CIAH NEWSLETTER

ICAR-Central Institute for Arid Horticulture

Beechwal, Bikaner-334 006, Rajasthan

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VISIT OF DR. N. K. KRISHNA KUMAR, DDG (HORT. SCIENCE) TO THE INSTITUTE.

Dr. N. K. Krishna Kumar, DDG (Hort. Science), ICAR, New Delhi visited the institute on 20th March, 2015. During his visit, he inaugurated the newly constructed water reservoir (*Diggi*) having a capacity of 25 lakh liters. While reviewing the progress of infrastructure development during XII plan, DDG (Hort. Sci.) appreciated the work done during the last few years. He advised that plantation should be done near the newly constructed water reservoir so that it can be developed. He also planted a sapling and suggested that with the coming up of the water storage structure, the complete farm should be put on drip irrigation. He also inaugurated Scientist home and advised the scientisst to maintain infrastructure given to the institute. He further inaugurated Biotechnology laboratory and appreciated the facilities and infrastructure developed for Biotechnology laboratory. He was of the opinion that this facility will prove to be a boon for the institute as in future the laboratory has to shoulder major responsibility in developing disease free, quality planting material. He also advised the scientists to develop the tissue culture protocol for date palm, since this is the need of the hour and the whole country is looking towards us for this important protocol. DDG (Hort. Sci.) also laid the foundation stone of compound wall. At this venture, the DDG (Hort. Sci.) said that completion of boundary wall will protect the land and the crops from damage from wild and domesticated animals. Apart from staff of the institute, the function was also attended by Dr. N. V. Patil, Director, ICAR- NRC on Camel, Bikaner, Dr. N. D. Yadav, Head, ICAR-CAZRI-RRS, Bikaner, Executive Engineer, Assistant Engineer and JENs from CPWD,Bikaner. While addressing the staff and guests, DDG (Hort. Sci.) stressed that the institute has to play a major role in developing technologies for arid and semi arid regions with special emphasis on production technologies. He appreciated the work done by the Institute in last two decades and hoped that the institute will continue to work with full dedication so that the arid and semi arid regions will also contribute substantially towards the National GDP. ..... **continue at page 8**

RESEARCH SPECTRUM

1. At Bikaner

Incidence of *Caryedon serratus* Olivier on khejri seeds: This beetle, *C. serratus* (Bruchidae: Coloeoptera) was recorded on khejri pod with seeds at entomology laboratory of the ICAR-Central Institute for Arid Horticulture, Bikaner (Rajasthan).

Fig. : Seeds affected with beetle, *C. serratus*

The adults lay eggs on pods or seeds of *khejri.* The emerging grub penetrates into the pods and reaches to seeds and made hole in the seeds. The seeds were completely damaged which could not be used for any purpose. The grub developed and moulted remain in the seeds upto fourth instar and pupate inside the seeds or near the seeds' hole in their silk cocoon.

Fig. : Grub, pupa and adult of beetle *C. serratus*

The body of the adult beetle is brownish-reddish in colour. The head is prognathous and serrate type antennae. The body

length varied from 5.67 to 6.48 mm and width range from 2.15 to 2.53 mm. The elytra length varied from 3.02 to 3.37 mm and dark reddish brown spots with smudgy black spots on the wings. The hind femur has a strong spike in the middle with 9-13 smaller spikes. The length of antennae ranged from 2.26 to 2.56 mm. The length and width of head and thorax were 0.81, 1.02, 1.12, 1.56 mm, respectively. The abdominal segments of the female were wholly covered by the elytron but in male did not not reach the last abdominal segment **(Dr. S. M. Haldhar Dr. S. R. Meena)**

Brinjal genotype CIAH-1 developed for cultivation under hot arid agro-climate: The brinjal genotype CIAH–1 (derivative of AHB–04 x PPC) was tested under large-scale field performance trials over the seasons from 2010–2014. It is stable and uniform for fruit quality, marketable yield and morphological traits. It is very early for first marketable harvesting (45 days after transplanting) and high quality fruit yield potential (58–73 tonnes/ha) under high temperature and abiotic stress conditions of hot arid environment. Plants of the genotype are short stature and semi-erect with purple hairy leaves. Small sized oblong-round and dark purple colour fruits are attractive and excellent in quality. Tender fruits at marketable stages are 39.8–46.2 g in weight, 4.9–5.8 cm in length and 4.2–4.7 cm in diameter. It is heavy bearer (79.5–92.3 fruits/plant) with prolong period of harvesting. Based on *per se* performance over the seasons, it is most suitable both for rainy-winter and spring-summer crop cultivation with fruit yield of 3.16–4.35 kg/plant **(Dr. D. K. Samadia)**

Fig. : Plant and fruits of brinjal genotype CIAH-1

New Concept of amelioration of fruit cracking in *bael* : Fruit cracking is one of the major production problems in *bael* cultivation under hot arid environment. In general, cracking occurs as a result of excessive water absorption by plant. The excessive water so absorbed, reaches into the fruit, the mesocarp expands but epicarp is unable to do so and as a result cracking happens. In this study, *bael* fruits were wrapped with cling film, firmly. The wrapping of fruits with cling film resulted in reduced fruit cracking. Therefore, reduced fruit cracking in wrapped fruits could be attributed to external mechanical strength provided by cling film to epicarp and enhanced CO_2 concentration which in turn led to cell elasticity of epicarp of *bael* fruits. **(Dr. Hare Krishna and Dr. R. Bhargava, Dr. S. R. Meena and Dr. M. K. Jatav)**

Fig.: Wrapped fruits with no cracking; Control fruits (severe cracking is apparent)

Assessment of phytochemical and antioxidant activities of mulberry : Phytochemical and antioxidant activities of eight mulberry genotypes *viz.*, CIAH-1, CIAH-2, CIAH-3, Delhi Local, Gurgaon Local, MI-315, Ajmer and SL-1, available at the germplasm repository of the Institute, were estimated. The contents of total flavonoids ranged from 0.37-1.26 mg/g fresh weight, while total polyphenolics were 0.51-1.58 mg/g. Total antioxidant activity (CUPRAC; µM TE/g) was found to vary from 3.02-5.62, while DPPH inhibition (%) was in the range of 60-80 per cent. Highest and lowest values were recorded for genotypes Delhi Local and CIAH-3, respectively **(Dr. Hare Krishna and Dr. D. Singh).**

Morphological studies in *ker* : *Ker* genotypes available at germplasm block of the Institue were morphologically characterized. Based on their thorniness, plants could be categorized in three groups *viz.*, heavily thorny, medium thorny and less thorny. In medium and less thorny type plants, thorns were cauducous in nature. Fruits may or may not have 'nipple-like protuberance at the stylar end'. Fruit weight ranged from 2-5g, fruit diameter from 15-22 mm fruit length from, 13-26 mm, fruit stalk and pedicel lenths ranged from 1.8-2.3 & 1.5-2.2 cm, respectively. Huge difference existed for internodal length among genotypes, which varied from 0.6-7.3 cm. **(Hare Krishna and R.S. Singh)**

***Fig. 2: Ker* fruits with or without protuberance at the stylar end.**

Collection of aonla germplasm and evaluation of physical-biochemical traits : An extensive survey was made to explore the aonla germplasm and also to determine variability for physical and biochemical traits for different regions of the north-eastern areas of India *i.e.*, Manipur (Hundung and Lunghar area), Meghalaya (Khasi and Garo Hills), Aasam, (Jorhat) and Nagaland (Mon, Longleng, Mokok chung, Wokha ,Kohima), etc. Indian gooseberry accessions showed considerable variability with respect to morphological and physico-chemical characters. Wide variability with respect to fruit weight (1.39 - 10.59 g), fruit length (1.26- 2.53 cm), fruit breadth (1.27-2.57 cm), fruit girth (4.16 to 8.10 cm), stone weight (0.28 to 1.50 g), specific gravity(1.00-1.62),TSS of juice (10.00-21.30 ^{o}Brix), P^{H}(2.48-3.41), Acidity(1.80-5.84), Total sugar (7.50-13.68 %), Vitamin c (375.00 -1428.50 mg/100 ml of fruit juice), phenol content (944.85-4969.50 mg/100g of juice) and TSS/acid ratio, etc. **(Dr. P. P. Singh).**

Primary hardening of tissue culture date palm plants: The plants having 2-3 leaves and 15-20 cm long were selected for primary hardening under culture room with environmental regime of 27± 2^{o}C temperature and 3000 lux light intensity. The plants were transferred in different potting mixture of vermiculite, perlite, sand and cocopeat in different rations. All the plants were covered by polythene bag making four holes of 4 mm for increasing humidity around the plants. The plants were kept for two months under same hardening condition. Thereafter, the survived plants were transferred in green house

under 30± 2°C temperature, 60-80 % RH and 8000- 10000 lux light intensity. The survival percentage of date palm cv. Halawy and Khalas was maximum (70 %) in potting mixture containing vermiculite + cocopeat + sand **(Dr. D. Singh and Dr. P.N. Sivalingam).**

Fig. : Primary hardening of tissue culture plants of date palm cv. Halawy

Screening of exotic watermelon lines for resistance against mosaic disease: Nine exotic watermelon lines such as EC-829539, EC-829540, EC-829541, EC-829542, EC-829543, EC-829544, EC-829545, EC-829546 and EC-829547 were screened for resistance against mosaic disease symptoms under field conditions during summer season of 2015. Among them, disease incidence of mosaic was recorded from 0.0 to 45.50% in different exotic lines of watermelon. Only one exotic line 'EC-829541' was free from mosaic disease. EC-829542 showed 10.0% incidence of mosaic disease followed by EC-829543 with disease incidence of 14.30%. Among the lines, maximum incidence of mosaic disease in watermelon was recorded in EC-829540 (45.50% incidence) followed by EC-829539 and EC-829544 **(Dr. S. K. Maheshwari and Dr. B. R. Choudhary)**

Evaluation of field resistance of muskmelon genotypes against wilt disease : Twelve muskmelon genotypes (AHMM-BR-1, AHMM-BR-38, AHMM-BR-41, AHMM-BR-42, AHMM-BR-44, AHMM-BR-46, AHMM-BR-47, AHMM-BR-51, AHMM-BR-54, MHY-3, RM-43 and RM-50) were evaluated for field resistance against *Fusarium* wilt disease caused by fungus *Fusarium acuminatum* at New Vegetable Block of this Institute during summer season of 2015. Disease incidence of *Fusarium* wilt in different genotypes was recorded up to 50.0%. Lowest wilt incidence (less than 10.0%) was noted in the genotypes *viz.*, AHMM-BR-46, AHMM-BR- 47 and AHMM-BR-51 while highest incidence was observed in AHMM-BR-38, AHMM-BR-41, AHMM-BR-44 and RM-50 with disease incidence of 30.0-50.0% **(Dr. S. K. Maheshwari and Dr. B. R. Choudhary)**

Evaluation of watermelon genotypes: Evaluated a total of 30 genotypes of watermelon during summer season of 2015 including 9 exotic lines procured from ARS, Griffin, Georgia (United States). Among the evaluated lines, EC 829542 was found promising which produced oblong fruits weighing 3.2-4.0 kg with 18.9-22.4 cm diameter in 86 days after sowing. The fruits of this line have red flesh with 11.2-14.0 % TSS. Number of fruits/ plant varied from 2-3 with clear stripped rind of 0.8-1.0 cm thickness. Fruit cracking was absent in all exotic lines **(Dr. B.R. Choudhary)**

Introduction of Date palm germplasm : The plants of date palm varieties viz. M1MI, MHN\B and MRKS were procured from ICARDA, Amman, Jordan during the month of April, 2015 through NBPGR, New Delhi. These 48 saplings/suckers were kept under shade net nursery conditions for proper rooting. The plants are surviving and the same will be planted in the field during coming monsoon season for evaluation under hot arid conditions **(Dr. R. S. Singh).**

Evaluation of Date palm germplasm: Sixty one genotypes/cultivars of date palm were conserved and evaluated for growth, flowering /fruiting under hot arid conditions. Delay in flowering was observed in male plants in comparison to female during the year, 2015 due to change in climatic conditions. The flowering/fruiting were observed in 30 cultivars/genotypes out of 61 germplasm and rest plants are under vegetative growth stage. Due to severe wind storm and rains in the month of May, fruit drop was also observed. **(Dr. R. S. Singh).**

Experimentation to evaluate the role of organic and inorganic sources of nutrient on performance of *kachri* (*Cucumis melo*) production: A field experiment was conducted with *kachri* variety 'AHK-119' to investigate the role of application of inorganic and organic (FYM) source of nutrient in *kachri* production under hot arid agro-climatic conditions. The six manurial treatments consisted of control, 100% NPK from inorganic fertilizers, 75% (I)+7.5 t/ha FYM, 50%(I)+ 15 t/ha FYM, 25%(I)+ 22.5 t/ha FYM and 30 t/ha FYM were replicated three times in a randomized block design. Nitrogen dose was applied in three splits *i.e.* 1/3rd at sowing, 1/3rd at 25 DAS and rest 1/3rd 50 DAS from fertilizers and FYM was applied as per treatment in furrows (channel technology) at the sowing time. Application of organic and inorganic sources of nutrients significantly increased yield of kachri as compared to control. Integration of organic and inorganic sources at equal proportion (application of 50% NPK from inorganic fertilizers and 15 t/ha FYM) gave the highest kachri yield (113.08 q/ha) which was significantly higher than all other treatments. The increase in total yield was 26.77% higher over recommended NPK through fertilizers. Maximum per cent yield response was observed where 50%(I)+ 15 t/ha FYM was applied (64.57%) followed by 75% (I)+7.5 t/ha FYM (54.37%) as compared to control. The benefit: cost ratio was highest in the treatment receiving 75% inorganic NPK + 15 t/ha FYM (5.04) closely followed by 75% NPK+ 7.5 t/ha FYM treatments (4.58). Whereas, control gave the lowest B: C ratio (3.16) **(Dr. M. K. Jatav, Dr. B. D. Sharma, Dr D. K. Samadia and Dr. S. R. Meena).**

New innovations and opportunities of cactus pear and *Aloe vera* for culinary uses: An intensive studies on propagation and production aspects were conducted for economic exploitation of cactus pear and *Aloe vera* in greater way for multipurpose uses. Small, young pads of cactus pear harvested in early spring are the most succulent ones, delicate in flavor, and have fewer spines. These can be stored for two weeks without any deterioration. For dilution of the sap and making it more palatable to the diners, the pads are to be boiled for 10 minutes, washed with running water and served as a salad.

Similarly, recipes related to *Aloe vera* have been largely accepted by local people of the hot arid zone. One can relish raw *Aloe* in salads by adding small pieces as a topping or larger pieces as the primary ingredient, often with some herb garnishes. The pale green "skin" of the stalks hides the clear "meat" inside the leaves, as well as the natural gel the plant produces, both of which are edible. Recently, clonal selections of both the crops were subjected for *in vitro* propagation and tissue culture plants were further planted in greenhouse for evaluation. The plants of both crops showed good vegetative growth and reduced astringency in the leaf pads packed with appealing external appearance and qualitative traits. The organoleptic taste and flavour has been noticed with acceptable standards on the basis of feedback received from different respondents such as scientists, officers from state department of Agriculture, progressive farmers and entrepreneurs **(Dr. D. Singh, Dr. S. R. Meena, Dr. Pinaki Acharyya and Dr. P. N. Shivalingam).**

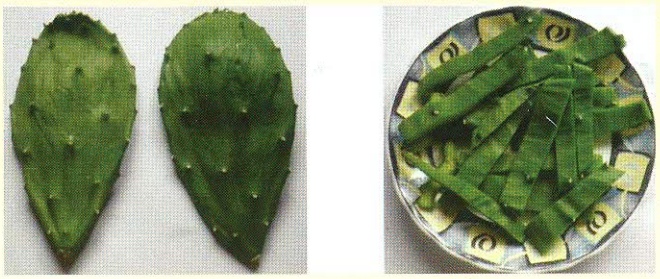

Fig. : (a) Tender pads of *In vitro* propagated **cactus pear (b) Salad of tender pads of cactus pear.**

Fig. : (a) In-vitro propagated *aloe vera* plant (b) Salad of leaf pads of *in vitro* propagated *Aloe* vera plant.

Development of models/methods/methodologies and processes: During the reported period of time, some of the extension models were developed to expedite the work of transfer of improved technologies to farmers' fields like- (i) PRENA (Participatory Research and Extension Networking Approach) model (ii) IVSL (Institute-Village- School Linkage) Model (iii) TIRCV (Techno-Input Rich Central Village) Model (IV) MWI (Mobile-WhatsApp-Internet) Model. The further evaluation/ testing, improvement and refinement work of above models is in progress. The other methods/methodologies/ processes developed to produce the unique and neo value added products of arid fruits and vegetables were related to preparing the pickles of tumba, local mushroom, *giloy*, etc. The attempts were made to develop some brilliant methods/ procedures for preparing sweetly cold drinks of dry *bael* powder, *mateera magaz*, kinnow sarbat, etc., which were observed successful and innovative.

Participatory technology development: We collected various ideas/ traditional knowledge/ concepts from the local people/ farmers/ consumers about value addition of arid fruits and vegetables grown in hot arid regions. With the participation/ help of the local people/ farmers/ consumers, we developed the several technologies/processes to produce value added products like pickle *of* tendril *khejri (Prosopis cineraria) sangari* (pods), *khakari* and *suhali (papadi)* of *khokha* of *khejri* pods; dehydration of *kachri,* preparing the quality & self life improved readymade dry chutney and pickle of *kachri.* The some new concepts/ technologies of preparation of pickle of mature pods (*sangari*) of *khejri,* pickle of ber, *sarbat* of *ber*, toffee of *ber*, and juice of *kachri, sarbat* and sweets of *mateera* fruits, pickle and *shek* of snapmelon, nectar of mulberry, dry RTS of bael, etc., were developed with the participation and help of the local people, farmers, consumers and technocrats **(Dr. S. R. Meena, Dr. B. D. Sharma and Dr. S. K. Maheshwari).**

2. At Godhra (Gujarat)

Thar Kamal: A new *karonda* variety identified : The selection out performed in respect of flowering, fruiting and fruit quality attributes. The tree height and girth was recorded 1.77 m and 23.43 cm, respectively. North- South and East-West spread was found to be 2.79m and 2.57m, respectively. It is spreading type, regular bearer, dwarf and starts flowering in 3rd year. Peak period of flowering is 3rd week of March and ripens in the last week of June. Fruit yield per plant was recorded 13.00 kg during 9th year of orchard life under rainfed conditions of hot semi-arid regions. It recorded 4.97 g average fruit weight, 93.66 per cent pulp, 9.54° Brix TSS, 0.64 % acidity, 30.41 mg/100g vitamin C, 6.12 % total sugar, 3.87 % reducing sugar **(Dr. Sanjay Singh, Dr. A. K Singh, Dr. V. V. Apparao and Dr. R. Bhargava).**

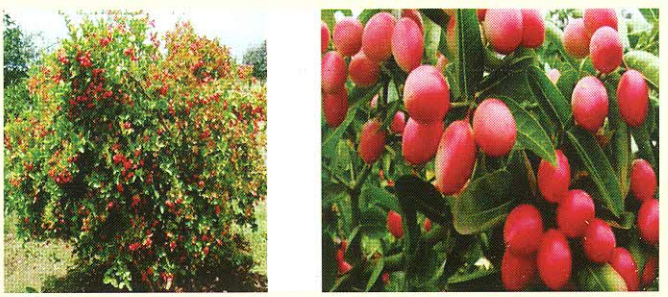

Fig. : (a) Plant and (b) fruits of newly identified variety " Thar Kamal" of karonda.

EXTENSION ROGRAMMES/ACTIVITIES

1. At Bikaner

During the reported period > 350 farmers, students and agricultural supervisors, professionals, lecturers, teachers, scientists/ trainees, etc. were visited to the Institute. More than 15 of farmer's fields were visited and there were held 22 Research-Extension-Farmers-Interface Meeting with 22 groups along with organization of some farmer's Interest Groups / Commodity Interest Groups/ Self-Help Groups. During the reported period, 02 frontline demonstrations, one training, one exhibition and 15 method

demonstrations were coducted. During the reported period of time, various farmers were answered & guided using mobile service, online telephonic conversation, e- mails. Besides, other activities included Institute's film show on computer system/ TV for client's knowledge, production of online (Institute's website) technological news through six monthly news letter, providing CD/DVD of the Institute's film and other programmes to needy clients, etc. Moreover, more than 100 farm women were visited to the Institute and had research-extension-farmers-interface meetings with them **(Dr. S. R. Meena, Dr. R. S. Singh, Dr. D. Singh and Dr. D.K. Samadia)**

At Godhra (Gujarat)

KVK Programmes and activities: During the reported period, Krishi Vigyan Kendra, Panchmahal (Godhra), Gujarat working under the ICAR-CIAH, Bikaner (Rajasthan) conducted 08 On Farm Trials (OFT), 06 Front Line Demonstrations (FLD) with 95 method demonstrations on various crops. The KVK conducted 22 training programs also on Agricultural and allied fields through which altogether, 530 farmers benefited, out of them 295 were male and 235 were female beneficiaries.

Other extension activities: Field Days (02 Nos.), Farmer Scientist interaction (03Nos.), Kisan Goshthi (01No.), Exhibition (02 Nos.), Film Shows (15Nos.), method demonstrations (12), farmers' visit to KVK (25), scientists, visit to farmers' fields (23), advisory service (59), lectures dilivered in traning programmes (157) , radio talk (06), production of extension literatures (4), telephonic help lines (250), One Month teaching course for Bachelor of Rural studies (BRS) students, etc.

Organization/Celebration of days/ programmes.

Organization of field day: KVK, Panchmahal (Godhra), Gujarat Organized a field day on Gobar gas technology on 21.2.2015

- **Celebration of Science Day:** National Science Day was celebrated by the Institue with the theme of "Science for Nations' Building" on 28.02.2015
- Celebration of Foundation Day of the Institue. : The 23th foundation day of the Institue was celebrated on 01.04.2015.

Visit of VIPs/ Higher Dignitaries at the Institue

- Dr. N.K. Krishna Kumar, DDG of Horticultural Division, ICAR, New Delhi visited the Institute on 20.03.2015 and inaugurated the newly constructed buildings like biotechnological laboratory, scientist home and large water harvesting reservoir (*Diggi*). He also put foundation stone of boundary wall of the research farm/ land of the Institute.
- Dr. N. V. Patil, Director, NRCC, Bikaner visited the Institute on 20.03.2015.
- Dr. N. D. Yadav, Head, RRS (CAZRI), Bikaner visited the Institute on 20.03.2015.
- Dr. S. Ganeshan, HEAD, PGR, IIHR, Bengaluru visited the Instituefrom 30.03.2015 to 01.04.2015 for discussion on date palm pollens and storage study.
- Dr. K.M.L. Pathak, DDG (Animal Scince), ICAR, New Delhi visited the Institue on 18.04.2015.

Important Meetings held

- IMC meeting of the Institue was held in the Institute on 02.03.2015.
- IRC meeting was held on 16-17th April, 2015 in the committee room under the chairmanship of Dr. S. K. Sharma, Director of the Institute. All scientists presented their research achievements during 2014-15, technical programme for the year (2015-16) and also new research project proposal(RPP-I).
- Scientific Advisory Committe meeting of Godhra was held on 13.05.2015 under the Chaimanship of Dr. S. K. Sharma, Director of the Institue at Godhra, Gujarat. The programme of the KVK for the year 2015-16 was discussed and finalized.

Visits/ meeting attended by the Director of the Institute.

(a) Dr. S. K. Sharma, Director of the Institue visited the following AICRP centres and other places during the reported period

- Visited at AICRP on AZF Anantapur centre from 26-29th January, 2015
- Visited to the farmers' fields of Khajuwala Tehsil of Bikaner district on 03 January, 2015.
- Visited at AICRP on AZF Ambajogai centre from 6-7th February, 2015.
- Visited at AICRP on AZF Jadavwadi centre on 7-8 March, 2015.
- Visited Jaisalmer area to examine the date palm plantation at Chandan and nearby areas and to study of arid biodiversity and water management system from 20-22 March, 2015.
- Visited NBPGR, New Delhi on 04 April, 2015.
- Visited at AICRP on AZF Aruppukottai centre on 06-07 April, 2015.

(b) Dr. S. K. Sharma, Director of the Institue monitored the work progress/ attended/ participated in the following meetings during the reported period

- Director visited to AAU, Anand (Gujarat) to conduct the review meeting of Date Palm Tissue Culture Project and also to visit CHES and KVK, Vejalpur (Godhra) from 18-22 January, 2015.
- Attended a meeting at ASRB, New Delhi as Directed by the Hon'ble Secretary, DARE and Director General, ICAR, New Delhi on 02.02.2015.
- Attended a meeting at Krishi Bhawan, New Delhi to be Chaired by Hon'ble Secretary, DARE and Director General, ICAR, New Delhi on 13.02.2015.
- Attended a meeting at ARS, Durgapura, Jaipur to be Chaired by Hon'ble Secretary, DARE and Director General, ICAR, New Delhi on 15.02.2015.
- Attended the Group Meeting of AICRP on Fruits and to chair the session on "Planting density, Propagation and Rootstocks" at MPUAT, Udaipur on 27 February, 2015.
- Attended and Chaired the SAC meeting at KVK, Godhra and to monitor the progress of CHES, Godhra on 13.05.2015.
- Atteneded the Vice-Chancellors and Directors meeting on 15-16 May, 2015 at New Delhi.

HRD ACTVITIES

Participation/ attending the training programmes/ seminar/ symposium/ workshops, etc.

- Dr. S. K. Sharma, Director, ICAR-CIAH, Bikaner attended the Agricultural Science Congress held at Karnal on from 03 - 06 February, 2015.
- Dr. S. K. Sharma, Director, ICAR-CIAH, Bikaner Attended and Chaired the session on Seed Production in

the 33rd Group Meeting of AICRP on Vegetable Crops scheduled to be held at IIVR, Varanasi w.e.f. 21.05.2015 to 24.05.2015.

- Dr. S. K. Sharma, Director, ICAR-CIAH, Bikaner participated in the Annual Group Meeting of All India Coordinated Research Project on Palms during 26-27 May, 2015 and chair the session on Genetic Resources and Crop Improvement.
- Dr. S. K. Sharma, Director, ICAR-CIAH, Bikaner attended and gave presentation on Date Palm Tissue Culture Project in the Senior Officers Council meeting to be chaired by Hon'ble Secretary DARE and Director General, ICAR at Krishi Bhawan, New Delhi on 29th May, 2015.
- Dr. B. R. Chadhary attended 33rd Annual Group Meeting of AICRP on Vegetable Crops held at ICAR-IIVR, Varanasi from 21-05-2015 to 24-05-2015.
- Dr. Dhurendra Singh attended training on date palm tissue culture at Tissue culture laboratory, Anand Agricultural University, Anand from 05-05-2015 to 03-06-2015
- Dr. Dhurendra Singh attended annual review meeting of Network project on "Production & Demonstration of tissue culture raised plants under three locations & collection & maintenance of elite germplasm of date palm" at AAU, Anand on 19-01-2015
- Dr. P.N. Sivalingam attended annual review meeting of Network project on "Production & Demonstration of tissue culture raised plants under three locations & collection & maintenance of elite germplasm of date palm" at AAU, Anand on 19-01-2015.
- Dr. Pinaki Acharya participated in "National seminar on Current trends in environmental research" organized by Dept. of Environmental Science, Maharaja Ganga Singh University, Bikaner held on 28th Feb to 2nd March, 2015 and dilvered a oral presentation of the paper on "Plant genetic resource management under emerging climate change" during the same.
- Dr. Pinaki Acharya participated in a winter school on " Bioinformatics and its emerging dimensions in Agriculture" from 12th January to 1st February,2015, organized by Bioinformatics Centre, College of Horticulture, Kerala Agricultural University, Thrissur.
- Dr. R. S. Singh attended for oral paper presentation in National Symposium on "Modern Agro- technologies for Nutrition Security and Health" (MANUSH) at Dr. Y.S. Parmar Univ. of Horticulture & Forestry, Nauni, Solan from 21-23April,2015 and dr. Singh Chaired a technical session also during above symposium.
- Dr. S. R. Meena attended the National Seminar organized on *"Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity"* at ICAR-NRCSS, Ajmer, Rajasthan, during January 19- 20, 2015 and presented two research papers (as oral and poster presentation) during the same.
- Dr. S. R. Meena Attended the 12th Agricultural Science Congress 2015 at ICAR-NDRI Karnal, Haryana organized by National Academy of Agricultural Science during 03 - 06 Feb, 2015.
- Dr. S. R. Meena attended National Seminar on Current Trends in Environmental Research (NACTER-2015) organized by Department of Environmental Science, Maharaja Ganga Singh University Bikaner (Rajasthan) during February 28th-March 2nd, 2015 and presented two research papers orally entitled as (i) New dimensions of conservation of biodiversity in Indian desert through arid horticultural development (ii) Natural occurring germplasm/ genotypes of horticultural importance among biodiversity of Indian Desert : Major source of traditional food stub and livelihood security.
- Mr. B. R. Khatri (STO) and Mr. Gulla Ram (LDC) attended ERP/FMS traning at New Delhi from 11. .05.2015 to 16.05 2015.
- Mr. B. R. khatri (STO) attended a traning at IASRI, New Delhi from 20.04.2015 to 25.04.2015.
- One month (04 weeks) oreintation training was carried out for two newly joined ARS probationer Scientists by Dr. R. S. Singh Mentor/ I/c PME cell of the Institue during 08.04.2015 to 08.05.2015.
- Training programme on horticulture production in semi-arid regions was conducted for a group of students at CHES, Vejalpur, Godhra, Gujarat from 01.01.2015 to 21.01.2015.

PERSONALIA

Awards/Prizes/ Recognitions

- Sh. Ramesh Kumar, Scientist, qualified All India Competitive Examination with **First Rank** in subject – Horticulture for the award of ICAR-Senior Research Fellowship (PGS) conducted on 12.04.2015 by ICAR to pursue Doctoral Degree Programme in the universities under ICAR-AU system.
- Dr. Dhurendra Singh was awarded as ***FELLOW*** of Confederation of Horticulture Association of India (CHAI)
- Dr. P.N. Sivalingam attended Second International Conference on Bio-resource and stress management at Hyderabad during 07-10 January 2015 and presented research work on "Differential expression of transcripts during low moisture stress in *Ziziphus nummularia*" and awarded with ***best oral presentation.***
- Oral presentation made by Dr. Hare Krishna during the National Symposium on Modern Agro-technologies for Nutritional Security and Health held on 21-23 April, 2015 at Dr YS Parmar University of Horticulture and Forestry, Solan, H.P. was adjudged the **'Best Oral Presentation'.**
- Dr. Hare Krishna was selected as the **'Best Presenter'** for his oral paper presented in Technical Session-I during 3rd International Symposium on Minor Fruits, Medicinal & Aromatic Plants held on 20-21 May, 2015 at Bangladesh Agricultural University, Mymensingh, Bangladesh.
- Dr. S. K. Maheshwari received **"SPPS Fellow Award"** from Society of Plant Protection Sciences, ICAR-NCIPM, Pusa Campus, New Delhi on 23th April, 2015 at Maharana Pratap University of Agriculture & Technology, Udaipur (Rajasthan).

- Dr. S. K. Maheshwari acted as **Rapporteur** in Technical Session of National Symposium on "Dynamics of Crop Protection: Challenges in Agri-horticultural Ecosystems Facing Climate Change" at Maharana Pratap University of Agriculture & Technology,Udaipur during 23-25th April, 2015.
- Dr. S. K. Maheshwari acted as **Convener** in Technical Session of National Symposium on "Dynamics of Smart Horticulture for Livelihood and Rural Development" at Mahatma Gandhi Chitrakoot Gramodya Vishwavidyalaya, Chitrakoot, Satna-Ditrict (M. P.) during 28th-31st May, 2015.
- Dr. S.R. Meena was awarded with **best oral paper presentation** entitled as "Rural talent in value addition and expend of underutilized fruits and vegetables in hot arid regions of western Rajasthan: Noble concepts and methods formation during the National Seminar organized on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" at ICAR-NRCSS, Ajmer, Rajasthan, from 19- 20 January, 2015.
- Dr. S.R. Meena was awarded with **second best poster** award for the presentation of a research paper entitled as "bio-organic preparations complying to reduce the load of insect-pests on horticultural crops without environmental risk: Conceptual evaluation" during the National Seminar organized on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" at ICAR-NRCSS, Ajmer, Rajasthan, from 19- 20 January, 2015.
- Dr.S.R.Meena acquired & was awarded by Indian Society of Seed Spices with ***Society Fellow Award*** for the year 2014-15 on 30.03.2015 at NRCSS, Ajmer, Rajasthan for his outstanding contribution in the field of seed spices and other areas of agricultural research.
- Dr. S.R. Meena was selected/nominated as one of the Editor for the year 2015-16 of the *International Journal of Seeds Spices,* during the GBM of Indian Society of Seed Spices, held at NRCSS, Ajmer (Rajasthan), India, on 30.03.2015.
- The Institue was awarded (with Shield & Certificate) by *Nagar Rabhasha Karyanvayan Samiti* on 12.06.2015 for the best work in implemetation of official langauge in the Institue during 2014-15.

Financial upgradation through Modified Assured Career Progretion Sceme (MACPS)

Administrative staff

- Sh. S.N.Patel, UDC, was benefitted with II Financial Up-gradation PB-1/ Rs 5200-20200 + GP Rs 2800.00 w. e. f. 09.11.2012.

Supportive staff

- Sh.V.G.Patel, SSS, was benefitted with III Financial Up-gradation PB-1/ Rs 5200-20200 + GP Rs 2400.00 w. e. f. 01.06.2013.
- Sh.B.K.Jadav, SSS, was benefitted with III Financial Up-gradation PB-1/ Rs 5200-20200 + GP Rs 2400.00 w. e. f. 24.06.2013.
- Sh.F.T.Patel, SSS, was benefitted with III Financial Up-gradation PB-1/ Rs 5200-20200 + GP Rs 2400.00 w. e. f. 27.06.2013.
- Sh.Chandubhai D. Rathva, SSS, was benefitted with II Financial Up-gradation PB-1/ Rs 5200-20200 + GP Rs 2000.00 w. e. f. 05.12.2012.

New Joining/ entrants

- Dr. Lalu Prasad Yadav, Scientist (Vegetable Science) joined the Institute on 08.04.2015.
- Dr. Vikas Yadav, Scientist (Fruit Science) joined the Institute on 10.04.2015.
- Dr. Dhurandra Singh was selected as Head of the Division of Crop Improvement, ICAR-CIAH, Bikaner and he joined as a Head of the concerned on 26-02-2015 afternoon.

Resignation/ Superannuation

- Dr. S.S. Hiwale, Principal Scientist, CHES, Vejalpur, Godhra has been relieved on superannuation on 31.03.2015.
- Shri B. H. Patel, Technical Officer (Field), CHES, Vejalpur, Godhra has been relieved on superannuation on 31.05.2015.

STEPS IN POPULARIZATION AND COMMERCIALI - ZATION OF TECHNOLOGIES: SUCCESS AND FEEDBACK.

Impact story of extension programmes/activities: Recently, this Institute has developed and released several improved varieties of arid fruits and vegetables. Among them "*AHK-119*" is one of the wonderful variety of *kachri* (*Cucumis calosus*). After releasing, this variety was popularized among the farmers/cliets through various extension activities like conducting Front Line Demonstration on several farmers fields, method demonstration, trainings, interactive meetings and mass media. These activities created the awareness and knoledge about the improved variety "AHK-119" and the demand of seeds of the above variety was greatly hiked among the farmers as well as in the local markets. In the month of February, 2015, the Institue sold the seeds of this variety where large crowd of the farmers/cosumers/clients was gathered at the Institue to purchase the seeds of said variety. A high competition among the farmers to purchase the as more seeds as possible was oserved. The seeds of above improved variety was sold of > Rs. 3.0 lakh within a few hours at the Institue during the month of February, 2015. As the results of conducting demostrations, farmer's trainings and follow-up programmes, presently, this variety is being grown demonstratively on farmers' fields covering > 300 hactares of land which are directly or indirectly supported/ monitored by the Institue to work as demonstrations for other farmers in the vicinity/ locality. Today, there are several farmers which are earning an avarage net profit of Rs. 1.10 - 1.60 lakh per hectare per season depending on market demand and climatic condtions **(Dr. S. R. Meena, Dr. D. K. Samadia and Dr. D. Singh)**

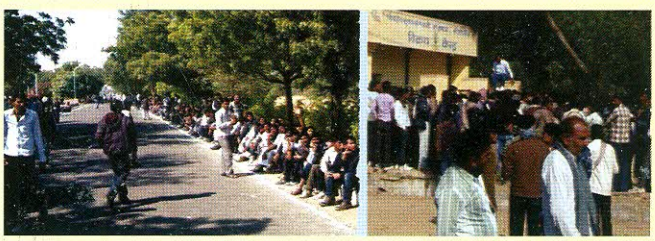

Fig. : Farmers are waiting in a long queue of the farmers at the Instiute to purchase the seeds of improved variety of *kachri "AHK-119"*

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VISITING GLIMPSES OF DDG (HORT. SCIENCE), ICAR, NEW DELHI.

Dr. N.K. Krishna Kumar, DDG (Horticulturae Science), ICAR, New Delhi visited the Institute on 20.03.2015 and inaugurated the new constructed buildings like biotechnological laboratory, scientist home and gigantic water harvesting reservoir (*Diggi*). He also put foundation stone of boundary wall of the research farm/ land of the Institute.

Fig.: Dr. N.K. Krishna Kumar inaugurating the newly constructed buildings of biotechnological laboratory.

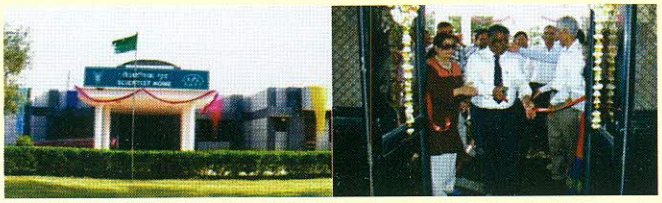
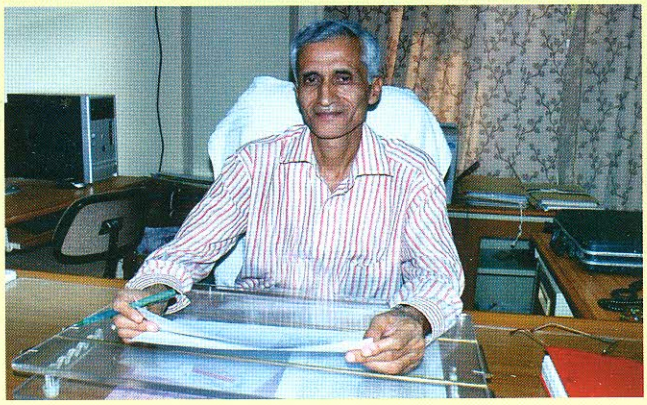


Fig.: Dr. N.K. Krishna Kumar inaugurating the newly constructed scientist home.

Fig.: Dr. N.K. Krishna Kumar inaugurating the newly constructed gigantic water harvesting reservoir (*Diggi*).

Fig.: Dr. N.K. Krishna Kumar laid down the foundation stone of boundary wall of research farm/ land of the Institute.

FROM THE DIRECTOR'S DESK .....



During last six months, the scientists of the Institue worked hard and carried out various research and extension programmes of the Institue. The horticultural development in hot arid and semi-arid regions of the country is the urgent need of the hour but it requires complete dedication , real vision and integrated approach to achieve desired goal and satisfaction. The ICAR- Central Institute for Arid Horticulture , Bikaner (Raj.) is working hard to develop the desired technologies. Recently, the minimum risk and cost effective agro-techniques of crop production have been developed by the Institute which may be boon for the horticultural development in hot arid regions of the country. The scientists of the Institute have idnetified some of the promising germplasm/geneotypes of arid fruits and vegetables for crop improvement purpose. The experiments related to efficient use of water and nutrient management in arid horticultural crop production were also carried out. The scope of value addition in the field of arid horticulture is very wide. Hence, the Institute is taking care and trying to standardize technologies for proper handling, maturity standards, processing, value addition and post harvest management of arid horticultural crops. The major efforts made by the Institute during last six months in above sense are being narrated in this *Newsletter* in brief. I am feeling immense pleasure by bringing out this newsletter to highlight the R and D advancement and other glimpses of the Institue during last six months.

(S. K. Sharma)
Director

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