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Visit Report

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VISIT REPORT

As per University curriculum a study tour is compulsory for F. Y. B. Sc. students to study Plant Nursery Management, plant based research centers and Fruit processing unit. So our department organizes visit to Om Gayatri Nursery Pimpalas and NHRDF center citegaon on 13/8/2015. During visit we get opportunity to study nursery management as well as various aspects of garlic and onion cultivation. The detailed information about the places is as follows,

The NHRDF has created many infrastructural facilities to carry out R & D activities in the field and laboratory on all aspects of different export-oriented horticultural crops. The NHRDF established research stations and extension centres in different states of the country. Presently, it has 5 Regional Research Stations (RRSs) and 18 Extension

centres (ECs) spread all over the country. It has also established one Krishi Vigyan Kendra at Ujwa in New Delhi do cater to the need of the farmers of Delhi state.

The NHRDF has well-developed research farm along with requisite buildings etc. at its Regional Research Stations, viz, 8.0 hectare land at Karnal (Haryana), 17.0 hectare at Sinnar, Nashik and 7.50 hectare in Chitegaon at its Head office, Nashik (Maharashtra), 4.0 hectare at Kambai Dindigul (Tamil Nadu) and 15.0 hectare at Ujwa, New Delhi. Apart from the research stations, it has established at Lasalgaon (Maharashtra), Rajkot (Gujarat), Indore (Madhya Pradesh), Karnal (Haryana) and Deoria (Uttar Pradesh.) The seed stores with controlled temperature and humidity facilities are also established at Lasalgaon and Chitegaon in Nashik district of Maharashtra; Janakpuri in New Delhi; Rajkot in Gujarat; Karnal in Haryana, Indore in Madhya Pradesh and Deoria in Uttar Pradesh. These are used for storage of vegetable seeds, including onion seeds produced by NHRDF under

its developmental programmes. Six polyhouses of 2000 sq. meter each are constructed at Karnal (two nos.), Ujwa, New Delhi (one no.), Chitegaon (one no.) and Sinnar (two nos.) farms.

The NHRDF centers located in different states of India are depicted in map for carrying out the developmental, seed production and distribution activities.

The National Horticultural Research and Development Foundation (NHRDF) was established by National Agricultural Co-operative Marketing Federation of India Ltd. (NAFED) on 3 November, 1977 under Societies Registration Act, 1860 at New Delhi. During 1989, the Head Office of NHRDF was shifted to Nashik but the Registered office is at New Delhi. The aim of establishment of NHRDF was to guide the farmers, exporters and others concerned for improving the productivity and quality of horticultural crops in order to make available sufficient quantity for domestic requirement and also to boost up export of horticultural crops in the country. Onion was the first crop

on which the NHRDF has started its Research and Development programmes to meet the above mentioned aim and subsequently garlic, Okra, chilli, French bean crops etc. have been added. The NHRDF initially started as a small centre at New Delhi in 1978 and now it has 3 Regional Research Stations, laboratories on different aspects and 17 Extension Centres spread all over the major onion and garlic growing pockets of the country. It has also established one Krishi Vigyan Kendra at Ujwa in New Delhi to cater the needs of farmers of Delhi State.

The laboratories on plant protection (plant Pathology and Entomology), Plant Physiology and Biochemistry and Seed Technology have been established at Nasik and Karnal. One seed and soil Testing laboratory has also been established at Lasalgaon in Nashik district of Maharashtra.

The NHRDF has established one of the most sophisticated and modern Pesticide Residue Analysis laboratory (PRA Lab) Head Office, Nashik. The PRA Laboratory has been recognized by APEDA and accredited by NABL for pesticide residue analysis.

of all the Agriculture produce. The NHRDF has also established a Bio- control Laboratory for production of Bio-pesticides at Nashik and producing bio-pesticides, i.e. Trichoderma and SNPV.

One Model Post Harvest Research Complex (PHRC) at Lasalgaon (MS) having 10 handling sheds of 100 MT capacity each, 20 modern storage godowns of 50 MT capacity each have also been established by NHRDF for training and providing infrastructural support to onion growers, traders, and exporters on post harvest management of onion. The seed processing plants are established at Lasalgaon (Maharashtra), Rajkot (Gujarat), Indore (Madhya Pradesh), Karnal (Haryana) and Deoria (Uttar Pradesh). The seed stores with controlled temperature and humidity facilities are also established at Lasalgaon and Chitegaon in Nashik district of Maharashtra; Janakpuri in New Delhi; Rajkot in Gujarat; Karnal in Haryana; Indore in Madhya Pradesh and Deoria in Uttar Pradesh. These are used for storage of vegetable seeds including onion seeds produced by NHRDF under its developmental programmes.

The NHRDF has

standardized production, protection and post harvest technologies for growing onion and garlic in different regions. Popularization of improved varieties of onion and garlic, quality seed production and distribution of their varieties all over the country through well spread extension network has been well recognised by the Govt. of India. The NHRDF is also conducting Research and Development activities on all aspects of crop production, protection, seed technology, post-harvest technology and also transfer of technology of onion and garlic crops. The NHRDF since its inception is also engaged in quality seed production and distribution of important vegetable crops particularly onion, garlic, okra, potato, French bean, chilli etc. as a service to the farmers.

The NHRDF has now grown up as an Institute of national and international fame in the field of onion and garlic research. The Research and Development work carried out by the NHRDF particularly in crop production and post harvest technology of onion and garlic has helped the country to come out of the crisis of these crops many times. The NHRDF carries out its Research and Development programmes with the guidance of its Scientific Advisory

Committee under the chairmanship of Dy. Director General (Horticulture), Indian Council of Agricultural Research (ICAR) consisting of eminent scientists from different disciplines as members.

The Head Quarter of NHRDF is located 20 km away from Nashik towards North-East on the Nashik-Aurangabad Road at 20° North Latitude and $73^{\circ}57'$ East Longitude at 492 m above mean sea-level at Chitegaon Phata in Niphad taluka of Nashik district.

A) Laboratory Services -

The NHRDF has established laboratories on Seed Testing, Plant Pathology, Entomology, Plant Physiology, Soil Testing and Bio-chemistry, Wine analysis, Pesticides Residue Analysis. The basic aims of these laboratories are to analyze plant, soil, and seed samples obtained from the research and developmental activities due to consistent demand from the farmers/ exporters as also to guide them on pathological, entomological and nutritional aspects for better productivity and quality, the services of these laboratories have been extended also to them and other such concerns.

The NHRDF has also recently established

a modern Pesticide Residue Analysis laboratory at its Head office, Chitegaon, Nashik. The laboratory has also been recognized by APEDA, and also approved by Agmark and accredited by NABL for residue analysis in all export oriented agricultural produce especially grapes, pomegranate, mango, onion and other such products. This laboratory has also been approved by the third countries for the purpose of drawing up documents, which must accompany each consignment of wine imported in to the community. (Article 48 of commission Regulation (EC) No. 555/2008 of 27 June 2008) and recognized by the European Union.

The details of services available with NARDE-Labs are given as below:

a] Soil, water and plant petiole Testing:-

b] Bio-products / Organic Manure:-

c] Wine Testing:-

Sr. No.	Particulars	Commodity	Method of analysis
1]	pH, brix, alcohol, volatile acidity, Titrable Acidity, reducing sugar, total SO ₂	Grape wine	Titration and Pycometer

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Free SO₂.

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2)	As per form VI of EU certificate	Grape wine	Titration, Spectrophotometric and pycnometer
3)	Multi pesticides residue testing in grape wine	Grape wine	GCMS/MS & LCMS/MS CSOP No. 2)

d] Pesticide Residue testing in fruits, vegetables & Peanut:-

Sl.No.	Particular	Commodity	Method of analysis
1)	Individual pesticides groups	Fruits & vegetables	GC, HPLC, LCMS/MS and GCMS/MS
2)	Analysis of 186 pesticides (as per APEDA guidelines)	Grapes	GC, HPLC, LCMS/MS, GCMS/MS and ICP-OAS
3)	98 compounds	Fruits & vegetables	LCMS/MS, GCMS/MS and Uv-Vis Spectrophotometer
4)	60 compounds	Fruits & vegetables	Multi Residue method (GCMS/MS)
5)	2 to 10 compounds by using	Fruits & vegetables	GCMS/MS

single equipment	Vegetables	or LCMS/MS/HPLC
6) 2 to 10 compounds by using two equipments	Fruits & vegetables	GCMS/MS & LCMS/MS
7) A Flatoxin (B1, G1 & G2)	Pea nut	LCMS/MS
single isomer	Pea nut	

e7 Pesticides Residue testing charges In bio & chemical pesticides samples:-

Sr.No.	Particular	Method of analysis
1)	Multi pesticides residue	LCMS/MS (GCMS/MS)
2)	Individual compounds	LCMS/MS or GCMS/MS
3)	Dithiocarbamate	LCMS/MS
4)	Polar compounds Glyphosate (AME)	LCMS/MS (4 compounds)
5)	Plant growth regulators	LCMS/MS (14 compounds)

6)	Multi pesticides residue + PGR OR Polar compounds	LCMS/MS, GCMS/MS
7)	Multi pesticides residue + PGR + Polar compounds	LCMS/MS, GCMS/MS
8)	Total agro chemicals (186) as per Grapenet excluding heavy metals	LCMS/MS, GCMS/MS UV-Vis Spectrophotometer, HPLC

F) Testing:-

Sr.No	Particular	Commodity	Method of analysis
1)	Seed testing - Germination, moisture & Purity	seed	Standard method as per seed act
2)	Bud differentiation	Grape	Physical and
3)	Identification of diseases	Horticultu- ral crops	Microscopic observations
4)	Identification of Insects	Horticultu- ral crops	
5)	Identification of		

physiological disorder

Horticultural
Crops

6) Analysis of samples for
diseases insect pests m-
ematodes and soil particle
etc.

onion and
potato
bulb

Physical and
microscopic
observations

The laboratories of NHRDF are equipped with modern and sophisticated equipments. The pesticides residues analysis laboratory is following Quality System based on the national and international standards.

B) Testing Efficacy of New Products on Vegetable Crops At Different Locations

The NHRDF is extending the services of field evaluation of insecticides, fungicides, herbicides and growth hormones of various companies meant for registration or for the recommendation to growers of onion, garlic, tomato, okra and other such vegetable crops.

C) Training On production and Post-Harvest Technology

The NHRDF extends trainings to farmers

exporters, delegation from national and international agencies on production and post-harvest technologies of onion, garlic and other vegetables.

D) Information Centre

The NHRDF surveys onion and garlic crops and crop prospect reports along with market information are compiled every month. The same is being passed on the Government and other such agencies on demand with no charge.

E) Other Services

- 1) Production and distribution of nucleus, breeder, foundation and truthfull leveled seeds of onion, garlic and other vegetables.
- 2) Farm advisory services.
- 3) consultancy in horticultural research and development
- 4) Training to farmers and other concerned in farming operations
- 5) Training to officials from various countries in different disciplines
- 6) Production and distribution of bio-pesticides.
- 7) Production and distribution of mushroom in

Spawn and pasteurized compost

In addition, the unspecified services will be provided on charge basis after considering the quantum of work involved and facilities available with NHRDF.

Om Gayatri Nursery -

Om Gayatri Nursery is based in Pimples Dist. Nashik and has earned its reputation as one of the fastest growing firm working in the field of plant nurseries. It was initially started in an exceedingly tiny space of one acre, with the growing response from the farmers. Today, it occupies famous status in Nashik District.

During visit we observe the nursery to know the structural details of nursery management. We have a large collection of spacious plants like marigold and vegetable plants that are ready in tray. The plants are healthy and are disease free from the disease like tip miner and trives.

There are two types of trays -

One tray comes with 70 blocks and another with 104 blocks. In 70 block many types of

plant grow like capsicum, watermelon, etc and in 104 blocks brinjal, marigold, cabbage and lots of plants are grown.

In this Nursery, a sprinkler system is used to maintain temperature of nursery environment and also used to provide water to the planted plants. Also the required amount of medicine is sprinkled through the sprinkler.

There is availability of automatic tray filling machine to fill tray with seeds automatically which avoid seed loss and reduces manpower work. The automatic tray filling machine increases productivity of plants.

They have a team of experts who always strive to fulfill the desires of the farmers. According to the season and the demand of the farmers all the plants grown properly and are delivered to them with healthy crops. The farmer earns a good profit after harvesting the plants grown in his farm as the plant or vegetable grown is approximately 25% better and of good quality.

Along with these in the premise of nursery there is fruit ripening unit so all we get opportunity to observe mechanism of artificial ripening of Bananas.