



CONTENTS

Important Events.....1-2
•Interaction meetings of III QRT.....

Research Highlights.....3
•Production of Entomopathogenic

TOT.....4-5
•Field days celebrated

HRD.....6
•Research papers/abstracts.....
•Events attended by the Director.....
•Transfer/promotions.....

From Director's Desk7

Important Events

The IIIrd QRT of ICAR-NRCSS, Ajmer-Interaction meeting with stake holders

An interactive meeting was organised on 8th March, 2017 at ICAR-NRCSS, Ajmer under the Chairmanship of A. R. Pathak, Hon'ble Vice Chancellor, JAU, Junagadh, Gujarat and Chairman of IIIrd QRT, ICAR-NRCSS, Ajmer in the presence of other eminent members Dr. N. L. Joshi, Dr. M. Anandraj and Dr. K. B. Kathiria. On this auspicious occasion Mrs. Madhu Paroda, Sarpanch Saradhana was the Chief Guest and Dr. V. P. Chovatia, Director Research, JAU, Junagadh was present as the Guest of Honour. Different stake holders viz. scientists of NRCSS, Officers from KVK, ATC, NGOs, Officials from line department and 35 progressive farmers from different regions participated in the meeting. The chairman applauded the Director, NRCSS and his team for developing the excellent technologies by the centre and also made efforts for their adoption by the farming community. He emphasized that these technologies should reach to more and more farmers through efficient dissemination mechanism thus enhancing the value chain from farm to forks. He also highlighted and appreciated the concrete efforts made by Dr. G. Lal, Director, NRCSS, Ajmer and his team for value addition and post harvest technologies developed under the umbrella of NAIP thus continue.....

EDITORIAL COMMITTEE

Dr. Gopal Lal	Chairman
Dr. O.P. Aishwath	Editor
Dr. B.K. Mishra	Editor
Dr. N.K. Meena	Editor
Sh. M.A. Khan	Editor

Photographs by: M. A. Khan
G.K. Tripathi

www.nrcss.res.in



QRT team in Auditorium of NRCSS

Important Events

enhancing the complete chain of seed spices production and better utility from producers to consumers. He mentioned that this research centre has done a commendable work by providing very good varieties of seed spices to enhance the yield and ultimately increase the farmer's income

Esteemed QRT member Dr. M. Anandraj appreciated the studies being conducted for various disease-pests by maintaining inoculums in the sick plot and also provided valuable suggestions on the subject. While interacting with the scientist and members of the QRT, the NGO representatives present in the audience suggested that arranging 'Ratri Chaupals' at farmers site during evenings could be a better mechanism for dissemination of technologies. Mrs. Madhu Paroda Sarpanch, Saradhana also appreciated the efforts made by Director and his team for conducting various transfer of technology (TOT) programmes on farmers' fields and emphasized for more and more effective transmission of the knowledge developed through interaction with farmers.

In the programme, many progressive farmers came from different districts of Rajasthan and interacted with QRT Chairman and Members. Sh. Sunder Lal, progressive farmer from Mangaliyawas pointed out that he could earned an amount of Rs. 3.0 Lakh from a hectare of cumin crop by adopting the technologies of NRCSS. Chairman Dr. Pathak also advocated the promoting of direct selling of the quality produce by farmers to the consumers thus eliminating/avoiding the middle man culture. He also suggested to promote the potential technologies capable of yielding 30-40 % more yield to double the farmers income by 2022 as desired by our Prime minister of India.

The IInd interaction meeting of IIIrd QRT of ICAR-NRCSS, Ajmer was held at KVK, Anta, Baran (Rajasthan), wherein 20 officers from AU, Kota, and progressive farmers of the region were participated. Dr. I. N. Gupta, Director, Extension Education, AU, Kota, appraised the QRT team with their ongoing activities in the Hadoti region of Rajasthan. Dr. H. R. Chaudhary and Dr. Preeti Verma presented the research and development work being done for seed spice growers of the region. The PKD-18 variety of coriander which was released for the region and its quality traits were also presented. The problem of *sclerotia* root rot in coriander, fenugreek, ajwain and nigella were also brought to the notice of the QRT. The benefits is being drawn in the form of ACR-1 variety developed & released by the ICAR-NRCSS, Ajmer were also presented.



Research Highlights

Production of Entomopathogenic Nematodes (EPN) in Biocontrol laboratory

Krishna Kant and Siya Ram Meena

Entomopathogenic Nematodes (EPN) are beneficial nematodes is used for control of insect pests is widely recognised. It showed good result for management of pests especially noctuid moth and other Lepidopteran and Coleopteran pests. Infective juveniles of EPN enter through the intersegmental members of the host insect cuticle and then penetrate through the midgut wall or tracheae into the insect hemocoel containing insect haemolymph. EPN releases symbiotic bacteria from its intestine in the insect haemolymph and where bacteria start multiplying. Toxins produced by the developing nematodes and multiplying bacteria in the hemocoel kill the insect host generally in 48 hours. Mass production of EPN using white trap method (ICAR:NCIPM, Bio Agents Production Manual, 2015) in which wax moth (*Galleria* sp.) larva used for multiplication of EPN and stored in distilled water at 15⁰C for further use.

Biocontrol laboratory of the ICAR:NRCSS start multiplying EPN *Heterorhabditis* sp. of families Heterorhabditidae using white trap method. Wax moth (*Galleria melonella*) larva used for in vivo production of EPN in Laboratory. The commercial formulation of EPN is based on use of polyurethane sponge. It can be applied in the field @ 2.5-7.5 billion/ha through spraying on to the soil surface or foliage for effective pest control.



Fig. :Formulation of EPN for Field Application

Transfer of technology

Field day on cumin and coriander

A field day on FLD for Cumin (variety GC-4) was conducted at Mangliyawas (Ajmer) on 15 March, 2017. A team of scientists from NRCSS Dr. R. S. Meena, Sr. Scientist (Plant Breeding), Dr. N. K. Meena, Sr. Scientist (Entomology) and Mr. Harisha C.B., Scientist (Spices, Plantation, Medicinal and Aromatic Plants) coordinated the programme. Scientists discussed with farmers and farm women and about the interventions made by NRCSS, Ajmer as FLDs and showed the impact of Cumin variety GC-4 with cumulative package of practices for growth and yield in comparison to local varieties with local practices. In this programme, 27 farmers including farm women and youths participated.

A field day on coriander (Var. ACr-1) was organized at Bahadawali village of Bundi district of Rajasthan on 21 March, 2017. Dr. N. K. Meena, Sr. Scientist (Entomology), Dr. R. D. Meena, Scientist (Plant Pathology) and Mr. Harisha C. B. Scientist (Spices, Plantation, Medicinal and Aromatic plants) coordinated the programme. In the field day, scientists discussed with farmers on impact of technology intervention in coriander variety ACr-1 over the local varieties or farmers own seed with local practices. FLD was witnessed by 65 farmers and they physically saw the crop with respect to productivity and resistance against stem gall disease of coriander in the region.



Field day on FLD of cumin Variety (GC-4) at Mangliawas, Ajmer



Field day on coriander (Var. ACr-1) at Bahadawali village of Bundi district

Transfer of technology

Participation in Kisan Mela, KVK, Anta

Dr. N. K. Meena, Sr. Scientist (Entomology), Mr. Harisha C. B., Scientist (Spices, Plantation, Medicinal and Aromatic Plants) and Mr. Mahendra Chaudhary (SRF) participated in Kisan Mela organized by Krishi Vigyan Kendra, Anta, (Baran) Rajasthan on 04.03.2017 to exhibit the technologies of NRCSS and various value added products of seed spices. Technologies on crop production, plant protection and specifically of improved varieties of seed spices were disseminated among the farmers and other stakeholders through exhibition and personal interaction of the scientist with Mela participants..



Sh. Prabulal Saini, Minister of Agriculture, Govt. of Rajasthan visited ICAR-NRCSS, Ajmer stall (left) and scientists explaining technologies to farmers (right)

Participation in Kisan Mela at SKNAU, Jobner

Mr. M.A. Khan, Assistant Chief Technical Officer and Mr. Shriram Balai, Technical Assistant were participated in Kisan Mela at SKNAU, Jobner Campus on 4th March, 2017. In the stall of ICAR-NRCSS, improved varieties of seed spices along with value added product and publications were displayed. Pamphlets of production & protection technologies of individual seed spices were distributed among the farmers and other participants.



Sh. Sanwer Lal Jat, Chairman, Kisan Ayog, Rajasthan visited ICAR-NRCSS, (left) Ajmer stall and Officer is explaining (right) about technologies of Seed Spices

Participation in Kisan Mela at IARI, N. Delhi

Dr. Gopal. Lal, Director, ICAR-NRCSS along with Mr. M.A. Khan, Assistant Chief Technical Officer and Mr. G.K. Tripathi, STA participated and exhibited stall of our centre in Krishi Unnati Kisan Mela-2017 at ICAR-IARI, Pusa, New Delhi on 15-17 March, 2017. Thousands of the farmers visited NRCSS stall queries of the visiting farmers were solved. The literature on seed spices in the form of pamphlet and booklet were also distributed among the interested farmers.



Farmers visited the stall of the centre, Ajmer to know the technologies of the centre at Krishi Unnati Kisan Mela, IARI PUSA, New. Delhi

Human Resource Development

Research Papers Published

1. Saxena, S.N., Rathore, S.S., Diwakar, Y., Kakani, R.K, Kant, K, Dubey, P.N., Solanki, R.K., Sharma, L.K., Agarwal, D., John, S. (2017). Genetic diversity in fatty acid composition and antioxidant capacity of *Nigella sativa* L. Genotypes. *LWT - Food Science and Technology* 78:198-207.
2. Verma, A.K., Kakani, R.K., Solanki, R.K. and Meena, R.D (2017). Improvement in yield attributing traits of cumin (*Cuminum cyminum*) through acute exposure of gamma ray. *Int. J. Pure App. Bio-sci.* 5(2): 312-318.

Events attended by Director

S No.	Event attended by the Director, ICAR-NRCSS	Date
1	Pusa Krishi Unnati Mela at IARI-Pusa, New Delhi	15-17 March, 2017
2	Rajasthan State Coordination Committee Meeting for doubling farmer's income at MPUAT, Udaipur (Rajasthan)	5 April, 2017
3	A Business meeting of spices industry with Hon'ble Director General ICAR at Krishi Bhavan, New Delhi.	13 April, 2017
4	Interactive meeting scheduled with ICAR SMD(HS)/Institutes at NIAP, New Delhi. The meeting for Horticulture and Agricultural Engineering Division at NIAP, New Delhi.	20 April, 2017
5	Foundation Day function of ICAR-CIAH, Bikaner (Rajasthan)	25 April, 2017
6	E-governance meeting at Pant Krishi, Bhavan Jaipur (Rajasthan)	28 April, 2017

Transfer/promotion

S. No.	Name & Designation	Date	Institute	
1.	Dr. R.S. Mehta, Principal Scientist (Agronomy)	27.03.2017	Transferred to ICAR-CAZRI, Jodhpur (Rajasthan)	
2.	Dr. R.K. Kakani, Principal Scientist (Plant Breeding)	22.03.2017	Transferred to ICAR-IARI, New Delhi	
3.	Dr. R.K. Solanki, Scientist, SS (Plant Breeding)	14.03.2017	Transferred to ICAR-CAZRI, Jodhpur (Rajasthan)	

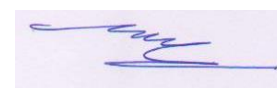
From the Director's Desk

It gives me immense pleasure in placing this bi-monthly newsletter of the ICAR-National Research Centre on Seed Spices, Ajmer (Rajasthan) before our beloved readers. Owing to its strength such as adequate area, sufficient of sun radiation, lesser incidence of diseases and pests, unique biodiversity etc., the arid and semi-arid regions having potential to become the seed spices bowl of India coupled with adequate scientific technologies being developed keeping in mind the dynamics of seed spices.



In view of the above facts, the scientists of ICAR-National Research Centre on Seed Spices, Ajmer (Rajasthan) have been working hard to develop the appropriate technologies for the production of quality seed spices under scarce water conditions, extremes of temperatures, uncertainty of rainfall and poor soil condition. The institute undertakes basic, applied and strategic studies for developing technologies to enhance the production, productivity and quality of the seed spices under biotic and abiotic stress environment conditions. The ultimate goal of the institute is to change the whole scenario of production and productivity and quality of seed spices besides, socio-economic upliftment through increase of income for rural inhabitants of this area. The institute has developed several location-specific suitable agro-technologies, varieties and other scientific findings to encourage the seed spices research and development in arid and semi-arid regions. The major efforts made by the institute for the growth and development of seed spice crops in the era of climate change presented through this news letter in nuts and shells.

Suggestions are welcome for improvement of seed spices R&D. Your valuable and critical appraisal will be helpful in the future endeavour.

A handwritten signature in blue ink, appearing to read 'Gopal Lal', on a light purple rectangular background.

(Gopal Lal)