SEED SPICES
E-Newsletter
National Research Centre on Seed Spices
An ISO 9001:2008 Certified Institute

VOLUME 6, No. 1 January-February, 2014

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Western Zone Krishi Vigyan Mela at NRCSS Inaugurated by Chairman ASRB



Western Zone Krishi Vigyan Mela-2014 was organized on 4-7, February at National Research Centre on Seed Spices, Ajmer. Dr. Gurbachan Singh, Chairman, ASRB, New Delhi was the Chief guest of inaugural function of the Mela. Sh. Ram Chandra Choudhary, Chairman, *Ajmer Zila Dudh Utapadak Sangh*, Dr. S.M.K Naqvi, Director, CSWRI, Avikanagar, Dr. Jitendra Singh Shekhawat, Deputy Director, Agriculture, Ajmer were the guests of honor in the inaugural function of the Mela. In the inaugural function Dr. Balraj Singh, Director, NRCSS extended warm welcome to guest on the dias, delegates participated and farmers from Rajasthan, Gujarat, Maharashtra, MP and other parts of the country. The chief guest appraised about the 12 improved varieties of seed spices, production and protection technologies for improving quality and production of seed spices developed by the centre. Presently NRCSS is actively engaged in development of improved production technology in respect to fertigation, plastic mulching, raised bed planting, nursery raising of fennel, ajwain, dill and celery, efficient cropping systems, cryogenic grinding and value added products. Chief Guest Dr. Gurbachhan Singh pointed out the role of spices in Indian economy and highlighted that spices are exported to other country of the world (Conti..)

Chief Guest also emphasized that production and quality of seed spices is to be enhanced for promotion of export. Dr. Singh appreciated the efforts of NRCSS for solving challenging problems of seed spices. In the Mela 5 to 7 thousand farmers from Rajasthan, Gujarat, Maharashtra, MP and other parts of the country participated during , 4-7, February, 2014. Total 37 exhibition stall from ICAR institutes, state govt. agencies, KVKs and non govt. organizations were displayed. Technical sessions on production technology management, farm women empowerment, improved varieties and innovation in agriculture, plant protecting and post harvest management were organized during the four days. The Convener of the mela was Dr. G. Lal, Principal Scientist (Horticulture) and the Co-Conveners were Dr. R. K. Kakani, Principal Scientist (PB), Dr. R. S. Mehta, Sr. Scientist (Agronomy), Dr. Ravindra Singh, Sr. Scientist (Agronomy) and Dr. S.S. Rathore, Sr. Scientist (Biochemistry).



Release of the *Smarika* of West Zone Kisan Mela by Chief Guest and other dignitaries



Dr Gurbachan addressing the farmers



Farmers gathering from various states of West Zone at NRCSS , Ajmer

राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र का चौदहवां स्थापना दिवस समारोह मनाया गया



दिनांक 17 जनवरी को तबीजी अजमेर स्थित राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र जो भारतीय कृषि अनुसंधान परिषद का एक अनुसंधान संस्थान है, ने अपने चौदहवें स्थापना दिवस समारोह का आयोजन किया। स्थापना दिवस समारोह की अध्यक्षता श्री हबीब खान गोरान, अध्यक्ष, राजस्थान लोक सेवा आयोग, अजमेर ने की एवं डॉ कीर्ति सिंह जी, भूतपूर्व अध्यक्ष, कृषि वैज्ञानिक चयन मण्डल नई दिल्ली समारोह के मुख्य अतिथि थे तथा उन्होने इस अवसर पर स्थापना दिवस व्याख्यान भी दिया। समारोह में विशिष्ट अतिथि के रूप में श्री ब्रह्म सिंह, भूतपूर्व निदेशक, डी.आर. डी.ओ. और मेजर जनरल कुँवर विजय सिंह लालोत्रा, प्राचाय, मेयो कॉलेज, अजमेर ने भी इस अवसर पर अपने विचार प्रस्तुत किय। स्थापना दिवस समारोह पर अतिथियों एवं आगन्तुकों का स्वागत करते हुए संस्थान के निदेशक, डॉ बलराज सिंह ने इस अवसर पर केन्द्र द्वारा बीजीय मसाला फसलों के क्षैत्र में पिछले 13 वर्षों में की गयो विभिन्न अनुसंधान उपलब्धियों की जानकारी दी। जिनमें मुख्य रूप से बीजीय मसाला फसलों में संरक्षित खेती, आधुनिक उत्पादन तकनीकीयॉ एवं गुणवत्ता प्रबंधन, राजस्थान में बागवानी की नई संभावनायं, बागवानी में कटाई उपरान्त प्रबंधन एवं मूल्य संवर्धन के विषय पर जानकारी दी। उन्होने इन फसलों में वर्तमान में चल रहे विभिन्न अनुसंधान कार्यों का भी विवरण प्रस्तुत किया तथा इन फसलों में भविष्य में आने वाली चुनौतियों पर शुरू किय गय अनुसंधान कार्यों की भी जानकारी दी। साथ ही साथ उन्होने किसानों द्वारा अन्धाधुंध किय जा रहे कीटनाशकों के छिड़काव पर भी चिन्ता व्यक्त की एवं किसानों से अनुरोध किया कि वे विषय विषेशज्ञों से सलाह मशवरा करके ही उचित दवाओं का प्रयोग कर बीजीय मसाला फसलों में लगने वाले बीमारियों एवं कीटों का प्रंबधन करें।

संस्थान के चौदहवें स्थापना दिवस समारोह में, मुख्य अतिथि के रूप में विश्व प्रसिद्व कृषि वैज्ञानिक तथा विश्व नोनी अनुसंधान फाउॅडेशन, चेन्नई के अध्यक्ष एवं भूतपूर्व अध्यक्ष कृषि वैज्ञानिक चयन मण्डल, नई दिल्ली, डॉ. कीर्ति सिंह ने अपने व्याख्यान ''भारत में मसालों की खेती की दशा एवं दिशा'' विषय पर अपने विचार रखते हुए बताया कि बीजीय मसालों के क्षेत्र में अनुसंधान करने वाला देश का यह एकमात्र संस्थान है तथा बीजीय मसाला फलसों के क्षेत्र में अनुसंधान की बहुत आवश्यकता है क्योंकि कोई भी करी (रसोई) मसालों के बिना अधूरी है।

बीजीय मसालों का उत्पादन उत्तर भारत के ठण्डे पहाड़ी इलाकों से लेकर राजस्थान तथा गुजरात जैसे शुष्क एवं अर्धशुष्क प्रदेशों में होता है। लेकिन मुख्य एवं अधिक उत्पादन इन्हीं दोनों राज्यों में होता है। इन्होने अपने उद्‌बोधन में ''नो वरी, नो हरी तथा नो करी'' यानि चितां मुक्त रहते हुऐ खेती के कार्यों में जल्दी बाजी न करें तथा आवश्यकतानुसार ही मसालों का उपयोग करने की सलाह दी। साथ ही साथ बीजीय मसालों में उत्पादन गुणवत्ता व मूल्य संवधर्न की दिशा में ध्यान देने की आवश्यकता पर जोर दिया।

राजस्थान लोक सेवा आयोग के अध्यक्ष श्री हबीब खान गोरान ने अपने अध्यक्षीय उद्‌बोधन में किसान को धरती पुत्र तथा अन्नदाता बताया। देश की अन्न उत्पादन स्थिति पर प्रकाश डालते हुए कहा कि हमारा देश वैज्ञानिक के अथक प्रयास एवं धरती पुत्र की अथक मेहनत का ही स्वरूप है कि आज देश खाद्यान्न उत्पादन में आत्मनिर्भरता प्राप्त करके निर्यातक देश बन गया है, लेकिन आज भी धरती पुत्र तथा अन्नदाता की स्थिति में सुधार नहीं आया उसकी मुख्य वजह उन्होने किसानों तक नवीन तकनीक ज्ञान का नहीं पहुंचना बताया उन्होने सुझाव दिया कि नवीन तकनीकि ज्ञान को प्रसार शिक्षा द्वारा किसान के खेत तक पहुॅचाया जाय तभी उसे लाभ होगा। डॉ. ब्रहम सिंह, पूर्व निदेशक, डी.आर.डी.ओ. (सुरक्षा अनुसंधान एवं विकास संगठन) एवं मेजर जनरल कुॅवर विजय सिंह लालोत्रा, प्राचार्य, मेया कॉलेज अजमेर ने अपने उद्‌बोदधन के दौरान वैज्ञानिकों तथा किसानों को यह सुझाव दिया कि यदि बीजीय मसाला फसलों की खेती के साथ साथ मधुमक्खी के पालन पर जोर दिया जाय तो उससे परागण प्रतिशतता से बीजीय मसाला फसलों की उत्पादकता तो बढ़गी ही साथ ही साथ शहद (मधु) उत्पादन कर किसान अतिरिक्त आमदनी प्राप्त कर सकेगा। शहद अपने आप में एक औषधी है तथा कई औषधियों का सेवन शहद के साथ किया जाता है एवं मैथी की कुछ कम कड़वापन वाली किस्मों को विकसित करने की दिशा में काम करने का सुझाव दिया। बीजीय मसाला की महत्ता देखते हुए, इस अवसर पर भारतीय कृषि अनुसंधान परिषद, नई दिल्ली द्वारा प्रकाशित इण्डियन हार्टीकल्चर एवं फलफूल पत्रिकाओं के विषेशांक (बीजीय मसाला फसलों पर) का विमोचन मुख्य अतिथि द्वारा किया गया। साथ ही साथ भारतीय बीजीय मसाला समीति द्वारा प्रकाशित इन्टरनेशनल जनरल ऑफ सीड स्पाइस के अंक का भी विमोचन किया। डा. रविन्द्र सिंह, वरिष्ठ वैज्ञानिक व स्थापना दिवस के आयोजक सचिव ने कायकम का संचालन किया तथा सभी अतिथियो का धन्यवाद व्यक्त किया। इसके बाद अतिथियो ने केन्द्र के फार्म पर चल रहे विभिन्न अनुसंधान कार्यो का अवलोकन किया।

A new project seed spices submitted by Dr S N Saxena to NMPB got approved



A project proposal on "Exploitation of seed spices as a potential source of natural antioxidants, essential oil and oleoresins for enhancing export of value added products" was submitted by Dr. S. N. Saxena, Principal Scientist, NRCSS to National Medicinal Plants Board (NMPB) under Department of AYUSH, Ministry of Health & Family Welfare, Government of India.

Dr. S. N. Saxena, principal investigator, presented and defended the proposal in 29th PSC meeting held on 20th September, 2013 at NMPB, New Delhi. The 58th SFC has approved the project for 3 years at the total cost of 44.30 lakh (Rupees forty four lakhs thirty thousand only). Dr. R. K. Kakani, Pri. Scientist, Dr. S. S. Rathore, Sr. Scientist and Dr. R. K. Solanki, Scientist is associated in this project as co-principal Investigators.

RESEARCH HIGHLIGHTS

A unique extra dwarf fennel genotype

R S Mehta, R S Meena, R K Kakani, R K Solanki and Balraj Singh

A unique extra dwarf fennel genotype having a height of 30-35 cm was identified in fennel populations at NRCSS, Ajmer in the year 2010-11. The same plant was advanced subsequently for three generations i.e., 2011-12, 2012-13 and 2013-14 for testing and confirming heritability of the trait (Dwarfness). All the subsequent progenies showed height in the range of 35-50 cm. This unique extra dwarf genotype is an excellent genetic resource for inducing dwarfness in existing high yielding fennel varieties which is the most desirable trait. Dwarf variety of fennel have less lodging problem and can be accommodated well in fruit and vegetable crop intercropping systems.



RESEARCH HIGHLIGHTS

Standardization of harvesting indices and drying techniques of fennel to have the quality produce

G. Lal, Krishna Kant and S. P. Maheria

Harvesting indices and drying techniques of fennel to use as green fennel for chewing purpose have been standardised by NRCSS scientists under institutional project on post harvest handling. The crop was harvested at weekly interval from 174 days after sowing (DAS). Best quality green fennel with maximum recovery (42.97%) was harvested at 181 DAS, where it has consumed 2938 heat units. Organoleptic evaluation of the produce done by a panel of five judges revealed that, the produce harvested at 181 DAS scored maximum marks for taste (9.0) and colour (9.0) out of 10.0 (Table 1). For drying of fennel grain, five methods viz., shade drying, sun drying, solar drying, drying in vegetable dryer and drying in multipurpose grain dryer were used. Findings of the investigation stated that, solar drying exhibited maximum recovery (39.82%) and test weight (5.17g) without the involvement of any extra energy other than solar. The temperature inside the solar dryer was 5-7° C more than that of sun drying, which leads faster drying. Under organoleptic evaluation, maximum score for taste (9.3) and colour (9.2) out of 10.0 was recorded in the produce dried with solar drying method (Table 2). Farmers are advised to adopt solar drying method in place of exiting shade drying or sun drying to maintain the post harvest quality of green fennel grain.

Table 1. Effect of different harvesting stages on quality and recovery of fennel.

Date of harvesting	Taste (marks out of 10)	Colour (marks out of 10)	Moisture content (%)	Recovery (%)	Test wt (g)
174 DAS	6	6	65.67	34.33	3.60
181 DAS	9	9	57.03	42.97	3.75
189 DAS	8	8	62.8	37.2	3.84
196 DAS	6.5	6.5	60.4	39.6	3.95
204 DAS	7	7	63.93	36.07	4.06

Table 2. Effect of different drying methods on the quality and recovery of green fennel grain

Method of drying	Taste (marks out of 10)	Colour (marks out of 10)	Moisture content (%)	Recovery (%)	Test weight (gm)
Shade drying (23-30 °C) 51 hrs	6.7	6.5	65.16	34.45	4.62
Sun drying (28-37 °C) 48 hrs	7.2	6.0	63.50	35.36	4.85
Solar drying (40-47 °C) 33 hrs	9.3	9.2	61.30	39.82	5.17
Vegetable dryer (50 °C) 30 hrs	8.2	7.8	64.50	33.80	4.85
Multipurpose grain dryer (60 °C) 27 hrs	7.5	7.5	66.8	33.25	4.45

RESEARCH HIGHLIGHTS

New Product : Fenugreek-ajwain cookies for children and diabetic patients

G. Lal, S.N. Saxena, Y.K. Sharma, Ravinder Singh, O.P. Aishwath, Krishna Kant, R.S. Mehta, S.P. Maharia and Yash Sharma

Fenugreek-ajwain cookies (Salty) were prepared at NRCSS, Ajmer under NAIP (Comp-2) "Value Chain in Major Seed Spices for Domestic and Export Promotion". The cookies were prepared with the addition of 25g and 50g fenugreek powder per kg wheat flour. Organoleptic test was done by a panel of five judges for taste and texture of the cookies. Findings revealed that the cookies made with the addition of 25g fenugreek powder per kg wheat flour were found best and suitable for the consumption of children. These can be also eaten by diabetic patients as fenugreek is having anti diabetic properties. The taste and medicinal value of the cookies was further improved by adding whole ajwain grain (25g/kg wheat flour).

Ingredients:

Wheat flour - 1kg
Milk–500 ml
Butter/Ghee - 600g
Fenugreek powder – 25g
Ajwain - 25g
Sugar - 200g
Salt - 1/2 tea spoon full
Baking soda – 1 tea spoon full



Procedure:

Mix butter/ghee in milk with an electric mixer. Add sugar, salt, baking soda, fenugreek powder and ajwain to the whipped butter. Blend with mixer until everything is mixed properly, then add wheat flour, mix and blend again.

Use a spoon to create rounded tea spoon size dollops of dough and place them at least an inch apart on an ungreased cookie sheet. Bake at 180 °C temperature for about 15 minutes or until edges become brown slightly. Allow the cookies cool on a cooling rack. The cookies are ready to serve after cooling.

HRD (Human Resource Development)

Conferences/symposia/seminars attended

❖**Dr. Balraj Singh, Dr. S. N. Saxena and Dr. S. S. Rathore participated in the International Conference on "Emerging food safety risks: Challenges for developing countries" at NIFTEM, Kundli (Sonipat), Haryana during January 9-10, 2014. Dr. Balraj Singh chaired the session "Food safety issues related to production" and also delivers a guest lecture.**

❖**Dr. S. S. Rathore attended Codex Meeting at Ministry of Commerce at Udyog Bhawan on Jan 9th, 2014 at New Delhi.**

❖**Dr. Balraj Singh, Director attended the Vice-chancellor's and Director's conference at Baramati and Pune (Maharashtra) from January 19-20, 2014.**

❖**Dr. Balraj Singh, Director participated in "*Krishi Vasant*" 2014 at Nagpur on 12 February, 2014 and also attended the TAC meeting at CIH, Dhimapur, Nagaland from February 19-20, 2014.**

❖**Dr. R. S. Mehta and Dr. S. S. Meena attended World Congress on "Agro-forestry" held from February 10-14, 2014 at New Delhi.**

Dr. S. N. Saxena delivered lecture in International Conference at NIFTEM, Sonipat- Haryana

Dr. S. N. Saxena delivered a lecture on "Cryogenic grinding technology: An effective approach for retention of flavour and enhancing medicinal properties of spices" in International Conference on Emerging Food Safety Risks: Challenges for Developing Countries held on January 09-10, 2014 at National Institute of Food Technology Engineering and Management, Kundli, Sonipat, Haryana. In this lecture significance of cryogenic grinding in seed spices was highlighted in terms of retention of flavour and enhancing medicinal properties of coriander and fenugreek with experimental results conducted at NRCSS under NAIP project on cryogenic grinding. The findings of experiment have already published in Journal of Food Science and Technology, Springer Publication. Dr. Saxena emphasized cryogenic grinding as a potential technology for value addition in spices in general and seed spices in particular.

Trainings

Trainings on Bijya Masalon Ki Unnat Kheti under ATMA and NHM organized at NRCSS



During February, 2014, seven trainings on "*Bijya Masalo Ki Unnat Kheti*" were organized at NRCSS sponsored by different agencies. The name of sponsoring agencies, training coordinators and farmers' participant is given as below. Resource persons from NRCSS, KVK, SAUs and state agriculture department, delivered lectures. Course director of these training was Dr. Balraj Singh, Director, NRCSS, and Ajmer. In these training programmes total 250 farmers participated and get benefited. Literature on seed spice production in the form of Smarika-2014 entitled *"Bijya Masale Kisano Ke Liya Vardan"* was distributed to trainees

Continue…





Trainings on "*Bijya Masalon Ki Unnat Kheti*"

Sr. No	Name of Sponsoring Agencies	No of Farmers	Coordinators/ Co- Coordinators
1	Assistant Director (Horticulture), Ladnu, Nagaur, Rajasthan, (02 days training under NHM from 4-5 February,2014)	50	Dr. N. K. Meena Sh. M. A. Khan
2	Project Director, ATMA, Bhilwara Rajasthan (05 days Trainings from 31st Jan to 5th Feb, 2014)	30	Dr. Y. K. Sharma Dr. K. Kant
3	Project Director, ATMA, Dungarpur, Rajasthan. (05 days Training from 4-8, February, 2014)	30	Dr. B. K. Mishra Dr. N. K. Meena
4	Project Director, ATMA, Dungarpur, Rajasthan. (05 days Training from 4-8, February, 2014)	30	Dr. R. D. Meena Sh. M. K. Vishal
5	Project Director, ATMA, Bhilwara, Rajasthan (05 days Trainings from 4-8, February, 2014)	30	Dr. R. K. Kakani Dr. B. K. Mishra
6	Assistant Director (Horticulture), Ladnu, Nagaur, Rajasthan (02 days Training under NHM from 6-7 February, 2014)	50	Krishna Kant Sh. S .P .Maheria
7	Project Director, ATMA, Tonk, Rajasthan (05 days Trainings from 7-11, Feb, 2014)	30	Dr. O. P. Aishwath Dr. R. K. Solanki





NRCSS Exhibited Technologies in *Kisan Mela's*





➢Dr. Gopal Lal, Pr. Scientist, presented technologies on seed spices at Kisan mela at Pushkar, Ajmer on January 6, 2014. Sh. M. A. Khan, Assistant Chief Technical Officer & Sh. G.K. Tripathi, Sr. Technical Assistant also Participated in Kisan Mela and exhibited stall of the centre. The Kisan Mela was organized by the State Agricultural Department, Ajmer, Rajasthan



➢Exhibited stall in the Western Regional Krishi Vigyan Mela-2014, organized by NRCSS, Ajmer from 4-7 February, 2014 to disseminate scientific cultivation practices on seed spices to the farmers, students and visitors from various states.

➢Sh. M. A. Khan, Assistant Chief Technical Officer and Sh. G. K. Tripathi attended and exhibited NRCSS stall at IARI Pusa New Delhi in kisan mela from 26-28, February 2014 to disseminate scientific cultivation practices on seed spices to the farmers and visitors



Distinguished Visitors at NRCSS

Sr. No	Distinguished Visitors	Designation	Date of visit
1	Dr. Kirti Singh	Ex-Chairman, ASRB, New Delhi	17/1/2014
2	Dr. Brahma Singh	Ex-Director, DRDO, New Delhi	17/1/2014
3	Sh. Habib Khan Goran	Chairman, RPSC, Ajmer	17/1/2014
4	Maj. Gen. K V S Lalotra (Retd.)	Principal, Mayo College, Ajmer	17/1/2014
5	Dr. Gurbachan Singh	Chairman, ASRB, New Delhi	04/2/2014
6	Sh. Ramchander Choudhary	Chairman, *Ajmer Zila Dudh Utpadak Sangh* Ltd., Ajmer	04/2/2014
7	Dr. S.M.K. Naquvi	Director, CSWRI Avikanagar	04/2/2014
8	Sh. Ramgopal Sharma	Dy. Director (Ag.), Ajmer	04/2/2014
9	Dr. R. K. Meena	Divisional Commissioner, Ajmer	14/2/2014
10	Dr. V. N. Sharda	Member, ASRB, New Delhi	24/2/ 2014

Awards and Recognitions

Best Scientist of NRCSS-2014 was awarded by the Director to Dr. R. K. Solanki, Scientist (Plant Breeding) on Republic Day



Most Industrious Scientist of NRCSS-2014 was awarded by the Director to Dr. S.S. Rathore, Sr. Scientist (Biochemistry) on Republic Day



Best administrative employee of NRCSS-2014 was awarded by the Director to Sh. Sanjeev Sharma (Assistant Administration) on Republic Day





From The Director's Desk

Wish you a very happy new year 2014 to all the ICAR employees, nears and dears. I wish this year will bring all the happiness, new achievements and some good quality research in your life. NRCSS has celebrated its 14th foundation day on January 17, 2014. The function was presides by Sh. Habib Khan Gouran, Chairman, RPSC and Dr. Kirti Singh, Ex-Chairman, ASRB was the Chief Guest who had delivered the 4th foundation day Lecture on " Indian Spices – Retrospect and Prospects". On the 14th foundation day occasion, 2 ICAR publications of Indian Horticulture and Phal Phool as special issues on seed spices were also published and released.

Republic day was celebrated and awards were given to the best employees of the institute.

This year first time we organized Western Zone Krishi Vigyan Mela on February 4-7, 2014 at National Research Centre on Seed Spices Ajmer (Rajasthan) which was sponsored by Directorate of Extension, Ministry of Agriculture, Government of India. Dr. Gurbachhan Singh, Chairman, ASRB, New Delhi was the Chief Guest of inaugural function of the Mela. In the Mela more than seven thousand farmers (male & female) participated from Rajasthan, Gujarat, Maharashtra, MP and other parts of the country. Total 37 exhibition stall from ICAR institutes, state govt. agencies, KVKs and non govt. organizations participated. Technical sessions on production technology management, farm women empowerment, improved varieties and innovation in agriculture, plant protecting and post harvest management were organized during four days. Eight training with 250 participants were also organized during the month on "*Bijiya Masalon Ki Unnat Kheti*"

Seed spices are very rich in medicinal values we can cure many diseases by using them regularly, hence recipes like Fenugreek cookies are beneficial for diabetic patients.

At the end of February the weather changed abruptly and hail storm occurred. It severely damaged all the seed spices crops grown in the open field condition. The crops were damaged severely ranging from 50-100% various seed spices crops.

Dr. Balraj Singh