SEED SPICES
E - Newsletter
ICAR-National Research Centre on Seed Spices

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Important Events

15th Foundation day of NRCSS celebrated

ICAR-NRC on Seed Spices celebrated its 15th Foundation Day on 18th January, 2015. Padmashree Dr. K.L. Chadha, President Horticultural Society of India was the Chief Guest of the function, and he delivered the Foundation Day Lecture. The function was graced by Padmashree Dr. Brahma Singh, Founder President, Indian Society for Protected cultivation, New Delhi as Guest of Honour. Scientists and officials of NRCSS and guests from ICAR Institutes, State Agriculture Department and Krishi Vigyan Kendra, Ajmer also participated in the function. On the occasion Dr. Balraj Singh, Director, NRCSS addressed the guests and enlightened the research activities and achievements made by the centre. In last 15 years, the centre have made significant achievements in term of development of seed spices improved varieties, development of improved production & protection technologies and transfer of technologies by organizing Beej Vitran Kisan Mela, Training programmes, demonstrations etc. The centre has taken new initiatives on seed spices research on various aspects including crop improvement, crop production, crop protection, quality, post-harvest, value addition, water management, protected cultivation and organic farming. In the Foundation Day Lecture, Dr. K.L. Chadha delivered the research and development work done aspects in Horticulture in India. He shared his critical views and experiences in the field of horticulture. NRCSS Seed Spices Newsletter published by the centre was released by the Chief Guest Dr. K.L. Chadha during the foundation day function.



Inauguration of 15th foundation day and released seed spices newsletter of NRCSS

Important Events

ISSS, Ajmer and ISPC, New Delhi jointly organized National Seminar on Hi-tech Horticulture for Enhancing Production, Quality and Rural prosperity at NRCSS, Ajmer.

National Seminar on "Hi-tech horticulture for enhancing Production, Quality and Rural prosperity' was jointly organized by Indian Society of Seed Spices, Ajmer and Indian Society for Protected Cultivation, New Delhi on 19-20 January, 2015 at National Research Centre on Seed Spices, Ajmer. The seminar was sponsored by Indian Council of Agricultural Research, New Delhi, National Bank for Rural Development Regional office, Jaipur and Protection of Plant Variety & Farmer Right Authority GOI, New Delhi. The Inaugural function of the seminal was chaired by Dr. N. Krishna Kumar, Deputy Director General (Horticulture Science) ICAR, New Delhi. Other dignitaries were Padmashree Dr. K.L. Chadha, President, Horticulture Society of India, New Delhi Padmashree Dr. Brahma Singh, President, and Indian Society for Protected Cultivation. Dr. N. K. Krishna Kumar, Chief Guest of inaugural function highlighted the importance and potentiality of Hi-tech horticulture for enhancing resource use efficiently of precious and limited resources. He further emphasised that concrete and time bound efforts need to be made for addressing emerging issues of Hi-tech horticulture. Dr. K. L. Chadha pointed out that protected cultivation is one of the most promising Hi-tech area and becoming an alternative production system involving intensive practice to improve production and quality of horticultural crops. Dr. Brahma Singh, Guest of honour highlighted that application of protected





Dr. N.K. Krishna Kumar DDG(Hort.), Dr. K.L. Chadha , President HSI and other dignitaries in opening ceremony of the National Seminar

Important Events

cultivation technology in horticultural crops is the need of the time for getting high quality of the produce with efficient utilization of precious resource in season as well as in off season. He advocated to popularize plastic mulching with fertigation and insect proof net for quality production of horticultural crops. The seminar was attended by various scientists from across the country along with processors, industrialist, innovative farmer and students. In the seminar various issues on Hi-tech horticulture were addressed and discussed. Invited paper on recent advance in Hi-tech horticulture, protected cultivation technologies, production of quality planting material precision farmer, post harvest management and uses related to trade markets and export of horticulture crops were presented by eminent scientist of our country. Dr. Balraj Singh, Director, NRCSS and President, Indian Society of Seed Spices highlighted the prospect and scope of Hi-tech horticulture in seed spices for getting quality produce to enhance exports. Souvenir and book of abstracts of the seminar, International Journal of Seed Spices and a newly launched magazine of Indian Society for Protected Cultivation were also released on this occasion. During valedictory function of the seminar Dr. T. Jankiram, ADG(HS) Indian Council of Agricultural Research was the Chief Guest and he appreciated efforts of Dr. Balraj Singh, Chairman organizing committee for nice arrangements of various events of the seminar and excellent achievement of the institute and. Dr. R. S. Mehta, Principal Scientist & organizing secretary of the seminar presented formal vote of thanks.



Release of seminar publications



Visit of knowledge park of NRCSS

Important Events

Rashtriya Krishi Vigyan Mela-2015 was held on 16-17, February, 2015 at National Research Centre on Seed Spices, Ajmer (Rajasthan)

Rashtriya Krishi Vigyan Mela-2015 was held on 16-17, February,2015 at National Research Centre on Seed Spices, Ajmer (Rajasthan). Dr. S.L. Mehta, Ex Vice Chancellor, MPUA&T, Udaipur was the Chief Guest of inaugural function and Dr. B. R. Chipa Vice Chancellor, SKRAU, Bikaner, was the president. Nearly 2500 farmers from Rajasthan and adjoining states participated in two days event. Dr. Balraj Singh, Director NRCSS, appraised about the technologies generated by NRCSS for addressing emerging problems of seed spices. Dr. G. Lal , Principal scientist was the convener of the mela. During the Mela, *Kisan Gosthi* was also organized. After deliberations with delegates, stake holders, officials of line department, scientific staff of NRCSS, KVKs and farmer's participant, the following major recommendations were brought out for the benefit of the growers and other stake holders. During the 2 days interactive session with farmers following points were emerged:-

•The major challenges of seed spices are, blight in cumin, and stem gall in coriander and gummosis in fennel. Therefore research efforts need to be intensified to address the major challenges of seed spices so that seed spices cultivation may become blessing for farmers.

•The practice of organising pre sowing season farmers fair should be strengthened for addressing the farmer's problem and arrangement should also be made imparting practical learning to farmers during the fair.

•Seed replacement rate of seed spices is low compared to other crops. Hence efforts are to be made for enhancing seed replacement rate of seed spices.

•More FLDs should be conducted on farmer's field for demonstrating performance of technology developed at research organisation of National Agriculture Research System.

•The new emerging and challenging problems of seed spices like yellowing and reddening in cumin must be addressed

•Efforts should be made to make available good quality seeds of improved variety of crops and fertilizers well in advance of commencement of sowing season





National Kisan Mela inaugurated by Dr. S.L. Mehta, Ex-Vice-chancellor MPUA&T-Udaipur

Important Events

One day awareness camp for sanitation and cleanliness

One day awareness programme for sanitation and cleanliness was conducted on January 1, 2015 at village Mayapur , District Ajmer which is situated nearby NRCSS. A very informative and energetic speech was delivered by Dr. Balraj Singh. A lecture was delivered on cleanliness and sanitation to villagers and they were motivated to make their village and environment clean for a healthy life.



Dr. Balraj Singh, Director delivering a lecture on cleanliness to the villagers in Mayapur

Released NRCSS Year Planner-2015

Dr. Balraj Singh, Director released the NRCSS Year Planner-2015 on January 1st this year. In this planner highlighted the technologies, scientific cultivation of seed spices developed by the scientists of the centre which will be a good asset to the farmers, researchers and students. The planner is having information on regarding all festivals, National Holidays and important events of the current year. The planner is published by Dr. Balraj Singh, Director, and it was compiled and designed by Sh. M.A. khan, Asstt. Chief Tech. Officer and Dr. Ravindra Singh, Sr. Scientist.



Dr. Balraj Singh, Director releasing NRCSS Year Planner-2015

inert gases and vacuum packaging

RESEARCH HIGHLIGHTS

Kikar (*Prosopis juliflora*) flowers and foliage: Reservoir of the thrips

Krishna Kant, N.K. Meena, Siya Ram Meena and Shruti Pareek

Prosopis juliflora (family Mimosoideae) native to South and Central America was introduced in India for requirement of fuel wood to poor and also to help in soil conservation. This plant is spread in most part of India and a thread to plant biodiversity in some places and now it is under invasive noxious plants category. The plant leaves are deciduous in nature and compound leaves contain up to 20 to 25 leaflet. The flower appears in long cylindrical spikes of pale yellow/green which occur in clusters of 2 to 5.

Observation conducted on the plant found that flowers and leaves offer good source for thrips breeding and survival. Population of 6-8 thrips in flower spike of 3 to 5 were observed during 3rd week of February to second week of March. This plant offer suitable habitat for survival and development as secondary/alternate host. Interestingly the period of thrips population on Kikar coincided with the full vegetative to maturity stages of many seed spice crops in which thrips is known as one of major pests. Both immature and adults thrips suck the sap of plant by scraping the leaves/flowers and feed the oozes' come out from it. Affected parts turn radish brown and look like uneven dry patch on the surface. The infected plant show retarded growth due to presence of dry patches on leaves surface which obstruct photosynthesis of plant to produce food.



Fig.1 Prosopis juliflora flowers & leaves



Fig 2.Thrips



Fig 3. affected cumin

RESEARCH HIGHLIGHTS

Occurrence of *Sclerotinia* Stem Rot on seed spices crops in Rajasthan

Y.K. Sharma, R. D. Meena, R. K. Solanki, R. K. Kakani and Balraj Singh

During *rabi* season of 2014-15, typical symptoms of stem rot disease were observed in seed spices crop plants (coriander, fennel and ajwain) on farmers' fields in Hadoti region (Kota & Baran districts) of Rajasthan and in research experiments and seed production plots of coriander, fennel, ajwain, nigella crops on the ICAR-NRCSS farm. The visible symptoms observed a chlorosis and wilting of foliage and necrosis of basal stems. The chlorosis and wilting of the foliage begins from the basal leaves. Infection of the main stem at ground level was followed by a greyish white discoloration that progressed above the soil line to the apex. In advanced stages of the disease, stems and branches became faded/ discoloured and ultimately died. Black and irregularly shaped *sclerotia* inside necrotic stem tissue were the typical signs of the pathogen. The disease appeared singly or in patches consisting of 3 to 4 month old plants. Affected plants samples and *sclerotia* from diseased stems were randomly collected and brought to laboratory for further studies.



Symptoms of *Sclerotinia* rot in seed spices crops grown in the fields

RESEARCH HIGHLIGHTS

Unique genotypes showing early maturity in celery

Sharda Choudhary and R.S. Meena

Celery plants were identified showing early maturity (32 days after transplanting) in comparison to check ACel-1 (70 days after transplanting) and other celery accessions. The plant were selected from celery field and showing same performance since last two years. The plants were having very few leaves. Seeds were threshed and preserved for further experiments. These genotype can be used in celery breeding programme for seed purpose early maturity variety.





Unique Celery plants in field

उत्तर प्रदेश के सहायक कृषि तकनीकी प्रबंधकों का पांच दिवसीय प्रशिक्षण कार्यक्रम

राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, तबीजी, अजमेर में सहायक कृषि तकनीकी प्रबंधकों एवं ब्लॉक कृषि तकनीकी प्रबंधकों हेत मसाला फसलों के उत्पादन की उन्नत प्रौद्योगिकियों पर पांच दिवसीय प्रशिक्षण कायक्रम का आयोजन किया गया। इस प्रशिक्षण कायक्रम में उत्तर प्रदेश के विभिन्न जिलो से आय 35 प्रशिक्षु अधिकारी सम्मिलित हुए जो कि अपने क्षेत्र के कृषि परियोजनाओं के अंतर्गत कृषकों से सीधें जुडें हुए है तथा कृषि तकनीकी प्रंबधन का काय करते है। इस कायक्रम के उदघाटन पर राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, तबीजी, अजमेर के निदेशक डॉ बलराज सिंह ने अपने अध्यक्षीय भाषण में इस बात पर बल दिया कि य सब अधिकारी सीधे तौर पर कृषि परियोजनाओं के प्रबंधन और कृषकों से सीधे जुड़े हुए है तथा कृषि में ही स्नातक एवं स्नातकोत्तर डिग्री धारक है, अतः यहां से विभिन्न कृषि तकनीकों पर किय जा रहे अनुसंधान कार्या को अच्छी तरह समझकर ग्रहण कर कृषकों में सफलता पूर्वक प्रेषित करने में सक्षम होंगे। इस पांच दिवसीय प्रशिक्षण कायक्रम के अंतर्गत इनके क्षेत्रों में मसाला फसलों के उत्पादन की सम्भावनाओं की उन्नत विधियों से इन्हें अवगत कराया गया तथा इनकें द्वारा प्रस्तुत प्रश्नों के उत्तर भी दिय गय। इस अनुसंधान केन्द्र में उपलब्ध सभी प्रकार की मूलभूत एवं उत्तरोतर अनुसंधान की जानकारी इन्हें विभिन्न वैज्ञानिकों के द्वारा उपलब्ध करायो गयो। प्रशिक्षण के दौरान इन अधिकारियों को बागवानी क्षेत्र में उपलब्ध एवं उपयोगी उच्च तकनीकों जैसे प्लग ट्रे पौध उत्पादन तकनीकी, सब्जियां की संरक्षित खेती, दाब ड्रिप सिंचाई प्रणाली, कम दाब सिंचाई प्रणाली, जैविक खेती, बीजीय मसाला फसल एवं सब्जी उत्पादन में बेहतर कृषि क्रियाओं का उपयोग एवं कीटनाशकों का सुरक्षित उपयोग जैसे विषयों पर विस्तृत जानकारी दी गयो। इस केन्द्र की क्षमता एवं निपुणता को देखते हुए राजस्थान के अतिरिक्त दूसरे राज्य भी अब अपने कृषि अधिकारियों का प्रशिक्षण कायक्रम अब राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, तबीजी, अजमेर पर कराने में रूची लेने लगे हैं। इस पांच दिवसीय प्रशिक्षण कायक्रम के प्रशिक्षण समन्वय डॉ. बी.के. मिश्र (वरिष्ठ वैज्ञानिक) तथा सह–समन्वयक डॉ. ए. के. वर्मा (वैज्ञानिक) द्वारा प्रायोजक निदेशक, राज्य कृषि प्रबंधन संस्थान, रहमान खेड़ा, लखनऊ, उत्तर प्रदेश के थे।





Director addressing the participants on seed spice cultivation

Transfer of Technology

Training

Farmers' Trainings Programmes conducted on/off campus

Sr. No	Organizing Institute and Date of Training	Title	No of days	Org. Sec., Coordinators/ Co-Coordinators
1	Director, State Agriculture Management Institute, Rehmankhera, Lucknow (UP) on Feb, 9-13, 2015	Cultivation of Spice Crops	05	Dr. B.K. Mishra, Dr. Arvind Kumar Verma
2	Director, State Agriculture Management Institute, Rehmankhera, Lucknow UP) on Feb, 12-16,2015	Cultivation of Spice Crops	05	Dr. S.S. Meena, Mr. Honnappa Asangi
3	Rashtriya Chemicals & Fertilizers, Jaipur, on February 16, 2015	Production and Protection Technology of Seed Spices on	01	Dr. N.K. Meena Sh. M.A. Khan
4	National Horticulture Mission Teh, Ladnu, Distt. Nagore, Rajasthan on 16-17, February, 2015	Masala Phasalon Ki Unnat Krishi Takiniki Ayon Prasansakaran.	02	Dr. G. Lal Dr. Ravindra Singh Dr. R.K. Solanki
5.	Two days farmers training under NHM at NRCSS, Ajmer on February 16-17, 2015	Masala Phasalon Ki Unnat Krishi Takinikia Ayon Prasansakaran.	02	Dr.R.S. Meena Dr.S.S. Rathore Dr.N.K. Meena





Different farmer's training programme conducted at the centre

Transfer of Technology

Kisan Mela's

Participation in a Eastern Zone Regional Agricultural Fair-2015 at CPRS, Patna

Centre Potato Research Institute organized a Eastern Zone Regional Agricultural Fair-2015 from 19-21 February, 2015 at CPRS, Patna. Mr. M.K. Vishal, Scientist, Mr. M.A. khan, Asstt. Chief Tech. Officer and Mr. Yash Sharma, Research Associate have participated and exhibited stall of the centre. The exhibition on seed spices was installed to benefit the thousands of farmers who visited the Mela and queries of the visiting farmers were solved. The literature in the form of pamphlet was also given to the interested farmers. Officials from some NGO's and farmers from different states also interacted and requested to impart training to farmers on seed spices cultivation. Mela was inaugurated by Hon'ble Agriculture Minister Shri Radha Mohan Singh, Ministry of Agriculture (Govt. of India) and President ICAR on 20th Feb., 2015. On this occasion Hon'ble Dr. N.K. Krishna Kumar DDG (Hort.) and Dr. T. Jankiram ADG (Hort. Sci.) ICAR, New Delhi visited to our stall and appreciate our technologies developed by the scientists.





Hon'ble DDG (Hort.) Dr. N.K. Krishna Kumar and Dr. T. Jankiram ADG (Hort. Sci.) visited

Participation in Farmers Fair at Directorate of Rapeseed & Mustard, Bharatpur (Rajasthan)

Directorate of Rape Seed & Mustard, Bharatpur organized a three day Kisan mela from 24-26 February, 2015. Mr. M.A. Khan, ACTO and Mr. G.K. Tripathi, Sr. T.A. have participated and exhibited stall. The exhibition on seed spices was installed for the benefit of farmers visited in Kisan Mela. The farmers visited at NRCSS stall and queries of the visiting farmers were solved. The literature in the form of pamphlet of seed spices crops were given to the interested farmers. Officials of NGO's and farmers from different states of the country were interacted and shown interest in seed spices cultivation. They have been advised to send application to Director, NRCSS for making it convenient to organize training at respective location by NRCSS, Ajmer.



Director of DRM, Bharatpur and other dignitaries visited at Exhibition of NRCSS

Human Resource Development

Honours and Awards

Dr. R. S. Mehta received best scientist award for the year 2014 on the occasion of Republic Day celebrations on January 26, 2015 by Dr. Balraj Singh, Director NRC Seed Spices, Ajmer.



Publications

E-BOOK published on "Health and beauty secrets of seed spices" authored by Sharda Choudhary, M.A. Khan and Balraj Singh (2015). Available on website: www.nrcss.org.in. Published by Director, NRC Seed Spices, Ajmer.

BOOK: बलराज सिंह, आर.एस. मेहता, एस.एस. मीणा, बी.के. मिश्र, पी.एन. दूबे, अरविंद कुमार वर्मा एवं होन्नप्प आसंगि (2015). उत्तर भारत में मसाला फसलोत्पादन की उन्नत प्रौद्योगिकिया (Edi.)

Symposia/seminars/conferences attended

- Dr. Arvind Kumar and Mr. Honappa Asangi, Scientists attended XII Agricultural Science Congress on "Sustainable Livelihood Security of Small holder Farmers" 3-6th February 2015, National Dairy Research Institute, Karnal, Haryana.
- Dr. B.K. Mishra, Sr. Scientist (Microbiology) attended and participated in the "3rd International Conference on Impacting Food Value Chain and Leveraging Innovation" during 26-28 Feb, 2015 held at National Institute for Food Technology Entrepreneurship and Management (NIFTEM), Sonepat, Haryana.
- Dr. Sharda Choudhary attended "Workshop of AMAAS projects" held on 22nd and 23rd January, 2015 at NASC complex, New Delhi. The chairman of inaugural session was Dr. S. Ayyappan, Secretary, DARE & DG, ICAR, New Delhi.
- Dr. R. S. Mehta Principal Scientist, participated in XII Agricultural Science Congress held on 3rd -6th February, 2015 at ICAR-NDRI, Karnal and presented poster of research paper entitled "Intercropping of seed spices with vegetables for enhancing system profitability" authored by Dr. R.S. Mehta, Dr. S. S. Meena, Dr. Balraj Singh, Dr. G. Lal, Dr. Ravindra Singh, Dr. O. P. Aishwath and Seema Rani.

From the Director's Desk



NRCSS organized a two days National Seminar in the month of January 2015, to welcome the New Scientific Year, for motivating new researchers and scientist in the field of Seed Spices and Hi-Tech Horticulture. Winters in Ajmer are very pleasant and seed spices crops in the fields of NRCSS are blooming and spreading their aroma in the environment.

The combination of pink winters and spicy fragrance played a very important role in attracting guests/participants/farmers to attend the seminar. Personally myself and staff of NRCSS were very happy to see Padmashree Dr. K L Chadha, Padmashree Dr. Brahma Singh and Dr. N K Krishna Kumar, Deputy Director General (ICAR-Hort.), at our campus. The seminar was a most successful event and I thanked all my staff members for their hard team work. The two big events organized at NRCSS with full strength and there was enormous participation in foundation day (January,18) and Rashtriya Krishi Vigyan Mela (February,16-17) with more than one thousand farmers. 15th Foundation day of NRCSS which was also celebrated successfully. Thousands of farmers were benefited in Rashtriya Krishi Vigyan mela in which Dr. S L Mehta, Ex. VC, MPUA&T, Udaipur were the Chief Guest. I appreciate my team of scientists for displaying good technologies and research highlights.

Swacch Bharat is the dream of our Hon'able Prime Minister Shri Narendra Modi and for that we are working hard and by heart to clean the premises of NRCSS as well as nearby areas.. We have conducted awareness programme and one cleanliness drive for the villagers of Mayapur and trying our best to make them aware of cleaning and to make toilets in every house.

I wish all readers Best New Year with more hopes and achievements. Any suggestions for improvement will be appreciated.

Balraj Singh





