

Flori News



An Official half yearly Newsletter of
ICAR-Directorate of Floricultural Research
 (A ISO 9001 :2008 institute)
 College of Agriculture Campus, Shivajinagar, Pune

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सत्यमेव जयते

त्रिलोचन महापात्र, पीएच.डी.
 एफ.एन.ए., एफ.एन.ए.एस.सी., एफ.एन.ए.एस.
 सचिव एवं महानिदेशक
TRILOCHAN MOHAPATRA, Ph.D.
 FNA, FNAsc, FNAAS
 SECRETARY & DIRECTOR GENERAL



भारत सरकार
 कृषि अनुसंधान और शिक्षा विभाग एवं
 भारतीय कृषि अनुसंधान परिषद
 कृषि एवं किसान कल्याण मंत्रालय, कृषि भवन, नई दिल्ली 110 001

GOVERNMENT OF INDIA
 DEPARTMENT OF AGRICULTURAL RESEARCH & EDUCATION
 AND
 INDIAN COUNCIL OF AGRICULTURAL RESEARCH
 MINISTRY OF AGRICULTURE AND FARMERS WELFARE
 KRISHI BHAVAN, NEW DELHI 110 001
 Tel.: 23382629; 23386711 Fax: 91-11-23384773
 E-mail: dg.icar@nic.in

Message

Research on Floriculture in India was initiated on scientific lines by legendary Dr.B.P.Pal in the erstwhile Botany Department at the Indian Agricultural Research Institute, New Delhi in 1960's. A separate Division of Floriculture and Landscaping was created at Indian Agricultural Research Institute, New Delhi during 1983 to carry out specific research on floricultural crops besides imparting higher education in this subject. Research on floricultural crops was also started in other ICAR institutes and some State Agricultural Universities (SAUs). Realizing the importance of the floriculture sector, ICAR initiated the All India Coordinated Research Project on Floriculture during 1971-72. Applied research under AICRP was mostly aimed at developing region specific technologies. As a result of research and development efforts today India produces over 2 million tones of flowers and earns more than Rs. 460 crores annually by export.

In order to bolster the research capabilities specific to floriculture sector the ICAR has taken a conscious decision to upgrade the AICRP on Floriculture to a full fledged institute namely the Directorate of Floricultural Research. The Directorate was officially launched during December 2009 at New Delhi and it was relocated to Pune during 2014. I sincerely wish that the Directorate of Floricultural Research would provide the impetus and the required leadership to Indian floriculture sector.

I am delighted to note that the Directorate of Floricultural Research, Pune has taken an initiative to launch a ICAR-DFR Newsletter from 2016 onwards. I complement and congratulate Team DFR for their sincere efforts in bringing out the Newsletter in a befitting manner.

“I know a bank where the
 wild thyme blows, Where
 oxlips and the nodding violet
 grows, Quite over-canopied
 with luscious woodbine,
 With sweet musk-roses and
 with eglantine.”

- William Shakespeare

(T.Mohapatra)



Dr. A.K.Singh

Deputy Director General,
Agrl. Extn and Hort. Sci., ICAR



भारतीय कृषि अनुसंधान परिषद
कृषि अनुसंधान भवन-II,
पूसा, नई दिल्ली-110 012

INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI ANUSANDHAN BHAVAN-II,
PUSA, NEW DELHI -110 012

Message

The Indian Council of Agricultural Research (ICAR) started All India Co-ordinated Research Project (AICRP) on Floriculture during 1971-1972 to take up research work in a collaborative and co-ordinated manner with five centres. Keeping in view of the importance of floriculture as one of the commercial avenues in agriculture, the number of centres has been increased to 21 across the country. Since the focus of AICRP was mainly on developing region specific technologies, only limited research work on applied aspects of floriculture was dealt. Basic and strategic research remained unaddressed. A need therefore was felt to establish an institution which can take up comprehensive research covering basic, strategic and applied research in floriculture. A decision was therefore taken to establish an independent research organization the Directorate of Floricultural Research.

ICAR-Directorate of Floricultural Research (DFR) as an institute under ICAR was formally launched on 10th December 2009, during the XIX Group Meeting of AICRP on Floriculture held at Indian Agricultural Research Institute (IARI), New Delhi to promote and strengthen floricultural research and enhance the technological base in floriculture. Initially established in IARI campus on temporary basis, the Directorate has been shifted to its new location, Pune the floriculture hub of India during 2014.

The Directorate is the first of its kind in the country and AICRP Floriculture is an integral part of it. Presently the Directorate is under establishment at Pune.

I am glad to note that ICAR-DFR has taken an initiative to launch its newsletter for the first time. I congratulate the Team DFR for the initiative. I appreciate the editorial team for their effort in bring about the newsletter covering the news that matters.

I wish ICAR-DFR to flourish in all their future endeavours.

(A.K.Singh)





Dr. T. Janakiram

Additional Director General,
Horticultural Science II, ICAR



भारतीय कृषि अनुसंधान परिषद
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INDIAN COUNCIL OF AGRICULTURAL RESEARCH
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Message

The primary focus of Indian agriculture was to ensure food security for an ever-increasing population. In such a scenario floriculture remained a less focused sector in the initial years. The gradual shift from sustenance agriculture to self-sufficiency in agriculture brought about change in life styles and increased the per capita income, which fuelled the growth of floriculture sector in recent years.

The floriculture industry in India is characterized by growing traditional flowers (loose flowers) and cut flowers under open field conditions and protected environment conditions respectively. India also has a strong dry flower industry, which provides major contribution to the overall trade. Other segments like fillers, potted plants, seeds and planting material, turf grass industry and value added products also contribute a share in the overall growth of the floriculture sector. Earlier research efforts were mostly focused on development of varieties and technologies that are tailor made for open field conditions. Advent of protected cultivation opened up new challenges.

Though research work was initiated in the country on floricultural crops during 60's much fillip was attained with the starting of dedicated divisions and departments of floriculture in ICAR, CSIR institutes besides a number of SAU's. However the consorted efforts of these institutes does not commensurate the specific requirement of a number of other emerging sectors of floriculture like dry flowers, specialty flowers, fillers, cut greens, turfs, potted plants, vertical gardening, xeriscaping etc., In order to address some of these emerging areas a need was felt to establish a dedicated national institute during 2008.

ICAR-Directorate of Floricultural Research (DFR) as an institute under ICAR was formally launched on 10th December 2009, during the XIX Group Meeting of AICRP on Floriculture held at Indian Agricultural Research Institute (IARI), New Delhi. The ICAR-DFR is now relocated to Pune.

I am happy to be associated with its every increment of growth since its inception and the recent relocation. I appreciate the efforts of the editorial team and team DFR for launching their maiden newsletter.

(T. Janakiram)





ICAR-DIRECTORATE OF FLORICULTURAL RESEARCH
COLLEGE OF AGRICULTURE CAMPUS,
SHIVAJINAGAR, PUNE 411005



Dr. K.V. Prasad
Director ICAR-DFR, Pune

From Director's Desk

Greetings from ICAR-DFR

Floriculture is a multifaceted enterprise in India. It is characterized by growing traditional flowers loose flowers and cut flowers under open field conditions and protected environment conditions respectively. India also has a strong dry flower industry, with substantial contribution (>70%) to floricultural exports. Other floricultural segments like fillers, indoor plants, landscaping plants, seeds and planting material, turfgrass and value added products also contribute their share in the overall growth of the sector.

The traditional flower cultivation, comprising of growing loose flowers mostly for worship, garland making and decorations, forms the backbone of India floriculture, which is mostly in the hands of small and marginal farmers. The area under floricultural crops stands at 248000 ha with production of 1658000 tons of loose flowers and 484000 tons of cut flowers (NHB 2014-15). In India nearly 98.5% of flowers are grown under open cultivation and hardly 1.5% flowers are grown under greenhouse cultivation. Floricultural exports from India comprise of fresh cut flowers, loose flowers, cut foliage, Dry flowers potted Plants besides seeds and planting material. Dry flowers alone contribute nearly Rs.320 crores (70%) of total exports valued at Rs.460 crores (2014).

India has a sizeable nursery industry with major hubs located in Kadiyam (Andhra Pradesh), Kalimpong (West Bengal), Pune (Maharashtra), Gajrola and Shaharanpur (Uttar Pradesh), Bengaluru (Karnataka).


To harness the emerging opportunities in floriculture a strong institutional support is inevitable, which shall address the genetic resource utilization, development of cultivars, production technology, productive use of water, plant architecture engineering and management, protection technology, value addition, database and human resource development. To address these multifaceted research issues the Indian Council of Agricultural Research has established a dedicated Directorate of Floricultural Research (DFR) on 10th December 2009 at the Indian Agricultural Research Institute by upgrading the All India Coordinated Research Project on Floriculture. The ICAR-DFR was relocated to its permanent location Pune during February 2014. The institute is also in the process of establishing a regional station at the Vemagiri Villeg of Kadiyam mandal of Andhra Pradesh.

The Team DFR looks forward to developing state of the art research infrastructure, strong reach base, linkages with national and international organizations to serve the cause of all stake holders involved in bloom business.

Team DFR has taken an initiative to launch the official Newsletter from 2016. I compliment the editorial team for their painstaking efforts to collate the information and present the same in an impeccable manner.

I have great pleasure in presenting the inaugural issue of the ICAR-DFR Newsletter: Flori News.

Happy reading!


(K.V. Prasad)



Research Updates

Crop Improvement

Promising Gladiolus Hybrids with Novel Colours

Forty promising gladiolus hybrids identified from the crosses attempted during previous years were evaluated based on their morphological and flowering traits to assess their suitability under Pune conditions. Five hybrids are found to be promising.



Rosiebee Red x Novalux
No. of Florets: 17.50
Spike length: 87.70 cm
Rachis length: 68.00 cm
Plant Height: 125.70 cm
Flower colour: Orange



Plumtart x Forta Rosa
No. of Florets: 18.50
Spike length: 81.20 cm
Rachis length: 69.50 cm
Plant Height: 114.20 cm
Flower colour: Light pink



Pricilla x Yellow Stone
No. of Florets: 14.50
Spike length: 70.50 cm
Rachis length: 51.00 cm
Plant Height: 112.00 cm
Flower colour: Yellow



Roisebee Red x Yellow Stone
No. of Florets: 14.20
Spike length: 81.50 cm
Rachis length: 61.00 cm
Plant Height: 125.50 cm
Flower colour: Red

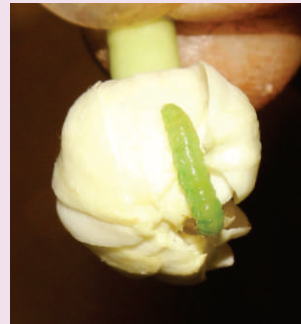


White Prosperity x Purple Flora
No. of Florets: 17.70
Spike length: 79.50 cm
Rachis length: 69.20 cm
Plant Height: 118.50 cm
Flower colour: Bicolour light pink petals with deep pink blotches

Crop Protection

Bud borer an Alarming Pest in Flower Crops

Survey conducted in and around Pune indicated that the incidence of bud borer, *Helicoverpa armigera* was high on rose (30 - 40%), followed by China aster (10 - 20%), carnation (5 - 10%), marigold (5 - 10%), gaillardia (5 - 10%), and tuberose (3 - 5%).



Larvae of bud borer in Jasmine



Bud borer damage in Rose



Bud borers in tuberose



Bud borer in Marigold



Bud borer in Gaillardia

Phytoplasma a Major Concern in Commercial Nurseries

Surveys conducted across various nursery units across Maharashtra in 2015-2016, revealed wide occurrence of various characteristic symptoms of the infection of phytoplasma, a fastidious phloem inhabiting bacteria. The incidence of symptoms ranged from 1 to 3 percent and included stunting, witches broom, stem proliferation and fasciation, loss of apical meristem - enhanced auxiliary bud growth, greening of coloured flowers ie virescence and floral structures turned into leafy structures ie., Phyllody'. Even though the incidence



observed was lower, the misconception about the malformations of plant to new plant phenotype and further propagation of the same was observed, is a matter of serious concern. The lack of awareness and indiscriminate propagation of infected mother plants augment faster spread of diseases.



Yellows in Petunia



Yellows in Ixora



Virescence in Hydrangea



Phyllody in Dianthus

Aggravating Nematode Threat in Open Cultivation of Tuberose

Survey on nematode incidence in flower growing areas of Pune region indicated severe incidence of root-knot nematode infestation in tuberose under open field conditions.



Root knot nematode infestation in Tuberose

Market Survey

One of the major markets in Western India Mumbai was surveyed and the data on product mix, arrivals, system of marketing of loose flowers, cut flowers, exotic flowers, cut greens was collated.

The Dadar market in Mumbai is an unorganized market that opens at 3.00 am and concludes at 7.30 am mostly on the pavements on either side of the main Dadar road. The market has no infrastructure in place except for few cold storages with the exotic flower importers.

The loose flowers, cut foliage, fillers, value added floral products like garlands and veni are sold in the open on the pavements in an unorganized market.

Data on month wise and area wise arrivals of different flowers were recorded. The loose flowers arrive from Thane, Sangali, Satara, Pune, Ahmednagar, Junnar, Ambegaon, Maval, Alandi, Daund, Karjat. While the cut foliage mainly comes from Thane, Nashik, Badlapur, Neral, Karjat, Lonavala, and Pen. The cut flowers Pune, Satara, Lonawala, Talegaon-Dabhade, Satara, Lonawala, Sangli, Mahabaleshwar, Alandi and Ahmednagar.



Dadar flower market on the pavements

Traditional flowers in Dadar market



Research Advisory Committee

The ICAR - DFR organized the Research Advisory Committee meeting on 26th March 2016. The RAC comprised of Dr. V. A. Parthasarathy as the Chairman and Dr. A. Deshpande, Dr. T. M. Rao, Dr. T. Janakiram, Mr. Jaffer Naqvi as the members. The RAC made very valuable suggestions for the overall improvement of ICAR-DFR.



Review by RAC members



Institute Research Council Meeting

The IRC meeting of ICAR-DFR was held on 12th May 2016 at 11.00 am. Dr. S. B. Gurav, ADR, NARP, College of Agriculture (MPKV), Pune was invited as the External Expert for IRC. In his opening remarks, Dr. K. V. Prasad, Director informed the house that IRC is an introspection of what we have done in the last year and formulation of future programme based on the learnings from last year. He added that IRC is a platform for each scientist to celebrate their research achievements and introspect their shortcomings. For this the individual presentations will boost self confidence of the scientists. All the scientists presented their previous work done for last year and proposed technical programme for the next year.



IRC members of ICAR-DFR

Brainstorming Session on : Phytochemicals and Nutraceuticals

ICAR-DFR and NRC-Grapes jointly organized a brainstorming session on Phytochemicals and Nutraceuticals on 17th June 2016 at NRC-Grapes. Dr. N.K. Krishna Kumar, DDG Horticulture was the Chief Guest of the function. Many experts working on phytochemicals and nutraceuticals across the country gave lectures on various aspects of nutraceuticals and their applications.



Dr. N.K. Krishna Kumar, DDG (HS) addressing the delegates

New Projects

The ICAR has sanctioned three extramural projects for strengthening the research base at ICAR-DFR

1. Indian Floriculture Industry: Production, Marketing and Export Dynamics
2. Phytonematodes in Floriculture: Identification, Occurrence, Distribution and GIS Mapping
3. Characterization and Natural Spread Sources of Phytoplasmas Affecting Major Floricultural Crops of India

Extension Activities

International Flora Expo

Team DFR has actively participated in the International Floriculture Expo held at Pune from 26th to 28th February 2016. The event was organized by the Confederation of Horticultural Societies of India and Media Today group.



Launching of publications by Chief Guest Dr. Shakil P. Ahamed

Krishi Unnati Mela

ICAR - DFR actively took part in Krishi Unnati Mela organized by the Department of Agriculture and Co-operation, Ministry of Agriculture and Farmers Welfare, ICAR and CII during 19th - 21st March 2016 at IARI, New Delhi. Dr. Tarak Nath Saha, Dr. Prasanna Holajjer, Dr. Ganesh Kadam and Director Dr. K.V. Prasad represented ICAR- DFR in this 3 day event. The technologies developed by ICAR - DFR and AICRP centers were showcased for the benefit of farmers.



Interaction with farmers

Innovative Farmer Award

One of the farmers from ICAR-DFR adopted village **Mr. Ganesh Bochare, Village- Kusur, Tal- Junnar Dist- Pune** got "Innovative Farmers Award" award by Indian Agricultural Research Institute, New Delhi during the Krishi Unnati Mela at IARI on 21st March 2016.



Mr. Ganesh Bochare, from Kusur receiving Innovative Farmers Award from Hon'ble Union Agriculture Minister



Dutch Floral Design Workshop

Team ICAR-DFR has participated in Dutch Floral Design workshop held by Netherland Embassy in association with Mahratta Chamber of Commerce Industries & Agriculture on 29th April 2016. The workshop began with a flower arrangement competition and followed by lecture and demonstrations of floral designing by experienced faculties from Wageningen University, Holland.



Interacting with the Dutch floral expert

Farmers-Academia Interface on Phytoplasma Diseases in Horticultural Crops: Current Scenario and Future Challenges

ICAR-DFR has successfully organized a Farmers-Academia Interface on Phytoplasma Diseases in Horticultural Crops: Current Scenario and Future Challenges on 29th June 2016 at Rajahmundry in association with Dr. Y.S.R Horticultural University and Indian Nurserymen Association, Kadiyam.

The objective was to impart awareness about the importance of phytoplasma diseases in horticultural crops in the nursery hub. Dr. K.V.Prasad, Director, ICAR-Directorate of Floricultural Research, welcomed all the participants and delegates to the event.



Release of base paper by the chief guest

The interface was graced by Dr. B.M.C. Reddy, Vice Chancellor, Dr. Y.S.R.H.U, Dr. Srinivasulu, Registrar, Dr. Y.S.R.H.U, Dr. Damodar Reddy, Director, ICAR-Central Tobacco Research Institute, Dr. R.K.Mathur, Director, ICAR- Indian Institute of Oil Palm Research, Pedavegi. The event was a big success as more than 300 farmers and 100 scientists participated and interacted with the academia. The experts from all spheres of horticulture and crop protection answered the queries of

farmers. Followed by the interface, experts in phytoplasma research delivered lectures on multifaceted aspects of phytoplasma diseases of horticultural crops from diagnostics and taxonomy to phytosecurity aspects and management. The presentations were well appreciated by the farmers as well as scientific fraternity. A base paper on phytoplasma diseases in Horticulture Crops: Current Scenario and Future Challenges covering up to date aspects of phytoplasma was prepared and released in CD format. Also a leaflet on "Know About Phytoplasma with pictorial explanation about symptoms, vectors and spread was printed in both English and Telugu for the information of farmers and circulated in the event.

Mera Gaav Mera Gaurav

ICAR-DFR has launched the Mera Gaav Mera Gaurav and completed the benchmark survey to select Kusr village in the lap of Shivneri hill fort under Junner taluka in Pune district where more than 50% of the farmers are involved in floriculture. It is one of the major villages that contribute significant quantity of loose flowers to Mumbai market.



Scientists interacting with farmers during bench mark survey

Rajbhasha

Hindi Workshop

ICAR-Directorate of Floricultural Research, Pune organised one day workshop on official language-Hindi on 05/02/2016. The purpose was to promote Hindi in daily official work and improve the expertise of the staff. On this occasion an expert Shri Rajendra Prasad Verma, Deputy Director, Hindi Training Scheme, Department of Official Language under Home Ministry, Government of India was the guest faculty.

Shri. Verma addressed the house and explained about the use of different computer based applications in Hindi which will make use of Hindi in daily official work easier. All the scientific, administrative and other supporting staff of the ICAR DFR participated in the workshop.



Shri. R.P. Verma conducting the Hindi workshop



ITMU

Sensitization Workshop on IPR

The ITMU of the institute has organized a sensitization workshop to sensitize about the ITMU, ITMC and intellectual property rights and technology management in ICAR on 23rd May 2016. Ms. Shephalika Amrapali incharge ITMU made a presentation on ITMU and its role and Dr. K.V. Prasad delivered lecture on IPR Issues in Floriculture.

Other happenings

Institute Management Committee

The 4th meeting of Institute Management Committee of ICAR-Directorate of Floricultural Research was conducted on 4th June, 2016 in Conference Hall, Department of Entomology, College of Agriculture (MPKV), Pune. Dr. K. V. Prasad Director, ICAR-DFR welcomed all the members of IMC and subsequently, all the members visited the research field at Shivajinagar campus. Dr. K. V. Prasad briefed about the initiatives being taken. The members appreciated the efforts of the scientists in maintaining the research material. Director also presented the initiatives being taken for developing and proposing a vibrant website, dynamic logo and a futuristic master plan for the physical infrastructure to be developed by ICAR-DFR, Pune. Dr. Prasanna Holajjer (Scientist) presented the agenda of the IMC meeting.



IMC members at ICAR-DFR

Swaach Bharat Abiyan

The ICAR-DFR organized Swaach Bharat Pakhwada from 16-31 May, 2016. All the staff members including scientific, administrative, SRF's, YP-I's of the directorate actively took part. After brief remarks by the Director all the staff actively participated in the cleanliness drive of office premises and adjoining areas.



Swaach Bharat Abiyan around ICAR-DFR campus

International Yoga Day

ICAR-Directorate of Floricultural Research, Pune and ICAR-Indian Veterinary Research Institute, Training and Education Center, Pune jointly organized 2nd International Day of Yoga on 21st June 2016. Yoga experts Dr. Rajalakshmi and Dr. Sindhu from BKS Iyengar Institute of Yoga, Pune were invited as guest faculty to guide on this occasion. Dr. K.V. Prasad, Director, ICAR-DFR welcomed the yoga experts and requested them to deliver a talk on Yoga and also organize a mass yoga session. All the scientific, administrative and temporary staff of ICAR-DFR and ICAR-IVRI, TEC, Pune together performed yoga on this occasion.



Yoga class by faculty members from BKS Iyengar Institute of Yoga

DDG (HS) Visits the Regional Station Land

Dr.N.K.Krishna Kumar , DDG(HS) visited the land identified for the establishment of ICAR-DFR Regional Station at Vemagiri villeg, Kadiyam Mandal of Andhra Pradesh and interacted with the Farmers.



Dr.N.K.Krishna Kumar interacting with the farmers

Campus Development

The Government of Maharashtra has transferred 75 ac of land for the establishment of ICAR-DFR in two land parcels. 25 ac of land at Shivajinagar and 50 ac of land at Hadapsar. Final land transfer on the name of ICAR for Hadapsar land was obtained from 3 out of 4 villages in February 2016.



Receiving land records of DFR land at Pune



The land at Hadapsar was cleared of undergrowth and ploughed and leveled. Also 5.00 acres of land at Shivajinagar campus has been earmarked for the establishment of a new ICAR-ATARI.

Field infrastructure

ICAR-DFR is in the process of creating the required infrastructure to meet the research needs of the institute.



Purchase of new tractor

AICRP

25th Annual Group Meeting

The All India Coordinated Research Project (AICRP) on Floriculture, organized its XXV Annual Group Meeting at ICAR-Central Tobacco Research Institute, Rajahmundry, Andhra Pradesh jointly with Dr. Y. S. R. Horticultural University, Venkataramannagudem, from 28th June 2016 to 1st July 2016 to review the work done at different centers and to reorganize the ongoing programmes and activities to meet the present challenges in commercial flower production. Besides, the review of work done by the coordinated centers under the different sections, experts on plant health management, production system, crop improvement and post harvest technology and value addition also gave their inputs for development of technical programme in a manner which addresses the emerging needs.



AICRP Group members at 25th Annual Group Meeting

AICRP Group Visits ICAR-DFR Regional Station Kadiyam, Andhra Pradesh

The AICRP group members from 21 centers visited the land allocated for regional station of ICAR-DFR. The group members have also visited important nurseries as part of the field visit.



AICRP members at Regional Station site



AICRP group visits Floriculture nurseries in Kadiyam, Andhra Pradesh

Ascent



Mr. Sudesh Kumar

Mr. Sudesh Kumar, got promoted from Lower Division Clerk to Upper Division Clerk w.e.f. 02.03.2016. Team DFR congratulates him.

Accolades

A paper presented by Nitika Gupta, Prabha K., Kadam, G. B., Sriram, S. and Chandran, N. K got Best Poster award for the paper on "Yellows and Corm Rot in Gladiolus: Incidence, Identification and Characterization of *Fusarium oxysporum f. sp. gladioli*" during 6th International Conference; Plant, Pathogens and People: Challenges in Plant Pathology to Benefit Humankind held at New Delhi, India from 23-27th February, 2016.



Publications

Technical/ Popular Articles

Jyothi, R. and Singh, K. P. (2016). Gamma irradiation: Powerful tool to induce genetic variability in tuberose. *Floriculture Today*. March: 30 – 33.

Ganesh B. Kadam and Yadav, R. S. (2016) Open field cultivation of roses. In souvenir: 34th All India Rose Convention and Show held at The Maharashtra Rose Society, Impress Garden, Pune from 22-24th January 2016: 36-38

Presentations in Conferences/ Symposia/ Seminar/Others

Prasad, K. V. (2016). Present status and challenges of Floriculture in India. In 11th International Flora Expo and International Conference on Floriculture and Landscape Gardening –Challenges and Opportunities held at Hindustan Antibiotics Exhibition Ground Pune on 27-28 February, 2016.

Gupta, N., Prabha, K., Kadam, G. B., Sriram, S. and Chandran, N. K. (2016). Yellows and corm rot in gladiolus: Incidence, identification and characterization of *Fusarium oxysporum* f. sp. *Gladioli*. In: 6th International conference “Plant, Pathogens and People” Challenges in Plant Pathology to Benefit Human Kind held at NASC complex New Delhi from 22 to 26th February, 2016.

Prabha, K., Nitika Gupta and Baranwal. V. K. (2016). 'Viroids' the hidden enemy to open and protected floriculture In: 6th International conference “Plant, Pathogens and People” Challenges in Plant Pathology to Benefit Human kind held at NASC complex New Delhi from 22 to 26th February, 2016.

Singh, K. P., Saha, T. N. and Holajjer, P (2016). Performance of single petalled tuberose (*Polianthes tuberosa*) cultivars under Pune conditions. In: National Conference on Recent Advances in Diversified Agricultural System held at CCR (PG) College Muzaffarnagar from 20 to 21st February, 2016.

Singh, K. P., Saha, T. N. and Holajjer, P (2016). Influence of bulb sizes on vegetative and bulb parameters in tuberose (*Polianthes tuberosa* Linn.) cultivar Phule Rajani. In: Silver Jubilee National Conference on Floriculture and Landscaping” held at ICAR-IARI, New Delhi from 28 to 29th February, 2016.

Singh, K. P., Saha, T. N. and Holajjer, P (2016). Response of different bulb size of tuberose as planting materials on growth and flowering characteristics. In: National Conference on Recent Advances in Diversified Agricultural System held at CCR (PG) College Muzaffarnagar from 20 to 21st February, 2016.

Singh, K. P., Saha, T. N. and Holajjer, P (2016). Evaluation of certain tuberose cultivars for vegetative, floral and bulb production parameters under Pune conditions. In: Silver Jubilee National Conference on Floriculture and Landscaping” held at ICAR-IARI, New Delhi from 28 to 29th February, 2016.

Kadam G. B. and Yadav, R. S. (2016) Open field cultivation of roses. In souvenir: 34th all India rose convention and show held at The Maharashtra Rose Society, Impress Garden, Pune from 22-24th January 2016: 36-38

Yadav, R. S. (2016) Post-harvest management of rose. In souvenir: 34th All India Rose Convention and Show held at The Maharashtra Rose Society, Impress Garden, Pune from 22-24th January 2016.

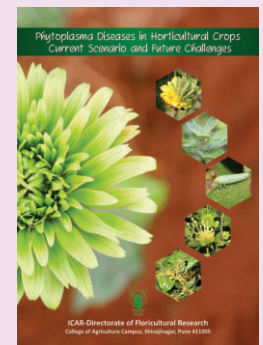
Kadam G. B. (2016) Protected cultivation of roses. In 89th short term course on protected cultivation of flowers and vegetables crops held at Hi-tech Floriculture and Vegetable Project, College of Agriculture Pune-05 from 15-20th February 2016.

Kadam G. B. (2016) Cultivation of roses. In one day Farmers Interface Meeting organized by Agri Search Company, held at Talegoan on 02nd November 2015.

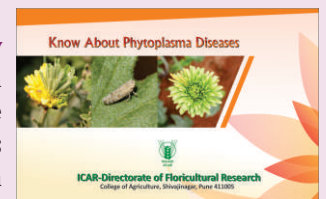
Gupta, N. (2016) Diseases of major flower crops. In one day Farmers Interface Meeting organized by Agri Search Company, held at Talegoan on 02nd November 2015.

A base paper on Phytoplasma Diseases of Floricultural Crops; Current Scenario and Future Challenges

Authored by Prabha K, Girish K.S., Nitika Gupta, Prasad, K V and its electronic version were released during the Farmers and Academia Interface on Phytoplasma Diseases in Horticultural Crops on 29th June 2016



A pictorial leaflet on Know about Phytoplasma in English and Telugu was released for the benefit of the nursery growers during the Farmers and Academia interface on 29th June 2016



Personalia



Dr. T. Mohapatra Joins as Director General, ICAR

We are greatly privileged to congratulate Dr. Trilochan Mohapatra on his assuming the charge of Secretary, Department of Agriculture Research and Education & Director General, ICAR on February 22, 2016. An internationally known scientist of par excellence Dr. Mohapatra made significant contributions in the fields of plant breeding, genetics, molecular genetics and biotechnology. He meticulously carried out the genome sequencing of chromosome 11 of Rice, Chromosome 5 of Tomato as a part of international rice and tomato genome consortia. He developed the first bacterial blight resistant high yielding Basmati rice variety. A new variety Improved Pusa Basmati 1 with multiple resistance to biotic and abiotic stress developed by him is under varietal trial.

His research has got significant recognition with a number of awards beginning from the INSA Young Scientist award in his



early career to fellow of the National Academy of Agricultural Science, New Delhi and NASI, Allahabad. He is the recipient of the prestigious B.P.Pal Memorial Award of ICAR-IARI. He has been in the editorial board of many renowned journals.

Dr.Mohapatra has an impeccable track record as researcher, teacher and an able administrator. Dr. Mohapatra served as Director –cum Vice Chancellor of Indian Agriculture Research Institute, New Delhi and Director of National Rice Research Institute, (Formerly CRRRI), Cuttack. He also served at National Research Center on Plant Biotechnology, IARI, New Delhi as researcher for about 20 years. As a renowned and effective teacher he contributes immensely in the development of intellectual manpower in National Agricultural Research System.

We are sure that the ICAR will stride to new heights under his able leadership. We extend him our full co-operation and wish him a grand success in all his endeavours.

Team DFR congratulates him.



Dr. K.V.Prasad, Appointed as the Director of ICAR-DFR

Dr.K.V.Prasad, completed his graduation and post graduation from Andhra Pradesh Agricultural University and Doctorate in Horticulture from the Indian Agricultural Research Institute, New Delhi. He started his career in the Indian Institute of Horticultural Research, Bangalore and worked there for 6 years. He got selected as a Senior Scientist and moved to Indian Agricultural Research Institute in 2001. He was the first Professor of the newly created discipline of Floriculture and Landscaping IARI. Prior to his selection as the Director, ICAR-Directorate of Floricultural Research (DFR), Pune during October 2015.

He is instrumental in developing seven chrysanthemum varieties, six rose varieties at IARI, besides an unique fragrant anthurium while serving at IIHR, Bangalore. He had developed DUS test methodology for rose and chrysanthemum for the first time in the country to offer plant breeders rights. He has developed technology for *in vitro* direct regeneration from ray florets of 18 novel mutants of chrysanthemum. Similarly technology for high frequency induction of novel mutants is standardized successfully in annual chrysanthemum. A protocol for establishing the genetic relatedness among the

radiation induced chrysanthemum and rose mutants and their parents is standardized using molecular markers. He is involved in the development of protocols for the induction of *in vitro* nutraceutical anthocyanin pigments from rose, chrysanthemum, carotenoid pigments from calendula and betalain pigments from bougainvillea for the first time in the country as the Chairman of the M.Sc. and Ph.D. students. He had developed three new courses and was involved in the development of curriculum for 2 more courses. He is actively involved in Post-Graduate teaching and guided 4 M.Sc. and 7 Ph.D. students.

Presently involved in building a new institution ie., ICAR-DFR at Pune and its regional station at Kadiyam in Andhra Pradesh. Actively involved in the preparation of the EFC Memo of the DFR, Pune and detailed Project Report for the Establishment of IARI-Jharkhand. He contributed significantly as the Member Secretary of sub-group on Floriculture and Medicinal Aromatic Crops for preparing the XI Five Year Plan of the GoI and also as the Member Secretary of a Task Force on Floriculture constituted by the Protection of Plant Varieties and Farmers Rights Authority of Government of India on finalization of national test guidelines for DUS testing of rose and chrysanthemum. Dr. Prasad is a recipient of some of the prestigious awards like Dr.B.P.Pal Gold Medal for the year 2009 from IARI.



Dr. Prashant G Kavar, Senior Scientist

Dr. Prasanth G Kavar, joined ICAR-DFR as Senior Scientist (Genetics and Plant Breeding) on 15th February 2016. Before joining ICAR-DFR, he was working as Senior Scientist at Central Potato Research Institute, Shimla.



Dr. Shilpashree, K.G, Scientist

Dr. Shilpashree, K.G joined as Scientist (Soil Science) on 2th October 2015.



Mr. Sunil Kumar, Senior Administrative Officer

Got Additional Charge as SAO of ICAR- DFR on 2nd September 2015 in addition to his duties with DOGR, Rajgurunagar, Pune.

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College of Agriculture Campus, Shivajinagar, Pune-411 005, Maharashtra, India

Phone: 020-25537024, 25537025, E-mail: director.dfr@icar.gov.in, directordfr@gmail.com, Website: www.dfr.res.in

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Editorial Team: Dr. Prabha. K, Dr. Ganesh Kadam, Dr. T.N.Saha, Dr. Prasanna Holaljer

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