



From the Director's Desk



The horticultural development in hostile climatic conditions of the hot arid region is a challenging task. But the application of power of science and mind with dedicated efforts can make it possible to sustain the horticultural development in such climatic conditions and can create a new dimension for better living of the rural people in the region. Therefore, there is an urgent need to develop climate resilient and area specific suitable technologies of horticulture and transfer the same to the farmers' fields in the arid region. Arid horticulture is a key avenue for enhancing livelihood and income opportunities in hot arid and semi-arid regions of the country. Continuous efforts of the Institute are being made to address challenges arising from extreme climatic, soil, and water-related constraints to ensure sustainable profitability of horticulture in these regions. ICAR-CIAH, Bikaner is actively engaged in research and development, focusing on genetic improvement to enhance yield, quality and resistance to drought, frost, diseases, and pests in horticultural crops. To achieve these objectives, the institute employs advanced plant breeding techniques, biotechnological methods and plant health management strategies. The Institute is dedicated to developing the compatible technologies which can function in potential production of horticultural crops in existing hard climatic situations of the hot arid regions. The institute is fully aware and dedicated to change the hot arid unproductive barren land of *Thar desert* into productive green belt and creating new economic zone of the country through horticultural crop production.

During the period, the Institute notified and released new variety of muskmelon (Thar Mahima); identified the promising genotypes of pilu, gundi, and ker, watermelon, ber. The AHMM/BR-8 of muskmelon was granted IPR.

Thar Karni (AHRG-29) variety of ridge gourd was protected under 'Extant (Notified)'. The work on validation of vegetable nursery technologies, management of alternaria leaf spot of date palm (*Phoenix dactylifera* L.), dissecting work on molecular diversity and population structures among kachri germplasm, management of bacterial blight of pomegranate, etc., was done. Institute is developing not only promising arid horticultural technologies but also having good programmes for dissemination of proven technologies to farmers' fields. The improved technologies of the institute are gaining popularity among farmers in hot arid/semi-arid regions due to their adaptability and promising yield potential. The institute is optimizing technologies for proper handling, maturity standards, processing, value addition, and post-harvest management of arid horticultural crops. The research on value addition is being conducted to create employment and boost income opportunities among rural populations in hot arid and semi-arid regions of the country.

Although the dissemination of technologies developed by the institute is a regular activity, there has been increasing emphasis on utilization of digital media to enhance the awareness among the farmers and stakeholders. The institute successfully organized eight trainings, sixteen frontline demonstrations and method demonstrations, four technological exhibitions, more than thirty research-extension meet/interactions, and celebrated days/weeks/fortnights. During the reported period, webinars/seminars, workshops, etc. were also organized by the institute. This newsletter will provide a glimpse of various activities carried out at the institute during the year 2024.


(Jagdish Rane)
Director

Research Spectrum

Identification of promising genotypes of pilu, gundi, and ker:

During May and June 2024, a survey was conducted and promising genotypes of pilu (*Salvadora oleoides*), gundi (*Cordia gharaf*), and ker (*Capparis decidua*) were identified. Twelve promising genotypes of pilu were identified from the desert ecology of Rajasthan: 9 from Barmer, 2 from Bikaner, and one from Jaisalmer. Additionally, 1 promising genotype of gundi was found in the Kolayat region of the Bikaner district. Furthermore, three ker genotypes with diverse traits were identified from the Barmer region. For the selected trees, various morphological traits were recorded, including tree height, spread, circumference, and canopy density. Qualitative and quantitative traits of the leaves and fruits were assessed by collecting samples from these trees (K.L. Kumawat)



Fig. Variability observed in Pilu (*Salvadora oleoides*) fruit color observed



Fig. Different bud, flower and fruit developmental stages of gundi observed



Fig. Variability observed in ker (*Capparis decidua*) flower colour

Validation of vegetable nursery technology: Vegetable nursery raising technology “Surface covering protective vegetable nursery technology” developed by the Institute for round the year vegetable seedling production was validated at KVK, Athiyasan(Nagaur) & KVK, Maulasar(Nagaur) during June 2024. For this, a raised bed of soil having dimensions of 80-90 cm × 90-100 cm × 12-15 cm (length × width × height) was prepared. Lines (2-5 cm deep) were made (using pencil thickness twig or wire) at 8-10 cm apart and perpendicular to the length of bed. Seeds of brinjal (variety Thar Rachit) were treated with fungicide and single seeds were sown at 1-2 cm distances in lines. First watering was done with the use of rose-cane. After that, two drip lateral pipe-lines were laid-down in parallel fashion on nursery bed followed by covering with half circular rings and polythene sheet. To maintain proper soil moisture and uniform water distribution through emitters of drip system was operated for 1.0–1.5 hours thrice a week. Two inter-culture operations and hoeing was done at 12-15 days interval. Demonstration cum validation of this technology has also been executed at KVK, Sardarshahar, Churu and raised seedlings of brinjal (variety Thar Rachit) was also distributed among the farmers in the month of February 2024. (Hanuman Ram, D.K. Samadia and A.K. Verma)



Fig. Validation of vegetable nursery technology

Identification of multiple abiotic stress tolerance genes in watermelon:

Identified seven abiotic stress responsive genes (*ClaAAT*, *ClaAOD*, *ClaASL*, *ClaASS*, *ClaCAT*, *ClaAPX* and *ClaNCED*) as consistently exhibiting up-regulated expression against multiple abiotic stress conditions of watermelon. Notably, the *ClaAAT*, *ClaAOD*, *ClaCAT* and *ClaAPX* genes exhibited exponential up-regulation during cold stress condition. Similarly, four genes such as *ClaAAT*, *ClaAOD*, *ClaASS* and *ClaAPX* were gradually up-regulated in case of heat stress condition in watermelon. During drought and salinity stress in watermelon, *ClaAAT* and *ClaAPX*, and *ClaAAT* and *ClaAOD* genes consistently up-regulated from 0 h to 72 h post-stress treatment. Based on the gene expression patterns, these seven multiple abiotic stress-tolerant genes can be categorized into three main groups: (i) Exponentially up-regulated with sustained expression - *ClaAAT*, *ClaAOD* and *ClaAPX* genes, (ii) Genes with circadian and down-regulation in expression - *ClaASS*, *ClaCAT* and *ClaNCED* genes and (iii) Significantly not expressive gene - *ClaASL* gene. This investigation highlights that three genes, *ClaAAT*, *ClaAOD* and *ClaAPX*, hold promise as potential candidate genes responsive to multiple abiotic stress conditions in watermelon. (Chet Ram)

Identification of Tikkadi genotype species of ber: For molecular characterization and identification of species of Tikkadi genotype, twenty-four CBDP and 36 SCot markers were profiled on different ber species namely Thai apple and Gola (*Ziziphus mauritiana*), *Z. nummularia*, *Z. rotundifolia*, *Z. spina-christi* and *Z. jujube*. As a result, all the markers amplified well and combinedly generated 510 alleles with mean value of 8.5 alleles per primer. The PIC value generated by all 60 markers in 8 genotypes of ber ranged from 0.23 to 0.59. The molecular data further analyzed for clustering analysis which were grouped into 02 clusters. Cluster 1 was consisted of 04 species such as *Z. mauritiana* (Thai apple and Gola), *Z. nummularia*, *Z. rotundifolia*, *Z. spina-christi*. Whereas, cluster 2 was outliered with *Z. jujube*. The cluster 1 was further divided into two sub-groups consisting of 06 genotypes in one sub-group and Tikkadi alone in another sub-group. The molecular analysis in *Ziziphus spp.*, suggested that the Tikkadi genotypes might be belongs to different species; however, showed close proximity with *Z. spina-christi* genotypes. (Chet Ram)

A gall forming insect: New threat for phog (*Calligonum polygonoids* L.):

During January 2024, a new threat to phog plants was the attack of a gall-forming insect on their foliage at the Experimental Farm of the Institute. At the initial stage, its attack was found on 2-3 plants and the infection severity was increased highly and more than 90% of its foliage were converted to galls. The insect attack was on the tender foliage at internodes, causing swelling of the internodes leading to gall formation. The microscopic examination of dissected galls revealed that the nymph stage of the insect was damaging the

internal part at internodes' junction, creating a cavity inside while the outer part swells into a gall-like structure. Upon maturation, the adult fly emerges, breaking through the gall. At first instance, the insect resembled species of the genus *Ctenarytaina*, a homopteran psyllid bug. Generally, new foliage and flowering in phog plants occurs during the first and second weeks of March. However, it was observed that in the severely infected plants emergence of new foliage was delayed until second week of April and flowering did not occur. (M.K. Berwal, Chet Ram and S.M. Haldhar)



Fig. Symptoms of insect attack on phog plants and different growth stages of insect

Management of alternaria leaf spot of date palm (*Phoenix dactylifera* L.): A field trial was conducted for management of *Alternaria* leaf spot of date palm (variety 'Halawy') during 2024 at Date palm experimental block of the Institute. Seven treatments such as Azoxystrobin + Difenconazole @ 0.1%, Difenconazole @ 0.1%, Neem leaf extract @ 5%, Tumba fruit extract @ 5%, Aak leaf extract @ 5%, Agnayashtra formulation @ 5%, and control were applied against *alternaria* leaf spot of date palm under field conditions. Among 07 treatments, Azoxystrobin +Difenconazole (0.1%) was found the most effective treatment against *Alternaria* leaf spot of this crop with minimum disease incidence of 17.26% (PDI) which reduced 42.12% disease control and average fruit yield/plant (41.75 kg), followed by Difenconazole (0.1%) with PDI of 19.48% and it reduced 34.67% disease control and average fruit yield/plant (40.25 kg). Both the above treatments were statistically at par with each other. The next best treatments were Neem leaf extract @ 5% and Tumba fruit extract @ 5% with disease incidence of 23.72% and 25.14% (PDI) having 20.46% and 15.69% disease control and average fruit yield/plant of 37.50 kg and 36.25 kg. (S.K. Maheshwari and Ramkesh Meena)



Fig. Spraying of botanicals and fungicides on date palm plants infected by *alternaria* leaf spot

Varieties notified and released: During the reported period of time, a watermelon variety "Thar Tripti" was notified and released of which fruits are attractive and characterized by green stripes and round shape. Fruit weight 2.3-3.4 kg with diameter of 16-20 cm and flesh colour is red. TSS is 11.5-12.17% and rind thickness can range from 1.5-1.8 cm. The first harvest of fruits can be carried out in 75-80 days after sowing. Moderately resistant to mosaic disease under field conditions. Average marketable fruit yield 450 q/ha. Notified and released for cultivation in Agro-climatic Zone VII comprising MP, MH and Goa States. (B.R. Choudhary)



Notified and released New variety of muskmelon: During the reported period, a muskmelon variety "Thar Mahima" was notified and released of which fruits are attractive, round weighing 780-900 g with 11.50-11.80% TSS. Flesh is salmon orange and 2.8-3.2 cm thick. Rind is 0.30-0.48 cm thick and netted with sutures. It is characterized by deep lobing of leaves. Tolerant to high temperature. Average marketable fruit yield 200 q/ha. Notified and released for cultivation in arid and semi-arid conditions of Rajasthan state. (B.R. Choudhary)



IPR granted: The AHMM/BR-8 of muskmelon is registered with the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Authority in New Delhi under the category of

'New.' It has been granted protection on 16 July, 2024 (Registration No. REG/2015/2036) for its unique trait, specifically its monoecious sex form, under the PPV&FR Act, 2001. The Thar Karni (AHRG-29) variety of ridge gourd is registered and protected under 'Extant (Notified)' category on 28 November, 2024 (Registration No. REG/2024/0172) with the PPVFR Authority, New Delhi, in accordance with the PPV&FR Act, 2001. (B.R. Choudhary)

Dissecting molecular diversity and population structures among Kachri germplasm: To explore the genetic divergence among Kachri germplasm, 10 CDBP and 15 SCoT markers were analysed in 67 accessions of Kachri. DNA was isolated separately from each accession and utilized for profiling of the molecular markers using PCR amplification. As a result, the 10 CDBP and 15 SCoT markers were produced 67 and 132 scorable alleles among the genotypes analysed, respectively (Figure 1). The polymorphism information content (PIC) values was ranged from 0.34 to 0.50 and 0.11 to 0.40 in case of CDBP and SCoT markers, respectively. The marker data pertains to CDBP and SCoT markers classified 67 Kachri germplasm into five major groups (Figure 2). Further, the molecular data were used for identifying population structures among the 67 germplasm of Kachri. As a result, both the markers were exhibited 03 major populations with some admixtures. (Chet Ram).

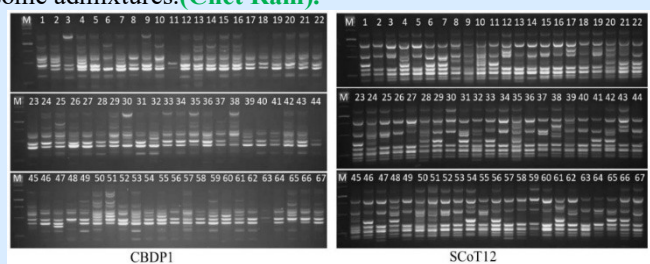


Fig. Profiling of CDBP and SCoT markers in Kachri germplasm

Germplasm re-generation and maintenance cycle studies in Citrullus melons: Utilization of native germplasm for region specific varietal development is the primary requirement so that climate resilient cultivation can be realized. In addition, maintenance of generated material of the particular crop is very essential for continuity in the breeding programme. Since 1994, ICAR-CIAH is targeting the *Citrullus* melons (275 lines of mateera, tinda and tumba) for genetic resource management studies and now, SOP's has been finalized using 12–22 years age-old stored seeds. During 2024, mateera/watermelon re-generation was assessed for storages behavior, safe-longevity with packaging material and crop vigour for seed multiplication and CIAH gene-bank genotypes (71) seed of the period 2001 to 2010 evaluated. Based on standardized packaging methodology, study revealed that mateera genotypes seeds can be stored safely for 10-15 years under deep-freez (-20°C) conditions. However, re-generation cycle of 10 years should be followed for obtaining better growth and fruits/plant. With similar packaging, normal cabinet and refrigerator conditions stored seeds would give good crops when maintenance cycle is followed at an interval of 04 and 08 years, respectively. The present findings is in close confirmation to the research work on mateera varieties (05) and round melon genotypes (25) seed storage studies results from year 2021 to 2024 at CIAH. The genotypes viz., Thar Manak, Thar Madhur (earlier as AHW-19), AHW-65, AHW-110, AHW-123, AHW-140 and AHW-BSM-1

were promising for maturity and fruit characters where as mateera AHW-RSS-1 (reddish seeds) is superior for high seed yield/fruit. (D.K. Samadia and Hanuman Ram)



Fig. Fruit variability in mateera genotypes

Demonstration and Validation of vegetable nursery raising technology at KVKs: In hot arid region, timely availability of vegetable seedlings to raise spring-summer and rainy-winter season is a big challenge owing to climatic adversity. In this context, ICAR-CIAH, Bikaner has developed a technology "Surface covering protective vegetable nursery technology" for round the year vegetable seedling production. The technology was demonstrated and validated at KVK, Jaisalmer & KVK, Phalodi during November 2024. For this, a raised bed of soil having dimensions of 80-90 cm × 90-100 cm × 12-15 cm (length × width × height) was prepared. Lines (2-5 cm deep) were made (using pencil thickness twig or wire) at 8-10 cm apart and perpendicular to the length of bed. Seeds of brinjal (variety Thar Rachit) were treated with fungicide and single seed was sown at 1-2 cm distances in lines. First watering was done with the use of rose-cane. After that, two drip lateral pipe-lines were laid-down in parallel fashion on nursery bed followed by covering with half circular rings and polythene sheet. To maintain proper soil moisture and uniform water distribution through emitters of drip system was operated for 1.0–1.5 hours thrice a week. Two inter-culture operations and hoeing was done at 12-15 days interval. (Hanuman Ram, D. K. Samadia and A.K. Verma)



Fig. Demonstration of nursery technology at KVK, Jaisalmer

Fig. Demonstration of nursery technology at KVK, Phalodi

Effect of Naphthalene acetic acid (NAA) on water sprout suppression in Gundi (Cordia alliodora): A preliminary trial was conducted to assess the effectiveness of Naphthalene Acetic Acid (NAA) in suppressing water sprouts and root suckers in 10-month-old Gundi plants. Three NAA

concentrations (2500, 5000, and 7500 ppm) were tested alongside an untreated control. Treatments were applied on July 16, 2024, targeting the tree trunk and soil within a 5 cm radius. Control plants initiated new sprouts within four days, developing 12–23 by July 30. In contrast, treated plants remained sprout-free until September. By October, 2500 ppm NAA-treated plants produced 1–4 sprouts, while 5000 and 7500 ppm treatments suppressed sprouting until late October, with minimal regrowth in November. Both concentrations effectively controlled water sprouting and root suckering for up to four months, with 5000 ppm emerging as a promising option for sustainable canopy management in Gundi. (K.L. Kumawat)

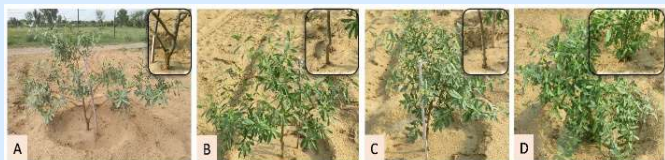


Fig. Untreated plants of gundi induced considerable number of water sprouts and root suckers in comparison to NAA treated plants with 2500 ppm (A), 5000 ppm (B) and 7500 ppm (D)

Management of bacterial blight of pomegranate: A field trial was conducted for the management of bacterial leaf blight caused by *Xanthomonas campestris* pv. *Punica* during rainy season of the year 2024 at Pomegranate variety 'Bhagwa' block of this Institute. Among 08 treatments, Clove oil (0.2%) + Bronopol (0.05%) + Copper oxychloride (0.25%) was found the most effective treatment against this disease with minimum disease incidence of 12.27% (PDI) which reduced 61.01% disease control, followed by Bronopol (0.05%) + Copper oxychloride (0.25%) with PDI of 16.53% and it reduced 47.47% disease control. The next best treatments were Bronopol (0.05%) + Captan (0.2%) and Clove oil (0.2%) + Bronopol (0.05%) with disease incidence of 20.80% and 21.60% (PDI) having 33.91% and 31.36% disease control and average fruit yield/plant of 9.58 kg and 9.11 kg. (S.K. Maheshwari and Ramesh Kumar)



Fig. Pomegranate orchard infected by bacterial leaf blight

First Report on Quantification of Soil Potassium Fractions in Aonla + Khejri Intercropping System in Arid region: The first-time quantified soil potassium fractions under different Aonla-based intercropping systems and identify an efficient and sustainable model for improving soil fertility and crop performance. Among all treatments, the Aonla + Khejri intercropping system exhibited the most favorable potassium dynamics, recording the highest water-soluble potassium (29.18 mg kg⁻¹) and exchangeable potassium (29.98 mg kg⁻¹), reflecting greater immediate nutrient availability. It also showed the maximum non-exchangeable potassium content (1375.03 mg kg⁻¹), indicating an enhanced ability to mobilize mineral-bound potassium and sustain long-term soil fertility. This system significantly improved soil organic carbon

(0.26%), micronutrient availability (Zn, Cu, Fe, and Mn), and microbial populations of bacteria, fungi, and actinomycetes, thereby strengthening nutrient cycling processes. Improved water-holding capacity (2.29%) further supported better crop growth. Consequently, the Aonla + Khejri system achieved the highest fruit yield (42.96 kg plant⁻¹) and plant girth (45.61 cm), establishing it as a highly effective intercropping strategy for arid horticulture. (Anita Meena, M.K. Jataw and R.C. Balai)

Extension programmes and activities

❖ On/off campus trainings programmes organized

(i) During the reported period of time, 12 farmers /stakeholders training were conducted and 460 farmers were benefitted. (S.R. Meena, R.C. Balai and Manpreet Kaur)



(ii). Under the SCSP Scheme, 08 training-cum-input distribution programmes were conducted, and more than 500 farmers benefitted directly/ indirectly. (S.R. Meena, R.C. Balai, K.L. Kumawat, P.S. Gurjar, A.K. Verma and Manpreet Kaur)



(iii). Under the Drone Project, 04 training programmes were conducted, and more than 200 farmers benefitted directly or indirectly. (R.C. Balai and Hanuman Ram)



(iv). Organized 3 days MANAGE training on “Dissemination of climate smart horticultural technologies for socio-economic upliftment and livelihood security of farmers in arid and semi-arid regions of India during 11.12.2024 to 13.12.2024. (S.R. Meena, R.C. Balai and Hanuman Ram)



(v). Under HRD training programmes, 03 months of internship/training programme on “Micro-propagation of horticultural crop” was conducted during 19.02.2024 to 18.05.2024 under the mentorship of Dr. Dhurendra Singh, Dr. R.P. Meena and Dr. Kamlesh Kumar.



(v). 10 trainings/sangosthi/meetings/visits were held for the empowerment women/ women farmers during the reported period. (S.R. Meena, R.C. Balai, and Manpreet Kaur)



❖ Front Line Demonstration (FLDs) /Method demonstration

During the year, 2024, 16 FLDs of improved production technologies of arid vegetables and fruits were conducted on farmers' fields. (S.R. Meena, R.C. Balai and Manpreet Kaur)



- Popularized the Institute patented Technology “*TharJaivik 41 EC*” (Bio-pesticide) by providing/supplying the same to demonstrate among the farmers and research organization like farmers of Suratgarh and Bhadra (Hnumangarh), Napasar Village (Bikaner), Bhadra, Panniwala Mota, Sirsa (Haryana), AU Jodhpur, etc. quantity ranging from 0.5 to 3.0 litres. (M.K. Berwal)

❖ Technological exhibitions displayed

- Participated and displayed the technological exhibition of the Institute at NRC Camel Bikaner on 13.01.2024 during international Camel Festival where our Institute's exhibition was awarded with Second Best Exhibition during the above programme.
- Participated and displayed institute technological exhibition at RARI Durgapura, Jaipur on 01.02.2024 during 3rd Indian Horticulture summit-cum International Conference 2024 (01-03 February, 2024).
- Participated and displayed institute technological exhibition during Ber Day in the institute on 06.02.2024.
- Displayed the technological exhibition of the Institute on the occasion of the celebration of the 32nd Foundation Day of ICAR-CIAH, Bikaner on 01.10.2024
- Exhibited the institute technologies in Expo Exhibition in the Conference on seed spices and allied crops (CSSAC 2024) held at ICAR-NRCSS, Ajmer from 13-15 March, 2024 and received Second Best Award for the exhibition.





❖ **Organization/Celebration of days/weeks/ fortnights/ awareness campaign/programmes**

- **Celebration of Ber field day:** Ber field day was celebrated at ICAR-CIAH, Bikaner on 08-02-2024.



- **Celebration of an Industry Meet & 32nd Foundation Day of the Institute:** An Industry Meet & 32nd Foundation Day of the Institute (ICAR-CIAH, Bikaner) was celebrated on 30.09.2024 and 01.10.2024, respectively in the Institute.



- **Organization of watermelon day:** On 14th May, 2024 organized a watermelon day involving M.Sc. and Ph.D. students of Horticulture and GPB Department of SKRAU, Bikaner. On this occasion, the students were involved in the seed extraction of newly developed yellow fleshed lines of watermelon. The students are acquainted with the breeding procedure to develop novel genotypes of watermelon.



- **Organization of a plantation program:** There was organized plantation program on August 23, 2024, and September 17, 2024, as a part of the 'Plant for Mother' campaign initiated by the Ministry of Environment, Forest and Climate Change, GoI. The event witnessed the active participation of all scientific, administrative, technical, and supporting staff, SRF, young professionals (YPs) of the Institute. During the event, more than 150 trees were planted within the institute's premises. (K.L. Kumawat)



- **Organization of an awareness programme:** Organized an awareness programme on 109 Biofortified and climate resilient varieties dedicated to the nation by Hon'ble Prime Minister of India on 11 August, 2024 involving scientists and about 70 progressive farmers. On this occasion, the improved varieties developed by the institute, including the Thar Tripti of watermelon and Thar Mahima of muskmelon, were also dedicated to the nation by the Hon'ble Prime Minister. (B.R. Choudhary, S.R. Meena and R.C. Balai)

- Celebrated "World IP Day" on 6th April, 2024 in online/hybrid mode.
- Celebrated "International Day of Plant Health" celebrated in the Institute on 10.05.2024. About 20 farmers were joined online in above programme.
- The Institute celebrated Independence Day on 15.08.2024.
- Carried out the activities/ cleaning work under "Swachchhata Abhiyan" in adopted villages like Khinchiya village under MGMG scheme of the Institute on 20.09.2024.



- Carried out the activities/ cleaning work under "Swachhata Abhiyan" near/surrounding of the library of the Institute on 23.09.2024.
- A field day was organized at FLD's site in Phooldesar village, block Lunkaransar, Bikaner district on 30.09.2024.



- Celebrated "World Soil Health Day" in collaboration of "URMUL Seemant Samiti, Bajju" at Bajju village of Bikaner district on 05.12.2024.



- Organized a "Scientists-Farmers Interaction Meet" on "Resources Mismanagement Issues in Underutilized Fruits and Vegetable crops" on 21.05.2023 at the field of multistorey cropping system of the Institute in which more than 50 farmers, students, scientists and other dignitaries participated.



- Celebrated Kisan Diwas at Tejrasar Village of Bikaner district of Rajasthan on 23.12.2024.



- **Visits of farmers/students/others:** During the year, more than 1700 farmers/students/NGOs/stakeholders and others visited the Institute. (S.R. Meena and R.C. Balai)



❖ Organization of Winter School, Webinar/ Workshop/Seminars/Symposia/Conference, etc.

- ❖ **Organization of Winter School:** A 21-days ICAR-sponsored Winter School on "Technological Interventions in Potential Arid Horticultural Crops for Enhancing Farmers' Income" was organized at ICAR-CIAH, Bikaner, from 30 January 2024 to 19 February 2024. (B.R. Chaudhary)



- ❖ **Organization of a workshop:** A workshop was organized during the "Swachhchhta hi Sewa Programme-2024" on "Transforming organic waste to wealth: Advanced techniques in soil health Management" during on 25.09.2024.(Ramesh Kumar, M.K. Berwal and P.S. Gurjar)

- ❖ **Organization of three day workshop/training:** 03 days online/offline training programme organized for M.Sc. Ag. Students (Agri. Extension, Agril. Economics & Others) on "Data to decisions: A Training on Impact Assessment and Quantitative Analysis" from 14.10.2024 to 16.10.2024 at the ICAR-CIAH, Bikaner. (Manpreet Kaur and S.R. Meena)



❖ Organized a webinar entitled “Date palm: Status and Prospects” webinar in collaboration with department of horticulture, Govt. of Rajasthan on 19.11.2024. (Manpreet Kaur and S.R. Meena)

❖ Organized a webinar entitled “Date palm and pomegranate: status and prospects” on 24.12.2024. (Manpreet Kaur and S.R. Meena)

❖ Participation/ presentation in Winter School/ Webinar/ Workshop/Seminars/ Symposia/Conference, Trainings, etc.

❖ Dr. B.R. Choudhary participated in workshop on Technology Management, Market Analysis and Commercialization held on 14 January, 2024 at ICAR-NRCC, Bikaner.

❖ Dr. B.R. Choudhary participated in conference on Seed spices and allied crops (CSSAC 2024) held during 13-15 March, 2024 at ICAR-NRCCS, Ajmer.

❖ Dr. S.K. Maheshwari delivered/presented lead paper on “Disease management in arid horticultural crops” in 3rd Indian Horticultural Summit cum-International Conference 2024 organized at Rajasthan Agricultural Research Institute (SKNAU), Jaipur (Raj.) during 01-03 February, 2024.

❖ Dr. S.K. Maheshwari presented Oral paper on “Screening of Date palm Germplasm for Tolerance against Alternaria Leaf Spot under Arid Region of Rajasthan” in 3rd Indian Horticultural Summit cum-International Conference 2024 on “Technological Interventions for Boosting Horticultural Production” organized at Rajasthan Agricultural Research Institute (SKNAU), Jaipur (Raj.) during 01-03 February, 2024.

❖ Dr. B.R. Choudhary Participated in National Conference on Ozone layer, its depletion and impact on living beings organized at NRCC, Bikaner during 16-17 September, 2024.

❖ Dr. Manpreet Kaur participated in 32nd Annual Conference of Agricultural Economics Research Association during 11-13 Nov, 2024 at IGKV, Raipur.

❖ Visit of VIPs/ Dignitaries at the Institute/ CHES

• Dr. A.K. Gahlot, Former Vice Chancellor, RAJUVAS, Bikaner, visited the institute and interacted with scientists on advancing research in arid horticulture on 30.01.2024.

• Dr. P.C. Panchariya, Director, CSIR-Central Electronics Engineering Research Institute, Pilani, visited the institute to explore opportunities for research and technological collaboration on 08.02.2024.

• Sh. Sawar Mal Singaria, Airport Director, Airports Authority of India, Bikaner, visited the institute and appreciated its contributions to horticultural development in the region on 08.02.2024.

- Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, Ludhiana, visited the institute and reviewed ongoing research on post-harvest technologies on 08.02.2024.
- Dr. Balraj Singh, Vice Chancellor, Sri Karan Narendra Agricultural University, Jobner, visited the institute and interacted with scientists on strengthening agricultural research and education on 18.02.2024.
- Dr. S.L. Godara, Former Director of Research, SKRAU, Bikaner, visited the institute and reviewed research activities in arid horticulture on 18.02.2024.
- Dr. N.V. Patil, Vice Chancellor, Maharashtra Animal and Fishery Sciences University, Nagpur, visited the institute and exchanged views on research and academic collaboration on 12.03.2024.
- Dr. P.S. Shekhawat, Director of Research, SKRAU, Bikaner, visited the institute and discussed opportunities for collaborative research in agriculture on 19.03.2024.
- Dr. Arun Kumar, Vice Chancellor, SKRAU, Bikaner, visited the institute and reviewed research programmes focused on arid horticulture on 28.03.2024.
- Dr. N.P. Singh, Vice Chancellor, Banda University of Agriculture & Technology, Banda, Uttar Pradesh, visited the institute and interacted with scientists on advancing horticultural research and innovation on 01.04.2024.
- Dr. Raghavendra Bhatta, Deputy Director General (Animal Science), ICAR, New Delhi, visited the institute and reviewed ongoing research and developmental activities on 06.04.2024.
- Dr. S.P. Kimothi, Member, ASRB, New Delhi, visited the institute and discussed research priorities and institutional development on 06.04.2024.
- Dr. Vimla Dunkwal, Head, SKRAU, Bikaner, visited the institute and interacted with researchers on horticultural research initiatives on 17.04.2024.
- Sh. Kanwal Singh Chauhan, GB Member, ICAR, New Delhi, visited the institute and appreciated its contributions to the development of arid horticulture on 03.07.2024.
- Dr. Prakash Patil, Project Coordinator (Fruits), ICAR-Indian Institute of Horticultural Research, Bengaluru, visited the institute to discuss collaborative research on fruit crops on 03.07.2024.
- Sh. Narayan Chopra, Ex-Mayor, Bikaner, visited the institute and appreciated its research efforts for sustainable horticultural development on 25.07.2024.
- Sh. Sumit Godara, Cabinet Minister, Government of Rajasthan, visited the institute and appreciated its efforts towards horticultural development in the arid region on 01.10.2024.
- Dr. A.K. Gahlot, Former Vice Chancellor, RAJUVAS, Bikaner, revisited the institute and reviewed progress in ongoing research programmes on 01.10.2024.
- Dr. S.K. Sharma, Former Director, ICAR-CIAH, Bikaner, visited the institute and shared valuable insights based on his experience in arid horticultural research on 01.10.2024.
- Dr. A.K. Gahlot, Former Vice Chancellor, RAJUVAS, Bikaner, visited the institute and encouraged scientists to strengthen research for farmers' welfare on 28.12.2024.

❖ Awards/Recognition

- Dr. B.R. Choudhary served as the Course Director for the 21-day ICAR-sponsored Winter School on “Technological

Interventions in Potential Arid Horticultural Crops for Enhancing Farmers' Income,” organized at ICAR-CIAH, Bikaner, from 30 January 2024 to 19 February 2024.

- Dr. B.R. Choudhary served as the Rapporteur for the session “Nutraceutical Values and Bioactive Compounds” on 14 March 2024 during the Conference on Seed Spices and Allied Crops (CSSAC 2024), held at ICAR-NRCSS, Ajmer, from 13 to 15 March 2024.
- Dr. S.K. Maheshwari acted as Course Co-ordinator for organizing ICAR sponsored 21 days Winter School on “*Technological Interventions in Potential Arid Horticultural Crops for Enhancing Farmer’s Income*” at ICAR- Central Institute for Arid Horticulture, Bikaner during 30 January to 19 February, 2024.
- Dr. S.K. Maheshwari acted as Rapporteur in Technical Sessions of 3rd Indian Horticultural Summit cum-International Conference 2024 on “Technological Interventions for Boosting Horticultural Production” scheduled held during 01-03 February, 2024 at Rajasthan Agricultural Research Institute (SKNAU), Jaipur (Rajasthan).
- Dr. S.K. Maheshwari was nominated as Member of Jury on debate for Inter collegiate youth festival of 2023-24 held at Vidya Mandap, SKRAU, Bikaner on 29th April, 2024.
- Dr. B.R. Choudhary worked as Chairman of Publication Release Committee on the occasion of Foundation Day of the institute Celebrated on 30 September to 01 October, 2024.
- Dr. B.R. Choudhary acted as Co-Chairperson in National Conference on Ozone layer, its depletion and impact on living beings organized at NRCC, Bikaner during 16-17 September, 2024.
- Dr. B.R. Choudhary acted as reviewer of the journal Genetic Resources and Crop Evolution.
- Dr. B.R. Choudhary honoured with Certificate of Excellence in Reviewing by Journal of Advance in Biology and Biotechnology.
- The Institute participated and displayed the technological exhibition of the Institute at NRC Camel Bikaner on dated 13.01.2024 during international Camel Festival and our Institute's exhibition was awarded with second best exhibition award during the above programme.
- Dr. S.R. Meena, worked as one of the Convener for 03 days online/offline training programme organized for M.Sc. Ag. Students (Agri. Extension, Agri. Economics & Others) on “*Data to decisions: A Training on Impact Assessment and Quantitative Analysis*” from 14.10.2024 to 16.10.2024 at ICAR-CIAH, Bikaner.

- Dr. Manpreet Kaur, worked as a Convener for 03 days online/offline training programme organized for M.Sc. Ag. Students (Agri. Extension, Agri. Economics & Others) on “*Data to decisions: A Training on Impact Assessment and Quantitative Analysis*” from 14.10.2024 to 16.10.2024 at ICAR-CIAH, Bikaner.
- Dr. S.R. Meena worked as one of the Convener of Webinar organized on “*Date palm: Status and Prospects*” at the ICAR-Central Institute for Arid Horticulture, Bikaner under the Chairmanship of Dr. Jagadish Rane, Director of the Institute on November 19, 2024.
- Dr. Manpreet Kaur worked as a Convener of Webinar organized on “*Date palm: Status and Prospects*” at the ICAR-Central Institute for Arid Horticulture, Bikaner under the Chairmanship of Dr. Jagadish Rane, Director of the Institute on 19.11.2024.

❖ Important Meetings held

- The Institute Technology Management Committee (ITMC) meeting of ICAR-CIAH, Bikaner held on 22 May, 2024.
- The IRC meeting held from 08-13 August, 2024 at the Institute.
- The RAC Meeting of the Institute held at CHES, Godhra (Gujarat) from 22.11.2024 to 23.11.2024.

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Dr. Jagadish Rane, Director
ICAR-CIAH Bikaner-334006 (Raj.)

Compiled & Edited by:

Dr. S.R. Meena, Principal Scientist
Sh. Roop Chand Balai, Scientist
Dr. A.K. Verma, Scientist
Dr. R.K. Meena, Sr. Scientist
Dr. Manpreet Kaur, Scientist

Photography by :Sh. Sanjay Patil, ACTO
Setting & Designing by :Sh. Bhojraj Khatri, STO