CIAH NEWSLETTER

ICAR-CENTRAL INSTITUTE FOR ARID HORTICULTURE

Beechwal, Bikaner-334 006, Rajasthan

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From the Director's Desk

It gives me immense pleasure in bringing out this six monthly Newsletter of the ICAR-Central Institute for Arid Horticulture, Bikaner. As the land: man ratio is shrinking, hence, the newer areas for horticultural development are explored. The arid and semi-arid regions of the country (India) are to be looked on having great potential for increasing area and production of horticultural crops. Owing to their strengths such as vast area, ample solar radiations, low incidence of diseases and pests and comparatively low population; arid and semi-arid regions are bestowed with potential to become the horticultural bowl of India. Ever since its inception on 1st April 1993, ICAR-Central Institute for Arid Horticulture, Bikaner is dedicated to serve the farmers and stakeholders of arid and semi-arid regions by developing location specific arid horticultural technologies, introduction of new genotypes/crops from iso-climatic conditions, feasible package and practices which can lead to successful production of horticultural crops under adverse climatic condition of arid and semi arid regions of the country.

Keeping these facts in mind, some promising germplasms/ genotypes of pomegranate like CIAH PG-1, CIAH PG-2, CIAH PG-3, CIAH PG-4 CIAH PG-5 and rarely occurring orange and yellow flower coloured *ker* (*Kapparis decidua*) germplasm were identified which may be precious for developing new varieties or crop improvement programme of the concerned crop. Among the indigenous germplasms of khejri, a new selection "Khejri Selection–2" has been identified which has good yield potential. A novel system of training & pruning in ber orchard and other package of practices of arid horticultural crops were also standardized during the reported period of time. An indeterminate line of tomato which is high temperature tolerant has also been identified.

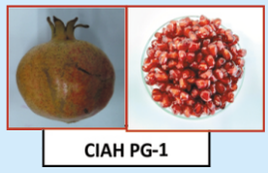
Ber Diwas was celebrated in a big way and it was inaugurated by Dr. B. D. Kalla, Hon'ble Minister of Energy, PHED, Ground Water, Art, Culture and Archeology, Govt. of Rajasthan in the presence of Dr. A. K. Gahlot, Ex-Vice-Chancellor, RAJUVAS, Bikaner; Dr. Gopal Lal, Director, NRCSS, Ajmer and Sh. S. P. Purohit, Ex- OSD, SKRAU, Bikaner and several other guests. More than 500 farmers participated in the programme.The various programmes for the dissemination of the proven technologies were organized for the benefits/ welfare of the farmers/clients. Among them major are celebration of seed distribution day, conducting FLDs, method demonstration, trainings and visit of farmers, farm women for their skill development, distribution of technical literature, organizations of the technological exhibitions of the Institute which were awarded with Best Exhibition Awards, trainings and input distribution camps under SCSP Scheme, organizing various programmes and activities in several adopted villages under the Mera-Goan-Mera-Gaurav (MGMG), etc. Other activities like promotion of various employees to higher grades including scientists and technical staff of the Institute, in-house training programme for skilled supporting staff (SSS), celebration of International Woman's Day, celebration of *Yoga Diwas* and an organization of workshop on the same, *Swachchh Bharat Abhiyan,* etc., were also organized in the Institute during the reported period. The major research, extension and developmental progress made by the Institute including its regional station and KVK during last six months are being highlighted through this Newsletter in brief.

(P.L.Saroj)
Director

RESEARCH SPECTRUMS

Identification of promising germplasms of pomegranate: During the reported period of time, the following promising germplasms/genotypes of pomegranate were indentified.

CIAH PG-1: It is high yielding with high acidity and highly suitable for preparing *Anardana.*


CIAH PG-1

CIAH PG-2: It is dwarf, evergreen in nature, producing red fruits, sweet and bright red aril, soft seed, TSS 15.3° Brix and suitable for table purpose.


CIAH PG-2

CIAH PG-3: It produces light pink arils, hard seed but very attractive. It can be used as breeding material for improvement of pomegranate fruit shape.


CIAH PG-3

CIAH PG-4: The fruit colour is dark purple, arils colour is light purple and slightly sweet with hard arils. It can be used as breeding material for improvement of fruit colour of pomegranate.


CIAH PG-4

CIAH PG-5: It produces very less number of suckers, has very less or no spines, produce no fruits and dwarfing in nature. It can be used as rootstock **(Ramesh Kumar and S.M. Haldhar).**


CIAH PG-5

***Digama hearseyana* a new threat to karonda (*Carissa carandus*):** A new insect pest was observed on Karonda plant in the hot arid region of north-western India *i.e* in Thar Desert **(S.M. Haldhar and Kamlesh kumar).**

Screening of ber cultivars for dehydration characteristics: During the reported period of time, 18 cultivars of ber were screened for their drying characteristics. It was found that among all studied cultivars, the final recovery of dehydrated product was highest in the ber cv. Betawadi followed by Thar Malti. The bulk density was observed highest in cultivar Illaitchi while it was lowest in cultivar Kathaphal **(V.R. Reddy, S., D. K. Sarolia & R. K. Meena).**

Utilization of ber pulp for the preparation of toffee/ chocolates: With the the help of concentrated milk (*mawa*) and sugar, the ber chocolates/ toffees were prepared by utilizing the ripened pulp of ber fruits **(V. R. Reddy, S.; S.R. Meena and R.K. Meena).**

Standardization of training system in *ber* cultivars: An experiment was conducted to observe effects of different kinds of training & pruning system on different ber cultivars. It was observed that the ber cv. Gola, Thai, Goma Kirti and Thar Sevika were significantly influenced by different training systems viz., Y shape, espalier, telephone and control in term of yield parameters. The maximum fruit yield (23.25 kg plant^{-1}) was recorded in Gola ber trained on espalier system followed by Goma Kirti (20.75 kg plant^{-1}) and Thai ber (19.0 kg plant^{-1}) trained on Y shape during the fruiting in first year **(P. L. Saroj, D. K. Sarolia, S. M. Haldhar and B. D. Sharma).**


Fruiting: Thai ber


Fruiting: Gola ber

Identification of rarely occurring orange and yellow flower coloured *ker* (*Kapparis decidua*) germplasm: The rarely occurring orange and yellow coloured germplasm of *ker* were identified from Lunol of Sirohi district and Lalavas of Nagaur district of Rajasthan, respectively. Thorns were observed longer in orange flowered germplasm and smaller in case of yellow flowered germplasm. The wood sticks/ cuttings of both the germplasms were collected and planted under green house condition in the Institute to observe their performance **(P. L. Saroj, Kamlesh Kumar, D. Singh and R.S. Singh).**

Khejri Selection– 2 for high quality sangri yield: The indigenous germplasms of khejri plant having horticultural significance were collected for *ex-situ* conservation and evaluated over the years at ICAR-CIAH, Bikaner. Among them, Khejri Selection–2 was selected and studied during 2013–2017 by establishing the orchard of the same using *in-situ* budding technique. The budded plant of Khejri selection-2 were observed as high yielding, thornless, compact growth, dense-leaf and longer branch-lets. The tender pods of marketable stages were light-green, straight, roundish-flat, 15.32–21.81cm length and 0.852–1.796 g weight. At commercial harvest age-group of 6th year, plants are 3.81 m height and 3.62 x 3.75 m spreading and recorded 5.62 kg sangri and 5.98 kg loong yield annually **(D. K. Samadia, S. M. Haldhar, A. K. Verma and P. L. Saroj).**

Growth and fruit quality of Badri lemon under hot arid climate: The Badri lemon grafted on rough lemon rootstock and the plant height was recorded 2.75 m with canopy spread 2.71 m E-W and 2.65 m N-S. It produced 40-50 big sized (14x16 cm) fruits per plants with weight of 1.32 kg in 3rd year of planting. Juice content in fruit was found very low (10-15%) but TSS was high (12.3^{0}B). The flavedo portion was observed very thick (2.61 to 3.14 cm). Therefore, Badri lemon producing fruits of high flavedo thickness can be used for preparation of processed products such as pickles, candies, marmalades, as filler ingredient and also can be used for medicinal and cosmetic preparations **(J. S. Gora, Ramesh Kumar and B.D. Sharma).**

Performance of vegetables under different levels of salinity of irrigation water: An experimental trial was conducted on raising salinity level of the soil with application of saline water and its effect on crops performance. It was observed that the survival percentage of all leafy vegetables (Fenugreek, Spinach, Coriander and Radish) was up to 100 % under the irrigation water 4EC (dS m^{-1}) treatment as well as in control [irrigation water 0.5 EC (dS m^{-1})]. The sequence of germination performance was highest (100%) in fenugreek followed by spinach, radish and coriander under irrigation water of 4EC (dS m^{-1}). Highest fresh yield of fenugreek (113.03 q/ha) and spinach (378.33 q/ha) was recorded in 4EC (dS m^{-1}) saline water treated plot. It was also observed that the dry matter percentage during first cutting in all vegetables were high under saline water treatment though gradually reduction was there under saline water treatment as compared to control treatments **(Anita Meena and R. C. Balai)**.

Pre-harvest fruit bagging improves fruit quality in guava: Guava (*Psidium guajava* L.) is prone to various biotic and abiotic stresses which reduces their yield and quality. During an experiment, it was observed that pre-harvest fruit bagging at marble stage (2.5-3.0 cm dia.) improved visual quality by promoting peel colouration and reducing the incidence of fruit fly, mechanical fruit bruising and sun burning in hot semi-arid environment. Fruits were bagged with foam net, brown paper bag and news paper. Combinations of these bags were also tried. All the bagging material significantly improved the fruit quality.

Foam net + News paper bagged fruit with fine fruit colour

Early ripening in foam net bagged fruits

Sun burning non-bagged fruits

However, the bagging with foam net + news paper produced superior quality fruits and without incidence of the fruit fly **(D.S.Mishra).**

Standardization of multiplication technique in Ivy gourd for quality planting material: To standardize round the year plant multiplication of ivy gourd, hard/semi-hard wood cuttings of var. '*Thar Sundari'* were taken for the study during rainy as well as winter season. Both hard and semi-hard wood cuttings grown in July (rainy season) gave 65.8 % success and plants were ready within 30 days for transplanting. The cuttings were taken and planted under two situations *i.e.* raised bed and portray which were kept under coat type structure using polythene as a covering material. Raised bed recorded 71.4 % sprouting in comparison to portray which had 45.7 % sprouting. It was concluded that hard/semi-hard wood cuttings of about 18-24 cm length are suitable for multiplication of ivy gourd both during rainy and winter season **(A. K. Verma and D.K. Samadia).**

Multiplication of Ivy gourd for quality planting material

Filing of patent for technology: During the reported period of time, "Noval biopesticide" compositions and formulation from tumba (*Citrullus colocynthis*) for insect control (Patent application number 201911012592) was filed for patent**.** It is effective against *Helicoverpa armigera, Spodoptera litura,* white fly, aphid and safe to natural enemies. The data on phyto-toxicity effect on plant was also recorded and found no effect on plant even when applied 10 times more than the recommended dose of biopesticide (Thar Jaivik 41 EC). It was also observed that their was no effect on fruits and vegetables after 3 days spraying of biopesticide (Thar Jaivik 41 EC) for human consumption **(S.M. Haldhar, R. Bhargava, M.K. Berwal and P.L.Saroj).**

Farmer's programme and extension activities

At H.Q. Bikaner

Organization/celebration of *Ber Diwas*: A *Ber Diwas* was organized/celebrated in a big way in the Institute on 27.01.2019 which was inaugurated by Dr. D. Kalla, Hon'ble Minister of Energy, PHED, Ground Water, Art, Culture and Archeology, Govt. of Rajasthan in the presence of Dr. A. K. Gahlot, Ex-Vice-Chancellor, RAJUVAS, Bikaner; Prof. (Dr.) P. L. Saroj, Director, ICAR- CIAH, Bikaner; Dr. Gopal Lal, Director, NRCSS, Ajmer and Sh. S. P. Purohit, Ex- OSD, SKRAU, Bikaner. In additon to VIPs, Directores/ Heads of the sisiter organizations of ICAR, SKRAU- Bikaner, line departments, scietists, SMSs, students, morethan 700 farmers, teachers and students participated in above *Ber Diwas* celebration programme.

Dr. B. D. Kalla, Hon'ble Minister of Energy, PHED, Ground Water, Art, Culture and Archeology, Govt. of Rajasthan; Dr. A. K. Gahlot, Ex-Vice-chancellor, RAUVAS, Bikaner, Prof. (Dr.) P. L. Saroj, Director, ICAR- CIAH, Bikaner; Dr. Gopal Lal, Director, NRCSS, Ajmer and Sh. S.P. Purohit, Ex- OSD, SKRAU, Bikaner.

Prof. (Dr.) P. L. Saroj, Director of the Institute explaining to Dr. B. D. Kalla, Hon'ble Minister of Energy, PHED, Ground Water, Art, Culture and Archeology, Govt. of Rajasthan about the technologies developed by the Institute (ICAR- CIAH, Bikaner) at the exhibition stall during the organization/celebration of *Ber Diwas.*

• **Celebration of Seed Distribution Day:** During the reported period of time, Seed Distribution Day was also celebrated in the Institute on 29.01.2019 and the seeds of improved varieties of arid vegetables released by the Institute were distributed/provided to more than 1000 farmers of the hot arid/semi-arid regions of the country for their benefits, developing seed chain and spreading of the same on larger areas.

- During the reported period of time, 6 FLDs were conducted.
- In addition to FLDs, 24 method demonstration of the production technologies of arid horticulture were also performed at the Institute to the visiting farmers or while visiting to the farmers' fields during the reported period of time.
- The Institute participated and displayed the technological exhibition of the Institute in *Beejiya Masala Kisan Mela evam Sangosthi"* organized by NRCSS, Ajmer on 08.02.2019 where the exhibition of our Institute was awarded with **Third Best Exhibition Award** during the Mela.

Farmers waiting in long queue at the Institute to get seeds of the improved varieties of vegetables released by the Institute.

- Participated and organized an exhibition stall of the Institute in District level Kisan Mela organized by DEE (SKRAU), at KVK, Lunkarnsar on 07.03.2019 in which our Institute was awarded with **First/Best Exhibition Award** for the stall.

- Participated and organized 05 exhibition stalls of the Institute on the occasion of *Ber Diwas* celebrated by the Institute (ICAR-CIAH, Bikaner) on 27.01.19.
- More than 100 technical lectures were delivered by the scientists of the Institute during farmers' training programmes, visiting farmers, students, stakeholders at the Institute, farmer's fields during the reported period of time.
- More than 800 farmers, students, field worker, supervisors, SMS, dignitaries/ NGO, etc. were visited to Institute during the reported time.
- Thirty three on/off campus Research- Extension - Farmers-Interface- Meetings were held with visiting farmers/ stakeholders to the Institute.
- Twenty five diagnostic visits or advisory visits to farmer's fields were made to provide them technical help/suggestions for their better crop production/farming system.
- Some of the commodity (like kachri, snapmelon, ridge gourd, ber, khejri, patota, etc.) interest based farmers groups were developed for encouraging the wide adoption of the same.

- Some of the activities like visit, meetings/group discussion, training, interaction, etc., were also organized for farm women to empower them, particularly in the field of arid horticulture.
- During the reported period of time, more than 150 technological advisory service (On line / telephonic/off line discussions/ guidance/Qns.– Ans.) were provided to the farmers of the hot arid and sem-arid regions of the country.
- Distributed 898 technical literature among the farmers/ clients during different extension programmes and activities within/outside of the Institute during the period **(S. R. Meena, D. K. Samadia, D. K Sarolia and R. C. Balai).**

At CIAH Regional Station, CHES, Godhra (Gujarat)

- CHES, Godhra, participated in *Ber Day* celebration on 27.01.2019 at CIAH Bikaner and exhibits were displayed.
- CHES, Godhra, participated in *Kissan Mela* on 24.02.2019 organized by KVK Anta-Baran, Kota Rajasthan and exhibits were displayed.
- The Station participated *Krishi Mahotsava* organized by Agril. Dept., Government of Gujarat on 16.06.2019 at Khanpur, Morva-Hadaf, Panchmahals Gujarat and exhibits were displayed.

Hon'ble Chief Minister of Gujarat, Sh. Vijay Ramniklal Rupani visiting the exhibition stall of Central Horticulture Experimental Station (ICAR- CIAH, Bikaner) Godhra, Gujarat during the Kisan Mela organized on 16.06.2019 at Morwa-Hadaf, Panchmahals and Dr. Snjay Singh, Head of the Station explaining about the technologies developed by the Station.

- The Station organized one month training to BRS students entitled as "Crop improvement and production technology of semi-arid horticultural crops " from 01.01.2019-31.01.2019
- Organized four months training to B.Tech. (Agri. Engg.) Students entitled as "Recent Advance in Production and Post Harvest Technology of Semi-Arid Horticultural Crops" from 01.02.2019-31.05.2019.
- Organized one month training to B.Tech. (Agri. Engg.) Students entitled as " Innovative interventions in sustainable horticulture production and post harvest technology under changing climate scenario" from 01.06.2019-30.06.2019.
- Organized one day training on 17.05.2019 to the officers of horticulture department and Dy. Directors of Rajkot division of Gujarat on the topic "Dry Land Horticulture".
- 50 Male and 80 farm women, 241 students and13 extension workers were visited to farm of the station.

At KVK, Panchmahal (Gujarat).

During reporting period of time the KVK, Panchmaha, Godhra (Gujarat) organized 03 on farm trial (OFT), 06 front line demonstrations (FLDs), 16 farmers' training through which > 1000 farmers/farm women were benefited. Moreover, a Farmers' School on "*Swachh dugdh utpadan*" was organized through which 28 farmers were benefitted and a technological exhibition was displayed at ARS, Derol, Taluka- Kalol organized by FTC, Panchmahal during which > 1000 farmers were benefited. During the period, 09 field days/ *Abhiyan*/campaign/ awareness camps were also organized at different places of the Panchmahal district and > 300 farmers were benefited.

Distributing *Pashu* (animal) chocolates at KVK Panchmahal

The other extension activities/farmers' programmes carried out / organized by the KVK during the reported period were:

- Live telecast of PM's address about *Kisan saman nidhi Yojana* on 24.02.2019.
- Advisory services to farmers in 266 cases related to their problems pertaining to agriculture matters which benefited 352 farmers.
- Diagnostic visits (87) were held at farmer's field to solve his/her problem related to agriculture and allied sectors.
- Method demonstrations (28) were carried out at farmer's field/ KVK to solve his/her problem related to agriculture and allied sectors.
- A total of 126 lectures were delivered as resource person in various meetings/training/gosthi/field day/Kisan mela/ day celebration/ farmers meeting/ campaign, etc.
- One radio talk broadcasting at All India Radio, Godhra. T.V. Programmes on DD Kisan like *Hello Kisan* were also organized.

HRD Programmes/activities

- **Organization of 21 days training programme on Quality Seed Grower.**

Prof. (Dr.) P. L. Saroj, Director of the Institute distributing the certificates to the participants of the training programme.

Twenty one days skill development training programme from 11th February to 03rd March, 2019 on Quality Seed Grower sponsored by Agriculture Skill Council of India was organized. The basic objective of the training was to improve existing skill of farmers, make them self-sufficient and develop entrepreneurship in the field of quality seed production. In this training, a group of 19 farmers participated and trained for quality seed production of arid vegetable crops **(B.R. Choudhary, P.L. Saroj and S.M. Haldhar).**

- **Organization of 21 days training programme on "organic growers.**

Another twenty one days training was organized on "Organic Grower" form 05th March to 25th March, 2019 under Skill Development Training Course sponsored by the Ministry of Skill Development and entrepreneurship, Govt. of India, New Delhi. Seventeen farmers from different places (Gadhwala, Udasar, Khajuwala, Chhatargarh, and Hanumangarh participated in this training programme **(B. D. Sharma, R. C. Balai, B.R. Choudhary and P.L. Saroj).**

Trainings under SCSP Scheme: Under SCSP Scheme three days training was conducted on "Women empowerment through processing and value addition of arid horticultural crops" for empowerment of the rural unemployed women.

Sixty seven (67) women farmers actively participated in this training programme. Major emphasis of the training was given to small scale home-level processing of arid fruits and vegetables. In addition to above, 16 other on/off campus farmers' trainings were conducted under SCSP scheme during the reported period of time **(All scientists of the Institute).**

In-house training programme.

A in-house training programme was also conducted on " office supporting services" for Skilled Supporting Staff (SSS) of the Institute (ICAR-CIAH, Bikaner) from 24-27 June, 2018. Four faculty members (Mr.D.B.Yadav, Mr.ShivLal, Mr. Mohan and Mr.Manoj Kumar Vyas) participated actively and they were visited for interactions and exposure to different ICARs institutes situated in Bikaner.

Organization/ Celebration of days/ weeks/ fortnights.

- **Celebration of International Woman's Day**

International Woman's Day with theme "Think equal, build smart, innovate for change" was celebrated on 8th March, 2019 at the Institute during which live telecast of PM's speech specifically addressing women was also watched by all the employee of the Institute.

Celebration of International Woman's Day

- **Celebration of *Yoga Diwas* and an organization of workshop on 21.06.2019.**

Employees of the Institute (ICAR- CIAH, Bikaner) participated and celebrated an International Yoga Diwas at SKRAU, Bikaner on 21.06.2019. On this occasion, a workshop on "India and yoga knowledge to the world" was also organized by the Institute (ICAR-CIAH, Bikaner) in which various scientists, CIAH staff and common men, women students, and farmers participated. Dr. (Col.) A.K. Gahlot, Former V.C., RAJUVAS, Bikaner was the guest of honor of the programme.

- **Swachchh Bharat Abhiyan:** As per directions of Govt. of India and ICAR, New Delhi, the cleaning work under *Swachchhta Abhiyan* was carried out time to time within and outside of the Institute. The awareness and knowledge about *Swachchhta Abhiyan* was also created among the students, farmers and masses during the reported period of period.

The employees of the Institute doing cleaning work under *Swachchh Bharat Abhiyan*.

- A Hindi Workshop was held in the Institute on 25.03.2019

Important Meetings held.

- **23rd Annual Research Workers Group Meeting of All India Coordinated Research Project on Arid Zone Fruits**

Annual Research Workers Group Meeting of All India Coordinated Research Project on Arid Zone Fruits was held during 23rd to 25th February, 2019 at Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani (Maharashtra). The 95 scientists of all the centres, invitee guests and the university officers attended the meeting. Research workers have presented their achievements made during 2018 and also finalized the technical programme for the next year (2019) of ongoing as well as new proposed experiments. During the inaugural session of the meeting, Dr. W. S. Dhillon, ADG (Hort. Science-I), ICAR, New Delhi; Dr. A. S. Dhawan, Hon'ble Vice Chancellor, Prof. P. L. Saroj, PC, AICRP on AZF; Dr. D. P. Wasker, Director of Research; Dr. T. A. More, Former Hon'ble Vice Chancellor, MPKV, Rahuri and Dr. V. S. Khandare, Officer Incharge Pomology and Organizing Secretary made the remarks for the development of arid horticulture in the country. Dr. B. D. Sharma, Incharge P C Cell, AICRP on AZF presented the progress report of the achievement made during the last one year and finalized the futuristic plans and targets.

- DPC meeting for promotion of different scientists was held on 15.03.2019
- Hindi Meeting was held on 16.03.2019.
- PMC Meeting was held on 8.05.2019.
- ITMU Meeting was held on 15.05.2019.
- IMC Meeting was held on 29.06.2019 during which different agendas related to Institutional developmental activities / programmes were discussed at length and finalized the programmes and activities to be under taken in future.

Visits/meeting/programmesattended/participated by the Director of the Institute.

(a) Prof. (Dr.) P. L Saroj, Director of the Institute attended/participated in the following meetings/ programmes/workshops/confereces, etc., during January – June, 2019.

- Director participated in Foundation Day at CSWRI, Avikanagar as Special Guest on 04.01.2019.
- Acted as Member of Judging Committee for the Prestigious Hooker Award at IARI, New Delhi on 22.01.2019
- Participated in the meeting of Board of Studies of IABM, SKRAU, Bikaner on 24.01.2019
- Delivered a lead lecture on PHT in SKRAU, Bikaner on 30.01.2019.
- Participated in the Director's Conference at ICAR, New Delhi during 31 Jan. to 01 Feb., 2019.
- Participated in the Regional Committee VI Meeting at AAU, Anand during 4-5 Feb., 2019.
- Participated in the Bijiya Masala Kisan Mela and Sangosthi at NRCSS, Ajmer as Special Guest on 08 Feb., 2019.
- Participated in the 13th ICDD Conference as partner institute at CAZRI, Jodhpur and presented lead paper in the conference during 11-14 Feb., 2019.
- Participated in the meeting with Chairman of QRT for submitting final report of QRT to the D.G., ICAR on 05.03.2019.
- Participated in the seminar at SKRAU, Bikaner during 12-13 March, 2019 as Chief Guest.

(b) Professor (Dr.) P. L. Saroj, Director of the Institue visited the following AICRP centres/other places during January – June, 2019.

- Visited and inspected different projects under the scheme of the AICRP on AZF Centre of Jhalrapatan, Jhalawar (Rajasthan) during 18-19 February, 2019.
- Visited Datepalm Research Centre, SKRAU, Bikaner in March, 2019.
- Organized Group Workers Meeting of AICRP on Arid Zone Fruits at Parbhani, Maharashtra) during 23.02.2019 to 25.02.2019.

Staff News

❖ Appointment/joining/transfer.

- Sh. H.L. Meena, Administrative Officer joined ICAR-CIAH, Bikaner on 04.02.2019 on transfer from ICAR-VPKAS, Almora.
- Sh. Ramdeen, Administrative Officer relieved on 08.02.2019 on transfer to ICAR-DMAPR, Anand.
- Sh. Swaroop Chand Rathore, L.D.C. relieved from Institute on 23.5.2019 for a period of one year deputation to join the post of UDC on deputation at ICAR-CSWRI - Arid Region Campus, Bikaner.
- Sh. H.L. Meena, Administrative Officer relieved from Institute on 29.06.2019 on promotion to the post of Senior Administrative Officer at ICAR-CIPHET, Ludhiana (Punjab).

❖ Promotion/Assessment:

- Sh. Varre Venkata Appa Rao, Sr. Scientist (Soil Chem./Fertility/Micro.), CHES, Godhra, promoted as Principal Scientist.
- Sh. Roop Chand Balai, Scientist (Soil Science) promoted to higher Grade (Rs.37400-67000 + RGP 9000).
- Sh. D.P. Patel, Sr. Technical Assistant (Field) promoted as Technical Officer (Field) PB-2 Rs.9300-34800 with Grade pay of Rs.4600 (pre-revised).
- Sh. B.M. Patelia, Sr. Technical Assistant (Field), CHES, Godhra, promoted as Technical Officer (Field) PB-2 Rs.9300-34800 with Grade pay of Rs.4600 (pre-revised).
- Sh. A.J. Solanki, Sr. Technical Assistant (Field), CHES, Godhra, promoted as Technical Officer (Field) PB-2 Rs.9300-34800 with Grade pay of Rs.4600 (pre-revised).
- Sh. B.F. Patelia, Sr. Technical Assistant (Field) CHES, Godhra, promoted as Technical Officer (Field) Pay Level-7.
- Sh. B.R. Baria, Technical Assistant (Lab.), promoted as Sr. Technical Assistant (Lab.) PB-2 Rs.9300-34800 with Grade Pay of Rs.4200 (pre-revised).
- Sh. B.V. Rathva, Technical Assistant (Lab.) CHES, Godhra, promoted as Sr. Technical Assistant (Lab.) PB-2 Rs.9300-34800 with Grade Pay of Rs.4200 (pre-revised).
- Sh. R.V. Rathva, Technical Assistant (Lab.) CHES, Godhra, promoted as Sr. Technical Assistant (Lab.) Pay Level-6.

Visit of VIPs/ Dignitaries at the Institue

At H. Q. Bikaner.

- Dr. B.D. Kalla, Cabinet Minister, Govt. of Rajasthan, Jaipur, visited the Institute on 27.01.2019.
- Dr. (Col.) A.K. Gahlot, Former V.C., RAJUVAS, Bikaner visited Institute on 27.01.2019.
- Dr. Gopal Lal, Director, NRCSS, Ajmer visted the Institute on 27.01.2019.
- Sh. S.P. Purohit, Ex- OSD, SKRAU, Bikaner, visited ICAR-CIAH, on 27.01.2019.
- Dr. H.P. Singh, Former DDG, visited ICAR-CIAH, on 15.03.2019.
- Dr. W.S. Dhillon, ADG (HS-I), ICAR, New Delhi visited ICAR-CIAH, on 29.06.2019.

At CHES, Godhra.

- District collector Panchmahal and D.F.O. Panchmahal visited the CHES farm on 25.04.2019. During the field visit, they appreciated the well managed experimental blocks of different crops at the station.

Published by : Prof. (Dr.) P. L. Saroj, Director ICAR-CIAH, Bikaner -334006, Rajasthan

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शुष्क बागवानी समाचार

भाकृअनुप-केन्द्रीय शुष्क बागवानी संस्थान

बीछ्वाल, बीकानेर - 334 006, (राजस्थान)

अंक–19 क्रमांक–1 जनवरी–जून, 2019

निदेशक की कलम से....

भाकृअनुप–केन्द्रीय शुष्क बागवानी संस्थान, बीकानेर के इस छः माही समाचार–पत्र को आपके संज्ञान में लाने में मुझे अपार प्रसन्ता का अनुभव हो रहा है। मानव के अनुपात मे भूमि की कमी होती जा रही है, इसलिए, बागवानी विकास हेतु नए क्षेत्रों का पता लगाया गया है। देश के शुष्क और अर्ध–शुष्क क्षेत्रों में बागवानी फसलों के बढ़ते क्षेत्र और उत्पादन के लिए काफी संभावनाएं हैं। विशाल क्षेत्र, पर्याप्त सौर विकिरणों, रोगों और कीटों का न्यूनतम प्रकोप और तुलनात्मक रूप से कम जनसंख्या के कारण शुष्क और अर्ध–शुष्क क्षेत्र भारत के बागवानी फसलों का सर्वश्रेष्ठ केन्द्र बनने की क्षमता रखते हैं। 1 अप्रैल 1993 को इसकी स्थापना के बाद से ही, भाकृअनुप–केन्द्रीय शुष्क बागवानी संस्थान, बीकानेर शुष्क और अर्ध–शुष्क क्षेत्रों के किसानों और हितधारकों की सेवा के लिए, विशेषकर शुष्क बागवानी तकनीकों, नए जननप्रकारों/ फसलों के विकास, देश के शुष्क और अर्ध शुष्क क्षेत्रों की प्रतिकूल जलवायु स्थिति के अनुरूप व्यवहार्य कार्ययोजनाओं के विकास, आदि के लिए समर्पित है।

इन तथ्यों को ध्यान में रखते हुए, अनार के कुछ उन्नत जननप्रकार जैसे कि सीआईएएच पीजी–1, सीआईएएच पीजी–2, सीआईएएच पीजी–3, सीआईएएच पीजी–4 सीआईएएच पीजी–5 और नारंगी और पीले रंग के फूलों वाले दुर्लभ केर (केपरिस डेसिडुआं) के पौधों को चिन्हित किया गया है जो नई किस्मों या फसल के विकास के लिए बहुमूल्य हो सकते हैं।

खेजड़ी के स्वदेशी जननद्रव्यों में से, अच्छी उपज क्षमता वाले एक नए चयन ''खेजड़ी चयन –2'' की पहचान की गई है। इस अवधि के दौरान बेर के बागीचे में कटाई और छंटाई की एक बेहतरीन प्रणाली और शुष्क बागवानी फसलों के अन्य अनुप्रयोगों को भी मानकीकृत किया गया है। टमाटर की उच्च तापमान सहिष्णु एक अनिर्धारित रेखाक्रम की भी पहचान की गई है।

संस्थान में वृहत स्तर पर एक बेर दिवस का आयोजन किया गया था जिसका उद्घाटन डॉ. बी. डी. कल्ला, ऊर्जा, पीएचईडी, भूजल, कला, संस्कृति और पुरातत्व मंत्री राजस्थान सरकार द्वारा किया गया। इस अवसर पर डॉ. ए. के. गहलोत, पूर्व–कुलपति, राजुवास, बीकानेर; डॉ. गोपाल लाल, निदेशक, एनआरसीएसएस, अजमेर और श्री एस. पी. पुरोहित, भूतपूर्व ओएसडी, एसकेआरएयू, बीकानेर सहित कई अन्य गणमान्य अतिथि उपस्थित थे एवं 500 से अधिक किसानों ने भी इसमें भाग लिया। किसानों / हितधारकों के लाभ / कल्याण के लिए संस्थान द्वारा विकसित प्रौद्योगिकियों के प्रसार के लिए विभिन्न कार्यक्रम आयोजित किए गए उनमें से प्रमुख हैं:– बीज वितरण दिवस का आयोजन, प्रथम पंक्ति प्रदर्शन और विधि प्रदर्शन का आयोजन, किसानों और कृषक महिलाओं को उनके कौशल विकास के लिए प्रशिक्षण और भ्रमण, तकनीकी साहित्य का वितरण, संस्थान की तकनीकी प्रदर्शनी जिन्हें सर्वश्रेष्ठ प्रदर्शनी पुरस्कार से सम्मानित किया गया, एसएसीएसपी योजना के तहत प्रशिक्षण और सामग्री वितरण शिविर, मेरा–गांव–मेरा–गौरव (एमजीएमजी) के तहत गोद लिए गए विभिन्न गांवों में कई कार्यक्रमों और गतिविधियां आयोजित करना, आदि। अन्य गतिविधियों में जैसे– वैज्ञानिक और तकनीकी कर्मचारियों सहित अन्य कर्मचारियों को उच्च ग्रेड में पदोन्नत करना, कुशल सहायक कर्मचारियों (एसएसएस) के लिए 'स्वग्रही' प्रशिक्षण कार्यक्रम, अंतर्राष्ट्रीय महिला दिवस, योग दिवस और इस पर एक कार्यशाला, स्वच्छ भारत अभियान, आदि का आयोजन भी संस्थान में इस अवधि में किया गया। संस्थान द्वारा पिछले छह महीनों के दौरान अपने क्षेत्रीय केन्द्र और कृषि विज्ञान केन्द्र सहित प्रमुख अनुसंधान, विस्तार और विकासात्मक कार्यो की प्रगति को इस समाचार–पत्रक के माध्यम से संक्षेप में दर्शाया जा रहा है।

पी.एल.सरोज

(पी.एल.सरोज)
निदेशक

अनुसंधान ज्योति

अनार में उन्नत जननप्रकारों की पहचान : प्रस्तुत अवधि के दौरान अनार में निम्नलिखित जननप्रकारों की पहचान की गयी।

सीआईएएच पीजी–1: यह उच्च अम्लता और अधिक उपज देने वाला है जो अनारदाना तैयार करने के लिए अत्यधिक उपयुक्त है।


सीआईएएच पीजी–1

सीआईएएच पीजी–2: यह बौना, प्रकृति में सदाबहार है, फल लाल, मीठा और चमकीले लाल दानें, मुलायम बीज, टीएसएस 15.3 ब्रिक्स और सीधे खाने के लिए उपयुक्त है।


सीआईएएच पीजी–2

सीआईएएच पीजी–3: इसमें हल्के गुलाबी दाने, आकर्षक कठोर बीज होते है। इसको अनार फल के आकार में सुधार के लिए प्रजनन सामग्री के रूप में प्रयोग किया जा सकता है।


सीआईएएच पीजी–3

सीआईएएच पीजी–4: इसके फलों का रंग गहरा बैंगनी होता है, दानों का रंग हल्का बैंगनी होता है और थोड़े मीठे व कठोर होते हैं। इसे अनार फलों के रंग में सुधार के लिए प्रजनन सामग्री के रूप में प्रयोग कर सकते हैं।


सीआईएएच पीजी–4

सीआईएएच पीजी–5: इसमें सकर्स बहुत कम होते है, कांटे भी नहीं के बराबर होते हैं, प्रकृति में बौना, जिसमें फल नहीं लगते हैं। मूलवृंत में प्रयोग किया जा सकता है (रमेश कुमार और एस. एम. हलधर)।


सीआईएएच पीज–5

बेर फलों के गूदे से टॉफी/चॉकलेट बनाना: पके हुए बेर फलों के गूदे में दूध मावा और चीनी मिलाकर चॉकलेट /टॉफियां तैयार की गयी (वी. आर. रेड्डी एस., एस. आर. मीना और आर. के. मीणा) ।

बेर किस्मों में कटाई–छंटाई की प्रणाली का मानकीकरण : विभिन्न बेर किस्मों पर विभिन्न प्रकार के कटाई एवं छंटाई प्रणाली के प्रभावों हेतु एक प्रयोग किया गया। इसमें देखा गया कि बेर की गोला, थाई, गोमा कीर्ति और थार सेविका किस्मों में वाई आकार, लता, टेलीफोन और नियंत्रण नामक विभिन्न कटाई–छंटाई प्रणालियों का स्पष्ट प्रभाव था (पी.एल.सरोज, डी.के.सरोलिया, एस. एम. हलधर और बी.डी.शर्मा)।

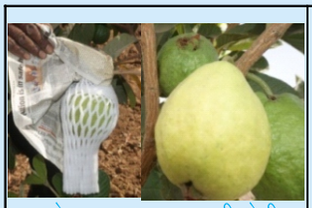

थाई बेर फल


गोला बेर फल

नारंगी और पीले फूलों वाले दुर्लभ केर (केपेरस डेसीडुआ) जननद्रव्य की पहचान: राजस्थान के सिरोही जिले के लुनोल और नागौर जिले के लालावास से क्रमशः नारंगी और पीले रंग के दुर्लभ केर जननद्रव्य की पहचान की गयी है। नारंगी फूलों वाले जननद्रव्य में कांटे लम्बे और पीले फूलों वाले जननद्रव्य में छोटे कांटे होते हैं। उनके प्रदर्शन का अवलोकन करने के लिए संस्थान के हरितगृह में इनके सांकुर लाकर लगाए गए हैं (पी.एल.सरोज, कमलेश कुमार, धुरेन्द्र सिंह और आर.एस.सिंह) ।

अधिक गुणवत्तायुक्त सांगरी के लिए खेजड़ी सलेक्शन–2 का चयन : संस्थान में विभिन्न वर्षों में संग्रहित खेजड़ी के स्वदेशी जननद्रव्यों को संरक्षण व मूल्यांकन हेतु संकलित किया गया था। उनमें से वर्ष 2013–2017 के दौरान खेजड़ी चयन –2 का चयन किया गया था। खेजड़ी चयन –2 के पौधे अधिक उपज, कांटेरहित और घने पत्ती और लंबी शाखा वाले होते हैं। छः वर्ष के पौधे से 5. 98 किग्रा. हरी सांगरी प्रतिवर्ष प्राप्त की जा सकती है (डी.के. समादिया, एस.एम.हलधर, ए.के.वर्मा और पी.एल.सरोज)।

तुड़ाई से पूर्व अमरूद फलों को थेली से ढकने पर उत्पादन में बढ़ोतरी : अमरूद में विभिन्न जैविक और अजैविक तनावों का प्रभाव होता है जो उसकी उपज और गुणवत्ता को कम करते हैं। गर्म अर्ध शुष्क जलवायु में एक प्रयोग के दौरान, यह देखा गया कि तुड़ाई पूर्व मध्यम आकार वाले फलों (2.5–3.0 सेमी परिधि) को थेली से ढकने से फलों के बाहरी आवरण के रंग में सुधार होता है और फल मक्खी, फल के झड़ने और धूप में झुसलने की घटना को कम करके गुणवत्ता में सुधार किया जा सकता है। फलों को फोम नेट, ब्राउन पेपर बैग और न्यूज पेपर के द्वारा ढका गया था। सभी प्रकार की थेलियों में फलों की गुणवत्ता में बहुत सुधार देखा गया। यद्धपि, फोम नेट और न्यूज पेपर की थेली में सबसे बेहतर गुणवत्ता वाले फल प्राप्त किए गए जिनमें फल मक्खी का प्रकोप भी नहीं था (डी.मिश्रा)।



फोम + समाचार पत्र की थैली से ढके फल

फोम की थैली से ढके फलों में अगेती परिपक्वता

धूप में झुलसे बिना ढके फल

किसानोपयोगी एवं विस्तार कार्यक्रम

बीकानेर

बेर दिवस का आयोजन : संस्थान में वृहत स्तर पर एक बेर दिवस का आयोजन किया गया, जिसका उद्घाटन डॉ. बी. डी. कल्ला, ऊर्जा, पीएचईडी, भूजल, कला, संस्कृति और पुरातत्व मंत्री, राजस्थान सरकार द्वारा किया गया। इस अवसर पर डॉ. ए.के. गहलोत, पूर्व–कुलपति, राजुवास, बीकानेर; डॉ. गोपाल लाल, निदेशक, एनआरसीएसएस, अजमेर और श्री एस. पी. पुरोहित, भूतपूर्व ओएसडी, एसकेआरएयू, बीकानेर सहित कई अन्य गणमान्य अतिथियों की उपस्थिति में 700 से अधिक किसानों, कृषि छात्रों और शिक्षकों ने भी इसमें भाग लिया।

मंचासीन डॉ. बी. डी. कल्ला, ऊर्जा, पीएचईडी, भूजल, कला, संस्कृति और पुरातत्व, मंत्री राजस्थान सरकार, डॉ. ए.के. गहलोत, पूर्व–कुलपति, राजुवास, बीकानेर; डॉ. गोपाल लाल, निदेशक, एनआरसीएसएस, अजमेर, श्री एस. पी. पुरोहित, भूतपूर्व ओएसडी, एसकेआरएयू, बीकानेर और संस्थान के निदेशक,प्रो. (डॉ.) पी. एल. सरोज।

बेर दिवस के अवसर पर आयोजित प्रदर्शनी में संस्थान की तकनीकियों के बारे में मुख्य अतिथि डॉ. बी. डी. कल्ला, ऊर्जा, पीएचईडी, भूजल, कला, संस्कृति और पुरातत्व, मंत्री राजस्थान सरकार, को समझाते हुए संस्थान के निदेशक,प्रो. (डॉ.) पी. एल. सरोज।

- **बीज दिवस का आयोजन :** इस अवधि के दौरान, संस्थान में 29.01.2019 को बीज वितरण दिवस भी मनाया गया और संस्थान द्वारा विकसित शुष्क क्षेत्रीय सब्जियों की उन्नत किस्मों के बीजों को गर्म शुष्क/अर्ध–शुष्क क्षेत्रों के 1000 से अधिक किसानों को वितरित किया गया।

संस्थान द्वारा विकसित सब्जियों के उन्नत बीज खरीदने को उमड़ी किसानों की भीड़ लम्बी कतारबद्ध होकर बीज प्राप्त करते हुए।

- संस्थान ने 08.02.2019 को एनआरसीएसएस, तबीजी, अजमेर द्वारा आयोजित बीजीय मसाला किसान मेला एवं संगोष्ठी के दौरान आयोजित प्रदर्शनी में भाग लिया और संस्थान की प्रदर्शनी को सर्वश्रेष्ठ प्रदर्शनी का तीसरा पुरस्कार प्राप्त हुआ।
- निदेशक विस्तार शिक्षा, एसकेआरएयू, बीकानेर द्वारा लूणकरणसर में दिनांक 07.03.2019 को आयोजित जिला स्तरीय किसान मेले में संस्थान ने प्रदर्शनी स्टाल लगायी, जिसे सर्वश्रेष्ठ प्रदर्शनी का पहला पुरस्कार मिला।

श्री अर्जुन राम मेघवाल, माननीय केंद्रीय जल संसाधन नदी विकास, गंगा कायाकल्प और संसदीय मामलों के राज्य मंत्री, भारत सरकार ने संस्थान को सर्वश्रेष्ठ प्रदर्शनी पुरस्कार प्रदान करते हुए।

उपकेन्द्र (केबापके, वेजलपुर, गोधरा–गुजरात)

- केंद्र ने गुजरात के कृषि विभाग द्वारा 16.06.2019 को मोरवा–हादफ, खानपुर में आयोजित कृषि महोत्सव में भाग लिया और प्रदर्शनी लगायी।

गुजरात के माननीय मुख्यमंत्री श्री विजय रमणिकलाल रुपाणी 16.06.2019 को मोरवा–हाडफ, पंचमहल में केन्द्र की प्रदर्शनी स्टाल पर प्रदर्शित तकनीकियों की केंद्र के अध्यक्ष से जानकारी लेते हुए।

कृषि विज्ञान केन्द्र, पंचमहल, गुजरात

इस अवधि के दौरान केवीके, पंचमहल, गोधरा (गुजरात) द्वारा आयोजित विभिन्न प्रशिक्षणों, भ्रमणों के दौरान लगभग 1000 किसानों, महिला कृषकों, विद्यार्थियों आदि को शुष्क/अर्ध शुष्क बागवानी तकनीकियों का प्रशिक्षण दिया।

कृविके, पंचमहल, गुजरात में महिला कृषकों को पशु चॉकलेट वितरित करते हुए प्रभारी एवं विषय विशेषज्ञ।

मानव संसाधन विकास गतिविधियां

- गुणवत्तायुक्त बीज उत्पादक पर 21 दिवसीय प्रशिक्षण का आयोजन
- जैविक उत्पादक पर 21 दिवसीय प्रशिक्षण का आयोजन

प्रशीक्षणों के समापन के अवसर पर मंचासीन अतिथि और प्रतिभागियों को प्रमाण पत्र देते हुए संस्थान निदेशक प्रो. (डॉ.) पी. एल. सरोज

पखवाड़ा/सप्ताह/दिन का आयोजन

- अंतर्राष्ट्रीय महिला दिवसः संस्थान में दिनांक 8 मार्च 2019 को अंतर्राष्ट्रीय महिला दिवस का आयोजन किया गया। इसमें कृषक महिलाओं, वैज्ञानिकों तथा अन्य लोगों ने भाग लिया था।

अंतर्राष्ट्रीय महिला दिवस के अवसर पर मंचासीन अतिथि

- दिनांक 21 जून 2019 को योग दिवस और योग व स्वास्थ्य पर कार्यशाला तथा स्वच्छ भारत अभियान के अंतर्गत स्वच्छता कार्यकृमों का आयोजन

संस्थान में योग दिवस कार्यशाला एवं स्वच्छता अभियान में सफाई कार्य

महत्वपूर्ण बैठकें

- अखिल भारतीय शुष्क क्षेत्रीय फल समन्वित अनुसंधान परियोजना की 23 वीं वार्षिक बैठक का आयोजन

भाकृअनुप–अखिल भारतीय शुष्क क्षेत्रीय फल समन्वित अनुसंधान परियोजना की अनुसंधान वैज्ञानिक समूह की 23 से 25 फरवरी, 2019 के दौरान वसंतराव नाईक मराठवाड़ा कृषि विद्यापीठ परभणी (महाराष्ट्र) में आयोजित वार्षिक बैठक में मंचासीन डॉ. डब्ल्यू. एस. ढिल्लों, सहा. महानिदेशक (बाग. विज्ञान– I), भाकृअनुप, नई दिल्ली; डॉ. ए. एस. धवन, माननीय कुलपति; प्रो पी. एल. सरोज, निदेशक एवं परियोजना समन्वयक; डॉ. डी. पी. वासकर, अनुसंधान निदेशक; डॉ. टीए मोरे, पूर्व माननीय कुलपति, एमपीकेवी, राहुरी; डॉ. वी. एस. खंडारे, प्रभारी अधिकारी, पोमोलॉजी व आयोजन सचिव तथा डॉ. बी. डी. शर्मा प्रभारी, परियोजना समन्वय प्रकोष्ठ।

प्रकाशक	: प्रो. (डॉ.) पी. एल. सरोज, निदेशक भाकृअनुप–केन्द्रीय शुष्क बागवानी संस्थान बीकानेर (राजस्थान)
संकलन एवं सम्पादन	: डॉ. शिवराम मीना, प्रधान वैज्ञानिक : सुश्री राम्याश्री डी. जी. एस.,वैज्ञानिक : श्री प्रेम प्रकाश पारीक, स.मुख्य तक. अधिकारी (राभा.)
शब्द–सज्जा	: श्री भोजराज खत्री
छायाचित्रण	: श्री संजय पाटिल