomato var Ramganga in an area of 200 sqm
- Cultivation of cucumber var. NS 404 under polyhouse
- Cultivation of Capsicum var Indam Bharath and Lucinde under polyhouse



Tomato cultivation



Capsicum cultivation



Cucumber cultivation

Open field

❖ Fruits

- Double row planting of pineapple cv. Giant Kew in an area of 0.25 ha
- High density planting of banana var. Grand Naine in 1 ha area
- For evaluation of different cashew varieties (V-4, BBSR-1, VRI-3, H2/16) for its suitability in NER, an area of 1 ha has been developed
- Ultra high density planting in guava in an area of 1 ha has been developed with different varieties like Kaveri, Allahabad Safeda, Sweta, Lalit, L-49
- Demonstration of poly sheet mulching for weed management in pineapple crop.
- Demonstration of Model Citrus Orchard for Khasi Mandarin in an area of 1 acre

- Plantation of Papaya var. Red Lady in an area of 1 ha
- Plantation of pomegranate in an area of 1 ha
- Cultivation of pineapple under plastic mulch in an area of 0.50 ha



Pineapple block



Banana plantation



Cashew nut plantation



Guava plantation



Pomegranate plantation



Citrus model orchard



Pineapple under plastic mulch

❖ Flowers

- Intercropping of Tuberose with fruit crops and roadside (1 ha)

❖ Vegetables

- Intercropping of vegetables (cauliflower and pea) in existing mother block of citrus in an area of 200 sq m
- Cultivation of cabbage and cauliflower
- Off season production of onion var. Agri Found Dark Red in an area of 0.25 ha
- Broccoli cultivation with different manures in an area of 100 sq.m
- Intercropping of French bean with fruit crops, Ginger with pigeon pea and Turmeric with soyabean



Cultivation of cabbage



Cultivation of broccoli



Cultivation of Onion



Intercropping of Tuberose

❖ **Organic farming**

Spices

- Organic cultivation of ginger var. Nadia in an area of 0.25 ha
- Organic cultivation of turmeric var. Lakadong and Megha Turmeric-1 in an area of 0.25 ha
- Organic model farm viz., pineapple, ginger and turmeric in an area of 1 ha each

Fruits

- Organic cultivation of pineapple var. Giant Kew in an area of 1.0 ha

Vegetables

- Organic cultivation of French bean var Arka Anoop in an area of 0.25 ha each



Organic cultivation of turmeric



Organic cultivation of ginger



Cultivation of french bean



Organic cultivation of pineapple

❖ **Bee keeping**

- Beekeeping for enhancing production in fruit and vegetables (10 hives in various fruit blocks)

❖ **Medicinal and Aromatic plants**

- For demonstrating production technology of aloe vera (var barbedensis), an area of 0.125 ha has been planted

❖ **Others**

- Plantation of silver oak as std. plant for black pepper in an area of 1 ha
- Plantation of pigeon pea in buffer zone in organic model blocks in an area of 1200 sqm
- Drying of Naga Mircha under solar dehydrator tent
- Mulching with black polythene in Exotic citrus, Mango, Old guava, Pomegranate, Aonla, Peach and bael bock
- Intercropping of Cassava (tuber crops) in an area of 1 ha



Bee hives installed in fruit blocks



Aloe vera plantation



Drying of Naga Mircha under solar dehydrator tent

DEMONSTRATION AT FARMERS FIELD

Several technology demonstration plots were established at farmers field in different location of the region. The following technology demonstrations were carried out

❖ **Fruits**

- High density planting of citrus var. Khasi Mandarin at Medziphema in 1 ha area
- High density planting of cashew var. VR-4 at Ralan area under Wokha district in 1 ha area
- Citrus rejuvenation at Rüzaphema village, Dimapur in 1 ha area

- High density planting of cashew var. VR-4 at Hovukhu village and Zuhashe village, Dimapur district in 1 ha area each
- Organic demonstration farm for high density planting in citrus in an area of 1 ha at New Chumukedima, Dimapur, Nagaland
- Demonstration on high density planting and canopy management in cashew in an area of 2 ha, Kukidolong, Dimapur, Nagaland
- Demonstration of Banana plot at Doyapur, Dimapur district (5 ha) – in process
- Demonstration of guava mother block and demonstration plot at Nagaland
- Citrus rejuvenation in an old and declined orchard in Peren in area of 1ha

❖ **Organic farming**

Spices

- Organic Model farm of ginger and turmeric in an area of 2 ha in Meghalaya
- Organic cultivation of turmeric in an area of 5 ha at Ruzaphema, Diampur, Nagaland

Fruits

- Organic models farm for pineapple in an area of 1 ha at Molvom village, Dimapur, Nagaland



Organic turmeric cultivation at Ruzaphema



Organic pineapple cultivation at Molvom village



HDP of cashew at Kukidolong



Citrus rejuvenation in Peren district

❖ **Others**

- Construction of 3 (three) units of ZECC for fruits and vegetables at various farmers field
- Distribution of banana fibre extractor machines and home scale processing unit

Demonstration of improved production technologies, production of quality seedling, water harvesting with drip irrigation system and setting up of post harvest management and primary processing unit of Sirakhong chillies at Manipur.

II. PRODUCTION OF QUALITY PLANTING MATERIAL

a. Establishment of scion/mother block under field condition

One of the key mandates of CIH is production of quality planting material and the Institute have established about 12 ha area under different fruit blocks as mother plants for scion collection to be used in different propagation activities. The following fruit crops were established.

Sl. No	Crops	Varieties
1	Sweet orange	Early Gold, Rhod-e-Red, Trovita, Cara-cara Navel, Ruby Nucellar, Moro Blood, Olinda Valencia, Itaborai,
2	Tangerine/ Mandarin	Clemenule, Daisy Tangerine, W. Murcott, Sikkim Mandarin, Khasi Mandarin, STG, Nagpur Mandarin
3	Lime	Bears lime, Mexican lime, Acid lime
4	Lemon	Eureka Lemon, Lisbon lemon, Kachai lemon
5	Cashew	VRI-3, Vengurla-4, BBSR -1,H-2/16,H-1608, Bhaskara, Dhana, V-7, Ullal-3, Ullal-4, Priyanka, VRI-3,Sel.-2
6	Guava	Sweta, Lalit, Allahabad safeda, Lucknow-49,
7	Mango	Langra, Bombay green, Pant Sinduri, Dashehari, Mallika
8	Litchi	Shahi, Seedless, Kalkatia, Red Rose Scented, China and Tezpur
9	Bael	B-2,NB-5,NB-6
10	Aonla	Kanchan ,NA-6, NA-10, NA-7, Krishna, Laxmi -52
11	Peach	Shane-E-Punjab
12	Passion fruit	Purple local, Yellow
13	Pomegranate	Bhagwa



Citrus exotic block



Passionfruit block

Cashewnut block



Mango block



Litchi block



Bael block



Peach block



Aonla block



Citrus scion block in polyhouse

- b. Establishment of citrus scion block in polyhouse** (Sweet orange, STG, Nagpur, Mandarin, Sikkim mandarin, Khasi mandarin)

RAISING OF ROOTSTOCKS AND ESTABLISHMENT OF ROOTSTOCK BLOCK

The Institute has established a rootstock block for citrus var Cleopatra Mandarin, Rangpur lime and Kachhai lemon in an area of 0.5 ha and var. *C. volkemandiana* in an area of 0.1ha.

Raising of rootstock for crops such as citrus, cashewnut, guava, mango and rose was raised for further multiplication. The number of rootstock raised at the Institute till date is given below.

- Citrus (Cleopatra mandarin) - 16,300 nos
- *C. volkemandiana* seedling - 36,000 nos
- Rangpur lime seedlings - 55,250 nos
- Rough lemon seedling - 10,200 nos
- Cashewnut - 61,500 nos
- Mango - 26,500 nos
- Guava - 15,500 nos



CITRUS ROOTSTOCK



GUAVA ROOTSTOCK



CASHEW ROOTSTOCK



MANGO ROOTSTOCK

PROPAGATION

The Institute also carries out propagation activities in crops like citrus, cashew, rose, mango and guava by following the right propagation method. The successful propagated plants are used for gap filling and distribute to the farmers for demonstration activities. The Institute has so far successfully propagated the following nos. of plants

- Citrus - 31,550 nos
- Cashew - 32,750 nos
- Mango - 9532 nos
- Guava - 19,925 nos
- Rose - 5000 nos



Soft wood grafting in cashew



Wedge grafting in guava



T- budding in citrus



Wedge grafting in mango

III. HUMAN RESOURCE DEVELOPMENT

The Institute imparts trainings to state govt. officials of horticulture department and farmers of all North East states as per the need of the state. The trainings are conducted in respective states by inviting renowned experts from different parts of the country along with the faculty of CIH. The Institute has organized **213 nos.** of farmers trainings where **15,531** no of persons were trained, and **51** nos of trainers training where **2067** no of persons were trained in identified areas of horticulture in the region.

Focus areas of trainings

- Improved production technology of horticultural crops
- Nursery management and quality planting materials production
- High density planting and canopy management in fruit crops

- Organic farming and certification
- Post harvest management of horticultural crops
- Protected cultivation
- Citrus rejuvenation
- Value addition in horticulture crops
- Supply chain and marketing linkages of Agri./Horti. Crops

IV. CAPACITY BUILDING

Capacity building is considered as an integral part of organizational development in terms of strong HRD base through exposure within and outside the country and as such, CIH has till date undergone **19 nos.** of capacity building programmes both National (18 nos.) and International (1 no).





V. EXPOSURE TRIPS CUM TRAINING FOR FARMERS AND OFFICIALS OF NER

CIH conducts exposure trips cum trainings for the officials, farmers and SHGs of North East Region at regular intervals to various reputed Institutions and Research centres in the country viz. IIHR, Bangalore, IARI, New Delhi, ZARS, Karnataka, CIPHET, Ludhiana, NRCC, Nagpur, Central Institute for Subtropical Horticulture, Rehmankhara, Lucknow, HTI, Karnal, Haryana, Institute of Horticulture Technology, Greater Noida, MAET, Kotputli, Jaipur, Rajasthan Hi - Tech floriculture Project at College of Agriculture Pune, Century International and Shrivardhan Biotech Kondigre, Pune, Trupty Orchard, Keonjar, Bhubaneshwar, Orissa.

The main objective is to build and strengthen their capacities and help them to sharpen their skills and ability. The Institute has conducted **17 nos** of exposure trips cum trainings for the officials and farmers of NER in different high tech horticulture programmes such as improved production technology, propagation techniques, post harvest management, protected cultivation etc

VI. PUBLICATION

CIH has published various manuals, extension bulletins, folders, proceedings, report and recommendations etc on important focus crops of NER such as production technologies, organic farming, protected cultivation and post harvest management for the farmers and extension functionaries of the region. Besides, keeping in view the demand of farmers and extension workers, CIH has put on a lot of effort in publishing folders in different local dialect of North East for the benefit of the rural farmer of the region. The result was tremendous which resulted into a paradigm shift towards adopting modern technologies by the farming community. Distribution of various extension bulletins, folders etc in various part of the region is also done while conducting trainings.

The total numbers of publications is **203** which are mentioned below:

- Annual report – 6 nos
- Manuals – 4 nos
- Extension bulletin – 4 nos
- Booklets – 3 nos
- Proceedings, Report and recommendation – 3 nos
- Folders (English) – 43 nos
- Folders (local dialect) – 112 nos
- Flow charts – 13 nos
- Flip charts – 11 nos
- Brochure/ leaflets – 4 nos

VII. PARTICIPATION/ORGANIZING EXHIBITIONS/ TRADE FAIRS/MEETS

Participation - 18 nos (17 National, 1 International)

Organized - 6 nos



Various Exhibitions participated by CIH

VIII. SEMINAR, CONFERENCE, WORKSHOP, MEETINGS ORGANIZED (23 nos)

In order to disseminate the right knowledge on modern agricultural practices and suitable means to develop the agri/ horti market in NER, CIH organized seminars, workshop and conferences at regular interval. With lectures on success stories from experts all over the country, the participants are made aware of their role in developing horticulture sector of north east. The participants being stakeholders like farmers, govt. officials, non-governmental organizations private players, are able to effectively carry forward in the development of the sector. The Institute has organized a total of **23 nos** of important programmes as given below

- Seminars - **3 nos**
- Workshops - **9 nos**
- Meets and interface - **8 nos**
- Marketing summit - **1 nos**
- International conference - **1 nos**



Stakeholders meet



International Conference

IX. PARTICIPATION IN SEMINAR, CONFERENCE, WORKSHOP, MEETINGS (33 nos)

CIH has participated and presented papers in seminars, workshops, summit, symposium, horticulture congress, trainings, meets and conferences as it provides an opportunity to interact and understand on key areas of horticulture in a better way. The institute has participated in **33 nos** in such programmes as listed below

- Seminars - **8 nos**
- Workshops - **9 nos**
- Summit - **2 nos**
- Symposium - **3 nos**
- Horticulture congress - **3 nos**
- Trainings/summer school - **3 nos**
- Meets - **1 no**
- Conferences - **4 nos**

X. MARKET PROMOTION

Central Institute of Horticulture with the objective to work towards holistic development of horticulture sector in NER took several initiatives in creating market linkage & promoting the produce of the region. The Institute by organizing trainings, exposure trips, workshops/seminars, buyers & sellers meet provides a platform to the farmers to understand

the issues related to production & marketing of horticulture crops. Such initiatives have been a valuable means of disseminating knowledge. The Institute had organized a number of programs with the objective to identify the gaps in the system & to work towards ways & means to market the products of the region.

- Facilitated to link organic produce of NER to metro cities through exhibitions, buyers & sellers meets etc
- Trained farmers in different aspects of post harvest management and marketing through trainings, exposure visits. This helped the farming community gain knowledge & insights working fundamentals of the market
- Initiated formation of N E Horti Farmers Forum to bring various farmers group under one roof
- Through workshops, seminars, conferences, meetings, several vital issues in marketing have been highlighted and addressed, thus disseminating knowledge on agriculture marketing practices
- Facilitated farmers in availing of Central Govt. Schemes for agriculture development
- Coordinated with national level organizations to assist the farming community of the region.
- Created a brand logo of Nagaland Pineapple during N E Organic Fest at Delhi Haat, New Delhi on 15th December, 2012

XI. MEETINGS

- **Interface meetings** with state officials of NER in Arunachal Pradesh, Assam, Meghalaya, Mizoram, Nagaland, Sikkim & Tripura
- **Technical advisory committee (TAC)** meeting (5 times)
- **Board of management (BOM)** meetings convened for eight times
- Interface meeting with MD, NHB & Growers held on 9th October 2010
- Interface meeting with MD, NHB, CIH & State Govt., Nagaland at NSAMB Complex, 4th mile Dimapur on 9th October 2010
- Meeting for drafting vision 2020 of CIH on 28th Nov. 2011
- Stake holders meeting for discussion on NEH programme on 25th July 2013 at NRC Pig, Guwahati.
- Meeting for implementation of Mission for Integrated Development of Horticulture (MIDH) at ITC, Sonar, Kolkata on 6th March, 2014 and Krishi Bhawan, New Delhi on 20th and 22nd March 2014.
- 1st meeting of Nursery accreditation at hotel Acacia, Dimapur on 19th Feb 2015, where representatives from 8 North East States attended the meeting.



Inauguration of Training centre by Horticulture Commissioner



Technical Advisory Committee Meeting

XII. IMPORTANT EVENTS ORGANIZED

- CIH Foundation Day on 27th March
- Celebrated **World Environment Day** on 5th June, 2009 & 2012
- Celebrated **Hindi Diwas** on 14th September, 2010 & 2012
- **Independence Day** celebration
- **Republic Day** celebration
- Undertook cleanliness drive “Swachh Bharat Mission” on 2nd Oct, 2014



Swachh Bharat Mission



Foundation Day celebration

XIII. INFRASTRUCTURE DEVELOPMENT

- Training centre (ground floor)- present Administrative office building
- Old administrative office building (treated bamboo)
- Farm house cum Laboratory
- Store house
- Parking shed for office vehicles
- Garage for Tractor & others
- Naga machang
- Security house and bunker
- Electrical substation (125 kilo watt)
- Motor vehicles (Car / Tractor / Power tiller / Water tanker/Delivery van)
- Landscaping in 0.5 ha around Administrative building
- CC road covering 400 m
- Drip irrigation system (12.70 ha)
- Packing & grading shed for flowers
- Water harvesting structures (2 nos.)
- Low cost evaporative cool storage structures (ICAR & IARI model)
- Mini check dams (2 nos.)
- Ring well (3 nos.)
- Borewell
- Weather station
- Trellising in passion fruit
- Cashew processing unit
- Drying floor for ginger & turmeric
- Low cost storage structure for onion
- Iron bench for propagation (polyhouse no.6)
- DG Set

- Water reservoir (3 lakh ltrs capacity)
- Pump house
- Polyhouses (10 nos.)
- Shade Net (02nos.)
- PFDC (3 nos)
- Labor resting shed (4 nos.)
- Vermicompost unit for organic block (2 units)
- NADEP for organic block (3 units)
- Cow shed for organic block
- Laying of cc pavement at the entrance of E block
- Watch tower

XIV. NURSERY ACCREDITATION INITIATIVES

- Committee formed
- Convened meeting
- Pre monitoring of nursery
- Collection of list

XV. MONITORING AND EVALUATION

- Visit to HMNEH Project site of NER