



Department of Fruit Science

Indira Gandhi Krishi Vishwavidyalaya, Raipur – 492 012 (C.G)

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FROM THE DESK OF HEAD OF DEPARTMENT

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Fruit Science is the branch of Horticulture which deals with the cultivation, production, improvement, management and processing of various tropical, sub-tropical and temperate fruit crops.

Department of Fruit Science came into existence during the year 2014-15 after separation from the Department of Horticulture. Fruits has a major role as protective food having rich in minerals, vitamins, carbohydrates and fibers etc. Chhattisgarh has a boon as the state comprises of three climatic regions i.e., Northern-hill region, Chhattisgarh plains and Bastar-plateau region, where almost all types of tropical, sub-tropical and temperate fruit crops can be grown successfully in different agro-climatic zones. India, producing 88.97 million MT fruits from 7.20 million ha, is the second largest producer of fruits which accounts for 13.6% of total world fruit production. While on the other hand, the area and production under fruits in Chhattisgarh are estimated to be 912.9 thousand ha and 1930.2 thousand metric tonnes, respectively during the year 2013-14, which is very low as compared to national level. Now, the area is increasing day by day under different fruit crops including cashewnut, coconut and some of the temperate fruit crops by providing technical know-how and guidance to farmers and orchardists.

The major activities of the Department of Fruit Science are teaching, research and extension for strengthening the education and betterment of farming community. Under graduate and post-graduate studies are being carried out under different constituent colleges of the University. Similarly, various research on fruit crops has been undertaken through All India Coordinated Research Project (AICRP), Network Projects (AINRP), Adhoc Research Project (PFDC) and State Govt. Funded Projects. Besides the research projects, the department is also involved to carryout various need-based researches through student’s thesis work in PG and Ph.D. degree programme. Moreover, survey, collection and evaluation of major and minor fruits are also conducted for development of high-yielding new varieties of quality fruits. Protected cultivation and Precision Farming is also another aspect to which major emphasis has been given by the department for growing high value crops.

The Horticulture has also to be strengthened with modern production technologies under existing natural resources. Utilization of dry land and rainfed areas is a challenging issue which is now being taken up by the cultivation of suitable hardy fruit crops. Under this development programme, mother orchard of dryland fruit crops is now being established in almost all the KVKs as well as at College of Agriculture and College of Horticulture. Similarly, establishment of Biodiversity park of fruit crops at various centers is also under progress.

Looking to vision of 2030, the area and production under various major and minor fruit crops should be increased for obtaining higher productivity of quality fruits to meet the requirement of fruits per capita/day. Moreover, protected cultivation in off season, precision farming, organic farming, rejuvenation of senile, unproductive fruit trees and utilization of dryland by growing hardy fruit crops should be adopted to achieve maximum output of fruits. The special attention should be given to proper water management through drip and fertigation system, integrated nutrient and pest management to maintain the soil health as well as ecosystem for sustainable growth and production. I do believe that al the teachers and scientists of the department will certainly join the hand together to work hard and sincerely for betterment of teaching standard, research and welfare of farming community. The guidance, encouragement and support given by Hon’ble Vice-Chancellor Dr. S.K. Patil for bringing out Fruit Science Newsletter is duly acknowledged.

(Prabhakar Singh)

Teaching Highlights

- Fourteen students were admitted in M.Sc. (Hort.) Fruit Science degree programme including three ICAR and In-service candidates during the session 2016-17.
- In Ph.D. degree programme, five students were enrolled including ICAR and In-service candidates.
- Admissions in PG and Ph.D. takes place through Common Entrance Test (CET).
- During the academic session 2016-17, two PG students have allotted the thesis research work to complete from outside of IGKV (ICAR-NRC on Litchi, Muzaffarpur, Bihar) as per MOU from ICAR.
- Sixteen students of M.Sc. (Ag.) Horticulture, 10 Ph.D. (Ag.) Horticulture and 10 students of M.Sc. (Hort.) Fruit Science have appeared in thesis viva-voce exam during the academic session 2015-16 and 2016-17.
- Dr. S. K. Malhotra, Horticulture Commissioner, Ministry of Agriculture, GoI, New Delhi, conducted Ph.D. thesis viva-voce exam of two students as external examiner.

Moreover, one **Fruit Processing Laboratory** is also running in the Department, which is especially established for the teaching of undergraduate/post graduate students and also under experiential learning of UG programme. The students prepare various preserved and processed products of fruits as per availability in the season to develop the entrepreneurship. These products are being sold in different Kisan Melas, Rajyotsav Mela and other occasions of University programmes. The profit is distributed among the students who involve in preparation and sale of products.



Dr. S. K. Malhotra,
Agriculture & Horticulture
Commissioner,
Ministry of Agriculture,
Govt. of India



UG students under experiential
learning in Fruit Processing
Laboratory

Ph.D. Awarded

Ph.D. degree was awarded to Ku. Archana Dikshit, Department of Horticulture, on 04th Feb., 2017 with OGPA 8.86/10 admitted during the session 2013-14. The research topic was “Combining ability, heterosis and inbreeding depression fruit yield and its components in tomato (*Solanum lycopersium* L.)”.

Research Highlights

As far as research is concerned, there is one adhoc project of GoI i.e., Precision Farming Development Centre (PFDC) running in the Department. The project is working on the mandates i.e., research trials and demonstrations on precision farming of fruit & vegetables of improved package of practices of horticultural crops. Besides, the project is imparting on-campus and off-campus trainings to farmers, farm women and rural youths.

PFDC Activities



Dr. S. K. Malhotra, Agriculture and
Horticulture Commissioner, Ministry of
Agriculture, GOI, visited PFDC field



Hon'ble Vice Chancellor, Dr. S. K. Patil and DRS
visited UHDP of guava under PFDC



Joint Project Director, NCPAH, Shri Krishna
Kaushal visited UHDP of guava under PFDC

New Project Sanctioned (University Funded Ad-hoc Project)

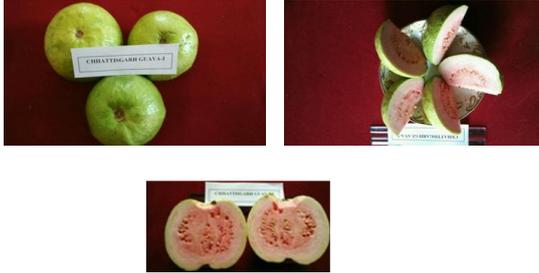
- Development and multiplication of new strains of Mango. (CoA, Raipur) - Dr. Prabhakar Singh, Dr. S.N. Dikshit & Dr. G.L. Sharma
- Survey, documentation, collection and *in-situ* evaluation of promising genotypes of major/minor/underutilized fruit crops including Jamun, Lasoda, Jackfruit, Tamarind, Mahua, Bael, Keth. (CoA, Raipur) - Dr. G.L. Sharma, Dr. Prabhakar Singh & Dr. S.N. Dikshit
- Rejuvenation of fruit trees of Mango and Guava in Horticulture farm, IGKV, Raipur. (CoA, Raipur) - Dr. G.L. Sharma, Dr. Prabhakar Singh & Dr. S.N. Dikshit
- Varietal screening of Strawberry (*Fragaria X ananassa*) cultivars in Chhattisgarh. (CoA, Korla) - Dr. U.B. Deshmukh
- Survey, collection, evaluation and characterization of genotypes of Custard Apple in Chhattisgarh plains and Bastar-Plateau of Chhattisgarh. (CoA, Kanker) - Shri J.L. Nag

Project Activities

There is one voluntary centre recently sanctioned by the ICAR i.e., AICRP on Fruits under which one elite strain of guava has been selected from local survey at Raipur and maintained for further evaluation.

About 25 years old unproductive Mango trees at Horticulture farm have been rejuvenated by heading back and top working.

Elite strain of Guava collected under AICRP



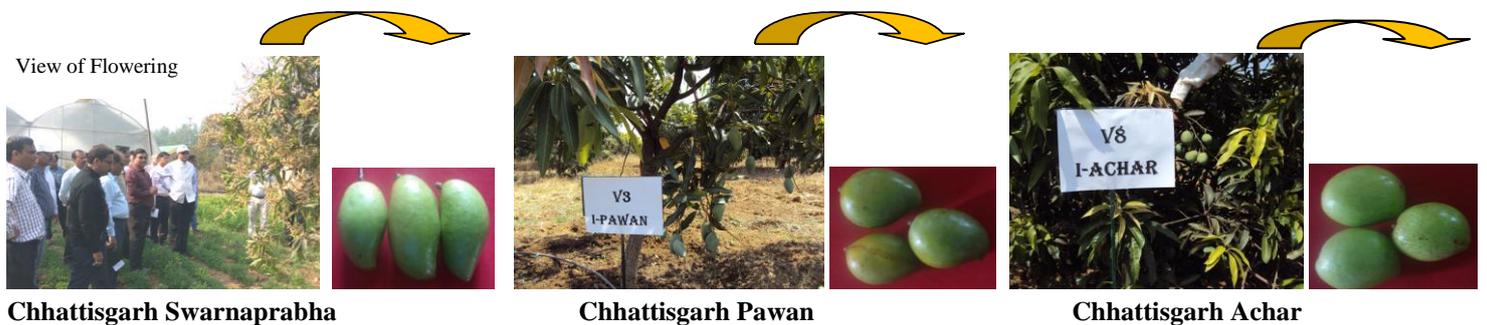
Mango Rejuvenation work initiated



At College of Agriculture & Research Station, Jagdalpur (Bastar), two AICRPs on Fruit Crops are running i.e., one AICRP on Palm and other on Cashew. After number of years of research, one variety of cashew (Indira Kaju-1) has been developed and released. Similarly, Indira Nariyal-1 (Kera Bastar) was also developed in Coconut and released for commercial cultivation. In Litchi, 2 varieties i.e., Ambika Litchi-1 and Indira Litchi-2 were developed from R.M.D. College of Agriculture & Research Station, Ambikapur (Surguja). Besides, one mango variety 'Chhattisgarh Nandiraj' was developed and released for cultivation in Chhattisgarh.

Mango Varieties Proposed for Release

Recently, three variety release proposal of mango has been submitted viz., Chhattisgarh Swarnaprabha, Chhattisgarh Pawan and Chhattisgarh Achar and some varieties are under pipeline.



Ongoing Research Trial Under PCPF

Research trials of Strawberry and Papaya under Protected Cultivation and Precision Farming were conducted at IGKV campus, Raipur



Strawberry under Drip and Mulch



Dr. H.K. Panigrahi guided under PCPF



Papaya under Shade net

Good Prospects of Temperate Fruit Crops in Northern-Hill Region of Chhattisgarh

Some of the low-chilling cultivars of Apple (cv. Anna), Pear, Peach (cv. Shan-e- Punjab, Pratap, Nectarine) and Plum (cv. Kala Amritsari, Sulej Purple) have been successfully grown at Potato & Temperate Horticulture Research Station, Mainpat (Surguja) under supervision of Dr. R.K. Mishra (Pr. Scientist) and Dr. P.C. Chaurasia (Scientist).

Peach



Nectarine

Peach



Peach



Peach



Plum



Sutlej Purple

Extension Activities

The Department is imparting training to farmers and rural youths in the processing of preserved products of fruits time to time. The farmers of Chhattisgarh and other states are frequently visiting the PFDC activities, modern fruit production technology in Horticulture farm and Nursery. The scientist and teachers of fruit science are also delivering TV and Radio Talk on various aspects of fruit production. Number of farmers and other needy persons also visiting the department for getting technical expertise prior to establishment of orchards. Moreover, the technical staff is also involved in various training programmes organized by the SAMETI as well as NGO's and IGKV.



Visit of Farmers & Farm women in PFDC

Awards/Honours/Recognitions

Dr. G.L. Sharma: Felicitated with “Certificate of Excellence” by Hon’ble Vice Chancellor, Dr. S. K. Patil, IGKV, Raipur (C.G.) for contribution in the field of campus Landscaping and Beautification work on 26th January, 2017.

Dr. G.D. Sahu: PI-PFDC Raipur got 3rd rank in poster presentation during Rashtriya Krishi Sangoshthi Sah Karyashala organized by IGKV, Raipur and awarded best poster presentation for his research paper entitled “Studies on the effect of different level of fertigation with and without mulch on growth and yield of cowpea under open field condition”.



Felicitating of Dr. G.L. Sharma on Republic Day

Research Publication

- Sharma, Shrinkhla, Dikshit, S.N., Sharma, H.G. and Patel, Savita 2016. Effect of alternative sweeteners on recipe standardization of guava nectar, ready-to-serve beverages. *Indian Horticulture Journal*, 6(3): 315-317.
- Bara, Suranjana, Sharma, G.L., Kurrey, Vivek Kumar and Painkra, Puspendra, 2016. Correlation and path coefficient analysis studies on yield and attributing characters in Brinjal (*Solanum melongena* L.). *The Ecoscan*, Vol. IX; 155-160.

Scientists Participation in Conferences/ Seminars/ Trainings/ Workshops

- Dr. Prabhakar Singh & Dr. G.L. Sharma: Participated in 4th Group Discussion of All India Coordinated Research Project on Fruits held at IIHR, Bangluru from 4 -7 Jan., 2017.
- Dr. Prabhakar Singh & Dr. G.L. Sharma : Participated in National Seminar on “Enhancing Productivity of Fruit Crops-Mitigating Major Challenges” held at IIHR, Bangluru on 8 Jan., 2017.

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