



Genesis

ICAR - Directorate of
Floricultural Research

Floriculture in India

The offering and exchange of flowers in India is as old as its civilization especially in places of worship and their use for adornment of hair by women and for home decoration. Flowers are always remained as an integral part of social fabric and are being used to perform number of basic rituals. Therefore the floriculture in India remained traditional and usage of flowers in India differs significantly from rest of the world where modern floriculture is practised. The domestic as well as export market for floriculture has expanded significantly widening the entrepreneurial

options both in urban as well as rural areas for all users. Floriculture has emerged as a viable option of crop diversification with lucrative income. This offers excellent self employment with remunerative income for the small and marginal farmers and rural youth. At present (2017-18), floriculture occupies an area of

Released during the Foundation Stone Laying Ceremony of Farm Office cum Field Laboratory on August 3, 2019



ICAR - Directorate of Floricultural Research

College of Agriculture Campus, Shivajinagar, Pune



324000 ha with a production of 19.62 lakh MT of loose flowers and 8.23 lakh MT of cut flowers in India (NHB 2019). Scope for floricultural exports is evident from the facts that the India's ranking in global flower exports is 17th with a share of 0.61% in 2014 and up to 0.89% in 2015 according to Associated Chambers of Commerce and Industry of India. Currently India exports floricultural produce worth of Rs. 507 cr comprising of mostly dry flowers (71%), fresh cut flowers (18%), live plants (9%), fresh bulbs (1%) and cut foliage (1%).

The increasing demand projected for both cut flowers and potted plants in Western countries will result in the production outside the traditional area. Due to the pressure of escalating cost and environmental regulations in major production centres in the world, India would gain from the situation and expand further by increasing the production of existing products as well as expanding the product range. Domestic market for loose flowers and cut flowers has also increased significantly owing to rapid urbanization, changes in social attitude, increase in income level and the increasing habit of 'saying it with flowers'. Increasing awareness towards clean environment and growing interest in gardening/landscaping & aesthetics among urban dwellers provides lots of opportunities to nursery and ornamental horticulturists. Floriculture under protected conditions, value addition in the form of essential oils, dry flowers, etc is not less than any lucrative job.

Genesis of DFR

Institutional R & D is of paramount importance for technology generation and dissemination in order to support the existing floricultural activities and to harness the emerging opportunities in floriculture. Science and technology led development would further enhance the profitability of floricultural enterprises. In this context, systematic floricultural research under All India Research Project on Floriculture was started at various organizations/Institutes in 1971-72 which made significant contributions.

In order to strengthen the research efforts, boost the technological support to floriculture sector and to address challenges related to product diversification and integrated farming system, Indian Council of Agricultural Research (ICAR) established Directorate of Floricultural Research (DFR), an exclusive Institute by up-gradation of the of All India Coordinated Research Project (AICRP) on Floriculture. It was established on December 10, 2009 at New Delhi (in the campus of Indian



Foundation day





Vision

To harness the research and development activities in flower crops and landscape gardening for promotion of domestic and export markets.



Mission

To carry out research, impart education, conduct out-reach programmes in floriculture and landscaping with national and international partners for enhancing the production, productivity, profitability besides alleviating the rural poverty.



Mandate

- To conduct basic, strategic and applied research to enhance sustainable productivity, quality and utilization of ornamental crops.
- To develop a repository of genetic resources and scientific information on ornamental crops.
- To transfer technology, capacity building and impact assessment of technologies.
- Coordinate research and validation of technologies through AICRP on Floriculture.

Agricultural Research Institute, Pusa, New Delhi). In the year 2014, it was relocated to Pune, Maharashtra and started its operations from the Agricultural College Campus, Shivajinagar, Pune.

Considering the research needs and widening scope of floriculture in India, the mandate has been revised to enhance the crucial technological support to the growers and entrepreneurs besides providing employment opportunities for rural youth and women.

Research Orientation

To achieve the set mandate / objectives, research is planned and being conducted under the following themes.

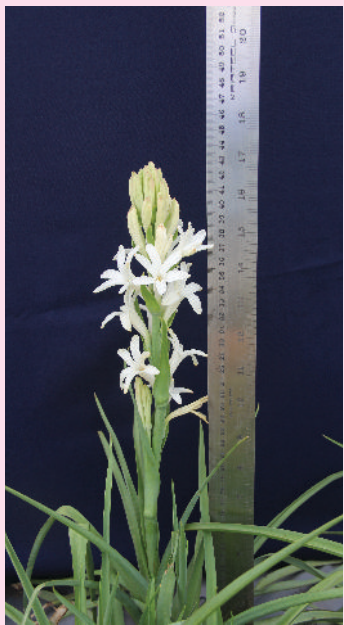
Crop Improvement

Major activities include germplasm collection, evaluation, characterization and utilization in all commercial flower crops and to serve as a National Repository and development of improved varieties in respect of yield, quality, novelty, resistance to biotic and abiotic factors etc. Crops being dealt at present are rose, gladiolus, chrysanthemum, tuberose, marigold and flowering annuals. Promising lines in gladiolus, tuberose, chrysanthemum are developed and evaluated.

Crop Production

The focus is on location/region specific production

Promising Lines



technologies, minimization of cost of production and enhancement of net returns per unit area. Major focus is on developing alternate media sources for the nursery industry by using industrial (fly ash, press mud) and agriculture by-products (ground shells, bagasse, soya bean husk, rice husk, rice ash, mushroom spent compost). Development of tools and gadgets for minimising the drudgery also remains our focus.

Crop Protection

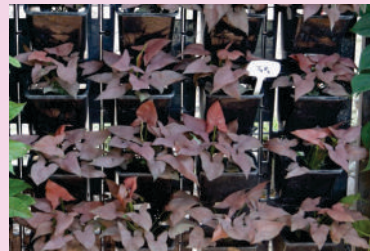
Evolving improved measures for the control of insect pests and diseases (including viral & phytoplasma based) with the use of new molecules and following the approach of Integrated Pest Management. Main focus is on developing on farm diagnostics (lateral flow dip sticks) for important viruses.

Post-harvest Management and Value Addition

Standardization of post-harvest handling (maturity/ stage of harvest, pre-treatments, use of chemicals, storage, packaging & transport) techniques for respective flowers separately and value addition avenues to increase the farm income. Development of packaging for loose flowers and value added products is of prime focus.

New Initiatives

- Harnessing the potential of nutraceutical pigments (rose, chrysanthemum, marigold)
- Profiling of essential oils (rose, tuberose)
- Development of tools & gadgets (design & development of grafting machine, flower plucker and bulb planter)
- Advanced tools (lateral flow dip sticks) for disease diagnostics
- Harnessing of industrial and agricultural by-products as potting media for the nursery industry
- Vertical gardening
- Speciality flowers (heliconia, red ginger, bird of paradise)
- Development of foldable crates for efficient transportation of flowers



Suitable Plants for Vertical Garden



Collapsible Crates for Loose Flowers



T1 : Carmoisine



T2: Sunset yellow + Tartrazine

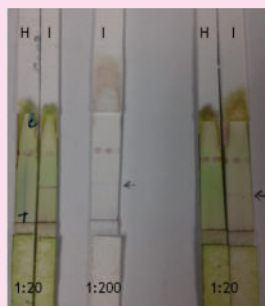


T3: Tartrazine

Value Addition through Tinting



Flower Plucker



Lateral flow dip stick



Bulb Planter



Specialty flowers



Hon'ble Secretary (DARE) & DG (ICAR) Dr. T. Mohapatra with Directors and Staff of ICAR Institutes at Hadapsar Farm



Integrating Apiculture with Floriculture

Teaching

Scientists of this Institute are faculty members of MPKV, Pune and associated in the teaching Post Graduate (PG) courses in the discipline of Horticulture and guiding of PG students in floriculture.

Human Resources

ICAR - DFR is headed by a Director who is supported by scientists (16 nos., 1 Principal Scientist, 5 Senior Scientists and 10 Scientists), technical (3 nos) and administrative (10 nos) staff. The cadre strength of scientific positions was revised to 33 during 2019.

Research Infrastructure

Soon after the physical transfer of the land in 2017 ICAR-DFR has embarked on creating the required field infrastructure for addressing the mandate. Separate blocks were created for rose, chrysanthemum, tuberose, speciality flowers, marigold, spider lily, annuals, China aster, jasmine etc.

Civil Infrastructure Development

Infrastructure development commenced with the transfer of land from State Government; digital survey and Contour mapping; hydrological survey; land development (forest/jungle clearance; levelling and bringing into cultivation of allotted land gradually); creation of irrigation facilities (farm pond and tube-wells, irrigation channels); renovation of old structures for temporary sitting arrangement of DFR staff; creation of farm facilities (procurement of tractor & accessories and lawn mower; creation of tractor shed & all season threshing floor; electrification & solar lighting; etc).

Master Plan

The master plan depicting the research, administrative and farm infrastructure for Hadapsar and Shivajinagar campuses was approved during March 2019.

Land Resources

ICAR - DFR at Pune has been allotted with two land parcels at Shivajinagar (25 ac in the campus of College

of Agriculture which is uneven and is not contiguous) and at Hadapsar (50 ac of land which is contiguous and is divided among 3 villages). About 5.00 ac of land is allotted for the establishment of new ATARI zone VIII.

	Location	Area (ha)	7/12 No	Transfer Date on
Shivajinagar				
1	Village: Shivajinagar (Bhamburda), Taluka : Pune City	9.44	43-A/1/1	12.02.15
Hadapsar				
2	Village: Manjari Budruk, Taluka: Haveli	17.06	123+124+173+177+178	08.02.16
3	Village: Manjari Budruk, Taluka: Haveli	2.26	125B	08.02.16
4	Village: Hadapsur, Taluka: Haveli	5.26	188/1B	28.02.17
5	Village: Mundawa, Taluka: Haveli	1.13	28B	08.02.16

Capacity Building and Transfer of Technology

Significant progress was achieved in capacity building of different stakeholders through various training programmes; and technology dissemination through participation in various fora (Kisan Melas, Flower Shows, Krishi Kumbh, etc); and extended support wherever required in policy matters/making.

Transit Office

Old existing structures (three) were renovated to use them as transit office.



Workshop on Plant Parasitic Nematodes



Transit office



Farmers' Training-Rose



Farmers' Training-Chrysanthemum

Making of ICAR-DFR - Marching Forward



← Google Land Map

Renovation of Old Structures →



← Transit office Surroundings

Research Block-1 →



← Research Block-2

Research Block-3 →



Regional Station

ICAR has sanctioned one regional station at Vemagiri in Kadiyammandal of Andhra Pradesh (East Godavari Dist.) during XI FYP which has been operationalized by deploying the scientists from HQs on rotation basis. Two old structures were renovated; temporary irrigation facilities were created and applied research (screening of varieties for loose flower production; propagation techniques) and out-reach programmes (workshop on phytoplasmas and workshop on nematodes) were taken up.



Physical Possession of Land at Vemagiri

Farm Office cum Field Laboratory

In order to conduct applied research which is of immediate use to the stake-holders adequate farm with all required facilities is a must. Hence, to start with a Farm Office cum Field Laboratory has been proposed and approved by the competent authorities. This would also serve as sitting space (on temporary basis) for the scientific and technical staff till the main building is built. At present the staff and labs are being accommodated in the old building of IARI Regional Station located in Shivajinagar.



Foundation Stone Laying at Regional Station Vemagiri

AICRP on Floriculture

All India Coordinated Research Project (AICRP) on Floriculture established during IV Five-Year Plan in the year 1970-71 and at present operating with a network of 22 Coordinated Centres spread all over India is an integral part of ICAR-DFR.



Participants of Group Meeting

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