From Director’s Desk

Dear Readers,

To increase the production and productivity of seed spices, the ICAR-NRCSS, Ajmer is leading the R&D activities for developing new high yielding varieties and their suitable production & protection technologies. The sustainability of our natural resources particularly land and water is of prime importance for Indian Agriculture. The economic upliftment of farming community rests on not only the higher production & productivity but also the matching price support. The main seed spice crops like cumin, coriander, fenugreek and fennel many a time suffers the lack of remunerative price during the peak of harvest season i.e. March-April. Therefore, it is very much pertinent for seed spice growers to avoid distress sale during glut period.

Proper threshing, cleaning, grading and packaging is must for quality seed spice and it will fetch higher price in market. Storage at village level with proper treatment at perfect moisture level (~9%) shall be beneficial for sale on later period. At ICAR-NRCSS, Ajmer crop harvesting has been completed for all the experimental trials and this time a good cumin crop was harvest due to lack of blight incidence in the experimental farm. I took this opportunity to congratulate all our scientific, technical & administrative staff for successfully accomplishing the experimental trials and seed processing of participatory seed production with farmers. The off-season cultivation of coriander, fenugreek and other vegetable crops during summer is a commendable efforts by ICAR-NRCSS. Reader’s suggestions are most accepted for improving the quality of ICAR-NRCSS E-newsletter.

(Gopal Lal)

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Events at NRCSS
State Level Seminar

A State Seminar on “Clean and Safe Production of Seed Spices for Enhancing Farmers Income” was organized jointly by ICAR-National Research Centre on Seed Spices, Ajmer and DASD, Calicut under MIDH during 27-28 March, 2019 at Dr. R. S. Paroda Auditorium, ICAR-National Research Centre on Seed Spices, Ajmer. Seed spices being integral part of our diet, it’s safe and quality production must be ensured for ensuring the health benefits accrued to them. Production of clean, safe and quality produce further enhances the demand of seed spices from India because in present scenario importing countries are more concerned about spices which are to be free from chemicals and pesticide residues. Hence, it is very much needed to focus on scientific interventions and research programmes towards clean and safe production of seed spices and to find out the solutions of challenges faced in way of organic cultivation. Seed spices are low input demanding and potential crops for livelihood security in semi-arid and arid region. Water stress, low fertility, high aridity, low availability of high yielding varieties, low seed replacement rate and emergence of new pest and diseases etc. are among major challenges facing in seed spices. Theme areas of seminar were kept plant genetic resources and crop improvement, natural resource management and hi-tech horticulture, crop health management, organic production of seed spices, post harvest management and value addition, innovations in technology dissemination.
Dr. H. P. Singh, Ex-DDG (Horti. Sci.), ICAR, New Delhi was the Chief Guest of inaugural function. Dr. G. B. Raturi, Ex-Director, ICAR-NRCSS, Ajmer, Dr. G.N. Mathur, Ex-Head, KVK, Ajmer, Sh. Sitaram Jat, Joint Dir. (Administration) Dept. of Agriculture, Jaipur and Dr. L. Venkatram Reddy, Director of Horticulture, Hyderabad (Telangana) were the Guests of Honor. Dr. Gopal Lal, Director, ICAR-NRCSS, Ajmer, presided over the function. While welcoming the dignitaries and delegates of seminar Dr. Gopal Lal briefed about the achievements and progress made by the institute in seed spices research and about MIDH programmes being carried out at ICAR-NRCSS. Dr. Lal urged the farmers for adopting the technologies developed by ICAR-NRCSS. He signifies the usefulness of coriander variety ACr-1 which is resistant against stem gall disease, can be grown in Kota, Baran, Jhalawar as well as adjoining areas of Madhya Pradesh and Gujarat, wherein farmers are leaving coriander cultivation due to stem gall problem. Dr. H. P. Singh, Chief Guest of the function addressed the delegates and farmer participants and appreciated the efforts made by the ICAR-NRCSS in the field of germplasm collection, variety and technologies development, package of practices of individual crop and extension activities taking by the institute for the farmer’s welfare. He stressed upon to develop new varieties of cumin and coriander as per the choice of farmers and market preferences. Dr. Singh also visited institute research farm and appreciated the Director and his scientific team for systematically carried out the experimental trials and keeping their respective experiments neat and clean and well managed. He also shared his vast research experience with delegates present in the event at NRCSS, Ajmer from different
places and asked them to do novel research for the benefit of farmers where they are using chemicals and pesticides which ultimately leads to life threatening diseases to consumers. Further he urged gathering to produce clean and safe seed spices by adoption of organic manures and other non-chemical inputs. Dr. G. B. Raturi, Guest of Honor in the function addressed the delegates and highlighted the importance of seed spices to enhance the income of farming community. He advised the scientists to work on value addition and oil extraction from the straw and underutilized produce of seed spices for earning additional income.

Guest of Honor of the function, also addressed the gathering. Sh. Sitaram Jat, Guest of Honor, highlighted the various schemes being undertaken by Govt. of Rajasthan for the welfare of the farmers. During the inaugural session Souvenir Book of invited papers for State Level Seminar “Clean and Safe Production of Seed Spices for Enhancing Farmers’ Income” was released by the dignitaries. At the end of the function, Dr. Y. K. Sharma, Organizing Secretary, presented the vote of thanks to guests, delegates, farmers’ participants, media persons and staff, ICAR-NRCS, Ajmer for successful completion of the seminar.

Case Study / Farm operations/ Extension/ TOT and HRD/Exhibited Stall /Seed Processing Farmers Training Programme

1. A training programme was organized exclusively on off-season cultivation of seed spices for higher income” on 15th March, 2019 at ICAR-NRCS, Ajmer. The training aim was to promote off-season cultivation of coriander for leaves purpose so that the women farmer can get higher return per unit area. In this training
programme a total of 61 women participated from nearby villages such as Tabiji, Saradana, Daurai, Budhwara and Doomara. During the training a total of six lectures were delivered by scientist of ICAR-NRCSS, Ajmer on different aspects of off season seed spices production. The programme was organized by Dr. R.S Meena, Senior Scientist (training coordinator) and Shiv Lal, Scientist (training coordinator).

2. One day farmer’s training on “Advanced Production Technologies of Seed Spices and Horticultural Crops under SCSP” was organized on 18th March, 2019 in collaboration with Krishi Vigyan Kendra, (KVK) at Rajasamand. In this training programme a total of 59 farmers (male & female) of SC community from different villages (Rajiyawas, Pirada, Mohi, Bagol, Kucholi, Kumariyo Ka Khera and Emdi) of Rajasamand participated. Dr. R.S Patodiya, Senior Scientist & Head (local training coordinator) KVK, Rajasamand and Dr. P.C. Regar, Scientist, Animal Sciences (local training coordinator) were present alongwith scientists of ICAR-NRCSS, Ajmer

Farmers Trainings at Tribal area of Rajasthan under TSP

1. Farmers Training at KVK, Dungarpur
A training programme on “Good agricultural practices for seed spices cultivation” was conducted at Krishi Vigyan Kendra Badal Mahal (Dungarpur) on 13th June, 2019. Dr. R. S. Meena, Sr. Scientist ICAR-NRCSS.

杰姆 addressed the farmer’s participants on various issues of seed spices cultivation. Dr. Meena told about
improved varieties of seed spices which were more suitable for Southern Rajasthan particularly in Dungarpur region. Dr. C.M. Balai addressed the gathering and delivered a lecture on soil and water management for quality production of seed spices in the region. Dr. N. K. Meena, Sr. Scientist (Entomology) and training coordinator discussed with the farmers on pests and disease problems on various crops including seed spices. Dr. B.L. Roat, delivered a lecture of diseases of Kharif season in southern Rajasthan and their management. Dr. Shiv Lal addressed the issue of quality maintenance and value addition of seed spices.

2. Farmers Training at KVK, Banswara
One day farmers training programme on “Sustainable agricultural production technology for seed spices” was organized by ICAR-NRCSS in collaboration with Krishi Vigyan Kendra (MPUA&T) at Banswara on 27th June, 2019. In the training, Dr. H.L. Bugalia, Sr. Scientist & Head, KVK, Banswara addressed the farmers regarding post harvest seed spices cultivation. He said that animal husbandry is also an important component to enhance the seed spices production and improve human health. Dr. R.S. Meena presented overview of seed spices area, production and productivity in the country. He delivered a lecture on improved varieties of seed spices suitable for Mewar Wagar region of Rajasthan (Banswara). Dr. N.K. Meena delivered a lecture on insect-pests and diseases management in seed spices at Banswara region. Dr. B.S. Bhati, Scientist (Horticulture) delivered a lecture on Intercropping of seed spices with vegetable crops: a profitable venture. Dr. M.D. Meena also delivered a lecture on
comparative analysis of seed spices cultivation with other field crops. In the training an interaction session between scientists and farmers (panel discussion) was also organized and given suitable solutions of the problems raised by the farmers. In the training programme 55 farmers from Banswara district were participated and benefited.

**Processing (Cleaning & grading) of seed spices at ICAR-NRCSS**

Processing (cleaning and grading) is an important activity in seed spice cultivation. The main aim of seed processing is to provide better quality produce as well as seed. At ICAR-NRCSS seed processing unit, farm produce has been processed. The produce of farmers participatory seed production programme was processed at farm unit and the seed was packed in different packing to make it available to the seed spices growers for coming season. The whole team of seed processing unit at ICAR-NRCSS, Ajmer worked hard under the guidance of Director, ICAR-NRCSS for successful and timely completion of the task.
### Post Harvest Operations
(Farm operations carried out from March to June, 2019)

1. Harvesting, drying, threshing, cleaning and grading operations

<table>
<thead>
<tr>
<th>Description</th>
<th>Image</th>
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<tbody>
<tr>
<td>Harvesting of coriander germplasm</td>
<td><img src="image1" alt="Harvesting of coriander germplasm" /></td>
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<tr>
<td>Collection and drying of germplasm in field</td>
<td><img src="image2" alt="Collection and drying of germplasm in field" /></td>
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<tr>
<td>Gathering harvested fenugreek</td>
<td><img src="image3" alt="Gathering harvested fenugreek" /></td>
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<td>Dried fenugreek crop heap ready for threshing</td>
<td><img src="image4" alt="Dried fenugreek crop heap ready for threshing" /></td>
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<tr>
<td>Threshing of cumin crop manually</td>
<td><img src="image5" alt="Threshing of cumin crop manually" /></td>
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<tr>
<td>Cleaning of cumin crop after manual threshing</td>
<td><img src="image6" alt="Cleaning of cumin crop after manual threshing" /></td>
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<tr>
<td>Cleaning of coriander germplasm samples after manual threshing and packaging</td>
<td><img src="image7" alt="Cleaning of coriander germplasm samples after manual threshing and packaging" /></td>
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<table>
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<tr>
<th>Threshing of fenugreek crop by tractor operated thresher</th>
<th>Arrival of cumin seeds raised at farmers field in participatory mode</th>
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### 2. Application of FYM in various research blocks
After harvesting of the crops, all the research blocks have been ploughed, cleaned, well rotten FYM have been spreaded over the field during the period.

### View of ploughed land after the harvesting of crops

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<th>Pruning of ber trees and new flush trees of ber orchards</th>
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#### Pruning of ber trees
Pruning of ber and guava plants was done by removing diseased/ damaged /sukers/ undesirable branches/ woods. The orchard floor have been cleaned and ploughed to keep weed free. After pruning new flush emerged in ber and to protect this new flush from disease/pest protective sprayed have been done. To enrich the soil and getting extra crop from the ber orchard land, sowing of the black gram has been done.
4. **Resource utilization:** To utilize interspaces in the aonla orchard during summer the vegetable like cluster bean, okra and sweet corn have been raised. To protect these crops from hot desiccating winds pearl millet have been raised as live crop barrier.

<table>
<thead>
<tr>
<th>Cluster bean as intercrop in aonla orchards</th>
<th>Okra as intercrop in aonla orchards</th>
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<tbody>
<tr>
<td><img src="image1" alt="Cluster bean intercrop" /></td>
<td><img src="image2" alt="Okra intercrop" /></td>
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<tr>
<td><img src="image3" alt="Sweet corn sowing" /></td>
<td><img src="image4" alt="Sweet corn sowing" /></td>
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<tr>
<td><img src="image5" alt="Demonstration" /></td>
<td><img src="image6" alt="Demonstration" /></td>
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Sweet corn sowing, shed net protective covering and germination as intercrop in aonla orchards

Demonstration of intercropping of okra and Cluster bean in Aonla orchard to the farmers during off-season
5. Soil solarisation

To manage weeds, insects, pests and diseases in an environmentally friendly way in the soil and utilizing the sun’s energy soil solarisation have been carried out in designated research blocks sites. In this process the ground have been covered with a transparent polyethylene cover, to trap solar energy.

Monitoring of the FLDs and Inputs distribution to FLD farmers

A team of scientists comprising Dr. B. K. Mishra, Dr. Narendra Chaudhary and Dr. M. D. Meena visited the farmer’s field to monitor the FLDs given under Mission for Integrated Development of Horticulture (MIDH) by ICAR-NRCSS Ajmer during 07-09 March, 2019. Scientists evaluated the performance of FLDs and interacted with the farmers to know their view regarding performance of varieties and POP (Package of Practice) given by NRCSS Ajmer. For effective management of pests and diseases pesticides were distributed to FLD farmers growing cumin in Jalore, Barmer, Jaisalmer and Jodhpur districts of western Rajasthan. Farmers from Gudamalani, Gadra road, Madasar and Phalodi, from these districts were covered. Along with monitoring soil samples were collected from many locations for microbial study. Information on cost of cultivation was also collected from respective farmers to analyse the cost and returns in cumin crop.
Data collection for cost of cultivation, soil sample and exploration

Dr. B.K. Mishra, Dr. Murlidhar Meena, and Dr. A.K. Verma conducted survey in Bundi, Baran, Kota and Jhalawar for collection of soil sample, exploration and cost of cultivation survey from 30 May to 01 June, 2019. During this survey work farmers from Hindoli tehsil from Bundi district, Anta and Mangrol from Baran district, Kethun and Sangod tehsils of Kota district Ramganj mandi from Jhalawar district were covered. The scientist also visited the exporter in Ramganj mandi and inquired to know the export demand and desired characteristic by consumers. Also collected seed sample of different grades namely Badami, Eagle, Scooter, Parrot, Double parrot seed from the cold storage of coriander in Ramganj mandi. Team also visited Spice Park, Kota and have discussion with production manager at Eastern Spice Ltd. located at Spice Park and discussed various issues regarding spice marketing. Team also collected soil samples for microbial study from all the four districts and seed samples from farmers and APMC yard.

Swachhta Abhiyan

Under the ambit of “Swachh Bharat Abhiyan” cleanliness program is continuously being organised on Friday of every week. Cleaning work in and around the office premises is being carried out. The different activities works were carried out which involves eradication of weeds, plastic and other unwanted material.

MEETINGS/TRAININGS/ SEMINARS /SYMPOSIA/ LECTURES/ CONFERENCES/ TV/ RADIO TALKS

- Dr. Gopal Lal, Director, ICAR-NRCSS, Ajmer
  1. Visited training centre PDDUUKSY at Sikar and monitoring of seed spices AICRP Centre at Jobner and Hisar during 1-3 March, 2019.
3. Delivered a lecture on “Potential and Opportunities of Entrepreneurship in Seed Spices” at IABM, Bikaner and attended scientists meet on the occasion of 46th foundation day on 4th April 2019 at CSWRI arid region campus, Bikaner.

4. Attended review meeting of the schemes on Spices & Aromatic Plants under MIDH conducted by DASD at Biju Pattnaik Conference Hall, Orissa University of Agriculture & Technology, Bhubaneswer on 11th and 12th June, 2019.

5. Attended Annual Zonal Workshop of KVKs of Rajasthan, Haryana & Delhi held during 22-24 June, 2019 at MPAU&T, Udaipur.

- **Meeting/workshop/training**

  - Dr. S.N. Saxena, Dr. Shivlal and Dr. M.D. Meena attended a meeting concern to implementation of Agriculture Export Policy in Rajasthan organized by Rajasthan State Ag. Marketing board, Jaipur on 25 June, 2019.

  - Dr. Sharda Choudhary, Senior Scientist, Ag. Biotechnology, ICAR-NRC on Seed Spices attended a five days GETin Genome Engineering/ Editing technology initiative workshop “Department of Biotechnology (DBT), government of India along with Indo-US Science & Technology Forum (IUSSTF), organized during 27-31 May, 2019 at University of Delhi, South campus, New Delhi, India. Title of the workshop was “CRISPR/Cas mediated genome editing in plants: Applications, tools and experimental design”.

- Dr Arvind Kr. Verma, Scientist (SMAP) attended a training programme on “Hospitality Management” from June 26 to July 02, 2019 at ICAR-NAARM, Hyderabad.
TV/Radio Talk
Dr. Arvind delivered a TV Talk on “Phoolon ki kheti” on 20.05.2019 at Doordarshan Kendra, Jaipur

- Dr. Gopal Lal, S.N. Saxena, Dr. Y.K. Sharma, Dr. K. Kant participated in DD Kisan Programme: “Vichar Manch” on subject “बीजीय मसलों की खेती” The programme was telecasted on 5th and 7th July, 2019 on DD Kisan.

Probation Clearance
Sh. Sumit Singh, AO completed his probation period satisfactorily in the pay level 10 and appointed substantively in the grade of Administrative Officer w.e.f. 01.08.2018.

Honors/Awards
- Dr. O.P. Aishwath, Pr. Scientist and Dr. Shivlal, Sr. Scientist awarded by the CHAI Fellowship in 11th Swatdesh PremJagrati Sangosthi, during International Conference on Innovative Horticulture and Value Chain Management–Shaping Future Horticulture organized from May 28-31, 2019 at GBPUA&T, Pantnagar, UK.
Dr. O.P. Aishwath presented paper on ‘**Nutritional and biochemical basis of reddening, wilt and blight in Cumin**’ on second day in the **Technical session-10**: Workshop on Innovation in Management of Insect, Pests and Diseases and Safe Use of Agrochemical for Effective Value Chain. His paper was rated the Best among the oral presentations of the session and accordingly awarded during concluding session.

-Dr. O.P. Aishwath receiving the best paper award from Dr H.P. Singh, Chairman, **Confederation of Horticulture Associations of India**

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**Editorial Committee**

- Dr. Gopal Lal : Chairman
- Dr. S.N. Saxena : Editor
- Dr. O P Aishwath : Editor
- Dr. B K Mishra : Editor
- Dr. N K Meena : Editor
- Mr. M A Khan : Editor

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