SEED SPICES
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ICAR-National Research Centre on Seed Spices

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Important Events

संस्थान में राजभाषा हिन्दी–पखवाड़ा–15–30 सितम्बर, 2015 में मनाया गया

राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, अजमेर पर विगत वर्षो की तरह इस वर्षो भी राजभाषा हिन्दी पखवाड़ा 15–30 सितम्बर, 2015 के दौरान मनाया गया। पखवाड़ा का शुभारम्भ 15 सितम्बर 2015 को राजभाषा क्रियान्वयन समिति की बैठक के साथ हुआ जिसमें में डॉ. बलराज सिंह, निदेशक, रा.बी.म.अनु.केन्द्र ने अध्यक्षता की। केन्द्र पर राजभाषा हिन्दी के प्रगामी प्रयोग हेतु सुझावों पर चर्चा की गयी। 19 सितम्बर 2015 को संस्थान में कार्यरत वैज्ञानिक, अधिकारी एवं कर्मचारियों के बच्चों की हिन्दी में अभिरूची हेतु बाल प्रतियोगिता का आयोजन हुआ जिसमें हिन्दी काव्य पाठ, प्रश्नोत्तरी, हिन्दी में पत्र लेखन तथा स्वरचित कविता पाठ की प्रतियोगिता हुई। सफल बाल प्रतिभागियों को पुरस्कार वितरण किये गये। 21–सितम्बर 2015 को एक दिवसीय राजभाषा हिन्दी संगोष्ठी एवं पॉवर पॉइंट प्रस्तुतीकरण किया गया। इस संगोष्ठी में कार्यालय में हिन्दी के और अधिक प्रयोग पर सभी लोगो को ज्यादा ध्यान देने की आवश्यकता पर जोर दिया गया। हिन्दी पखवाड़े के दौरान अनेक प्रतियोगिता का जैसे वाद–विवाद, तत्काल/आशु भाषण, टिप्पणी–लेखन, कर्मचारी–वर्ग हेतु हिन्दी लेखन प्रतियोगिता, निबन्ध लेखन का अयोजन किया गया।



Important Event

इन प्रतियोगिताओं में कार्यरत वैज्ञानिक, अधिकारी कर्मचारी, एवं अनुसंधान अध्येता वर्ग के लोगो ने काफी संख्या में हिस्सा लिया। निदेशक महोदय ने संस्थान के सभी कर्मचारियों को हिन्दी में कार्य करने के लिए विशेष तौर पर प्रेरित किया तथा मानक वर्तनी के प्रयोग को वैज्ञानिक लेखो में बढ़ावा देने पर बल दिया। राजभाषा हिन्दी के प्रभारी डॉ. बृजेश कुमार मिश्र ने विभिन्न कार्यक्रमों के सफल आयोजन हेतु केन्द्र के निदेशक डा. बलराज सिंह के मार्गदर्शन को रेखांकित करते हुए निर्णायक मण्डल के सदस्यों डा. बलराज सिंह, डा. गोपाल लाल, डा.आर.के.कांकाणी, डा. युगल किशोर शर्मा तथा डा. रविन्द्र सिंह का विशेष आभार व्यक्त किया। सफल प्रतिभागियों को पुरूस्कार प्रदान किये गये तथा समस्त वैज्ञानिकों, अधिकारियों एवं कर्मचारियों को इस हिन्दी पखवाड़ा कार्यक्रम को सफल बनाने के लिए धन्यवाद दिया गया।

हिन्दी पखवाड़ा कार्यक्रम–2015 के विजेता प्रतिभागियों की सूची

क्र.सं.	कार्यक्रम	विजेता प्रतिभागी का नाम
1	वाद–विवाद प्रतियोगिता: पक्ष एवं विपक्ष	प्रथम: लोकेश कुमार शर्मा/डा. सुरेन्द्र सिंह राठौर द्वितीय: जी.के.त्रिपाठी/धर्मेश जैन तृतीय:आर.डी.मीणा
2	तत्काल/आशु भाषण प्रतियोगिता	प्रथम: सुरेनद्र सिंह राठौर, द्वितीय: कु. अदिती त्रिपाठी, तृतीय:सुनील कुमार अग्रवाल
3	टिप्पणी लेखन प्रतियोगिता	प्रथम: आर.डी.मीणा, द्वितीय: सुनील कुमार अग्रवाल, तृतीय:अमित गुप्ता
4	सहायक कर्मचारी–वर्ग हेतु हिन्दी लेखन प्रतियोगिता	प्रथम: राजकुमार कांवरिया, द्वितीय: अमित गुप्ता, तृतीय:मुकेश कंडारी/सरला बाई
5	निबन्ध लेखन	प्रथम: एम के विशाल, द्वितीय: डा.राधेश्याम शर्मा, तृतीय:डा. रामस्वरूप मीना
6	पॉवर पोइंट प्रस्तुतिकरण	प्रथम: सियाराम मीना, द्वितीय: डा. अरविन्द कुमार वर्मा, तृतीय:गीतिका जेठरा





Important Event

Rashtriya Kisan Beej Mela Evam Krishak Mahaotsav-2015

Rashtriya Kisan Beej Mela Evam Krishak Mahaotsav-2015 was organized during 28-30, September, 2015 at National Research Centre on Seed Spices, Ajmer (Rajasthan). The Mela and exhibition was inaugurated by Prof. Sanwar Lal Ji Jat, Honorable Minister of State for Water Resources, River Development and Ganga Rejuvenation, Govt. of India on 28th September, 2015 at 11.00 AM in the presence of Guests of Honour Sh. Dilip Pachar, Pradhan, Panchyat Samiti, Pisangan, District Ajmer, Dr. S.M.K Naqvi, Director, Central Sheep and Wool Research Institute, Avikanagar. Dr. R.H Dahiya, Director, International Horticultural Innovation and Training Centre, Durgapura, Jaipur, Rajasthan. Dr. Balraj Singh, Director, NRCSS, Ajmer welcomed all the distinguished guests, delegates and farmer participants. While addressing, Dr. Balraj Singh highlighted upon the achievements made by NRCSS that positively on tributed towards enhancing productivity of seed spices in Rajasthan and India. He also advised farmers to use ACr-1 variety of coriander that possess higher yield and resistance to stem gall. In the inaugural function a book on "*Vyavasaik Krishi Ke Paripaksh Me Masala Phasale*", a pumphlet on "*Gunvatayukt Bijya Masala Phasalo Ki Utapdan Prodyoghiki*" and a bulletin on "Seed Spice diseases and their management" were released for the benefit of the farmers. In the Kisan Gosthi, Scientists-farmers' interaction on various major problems in respect of seed spices and other crops was conducted. Dr. Balraj Singh, Director, NRCSS, Ajmer also suggested farmers to include seed spices in their cropping system for realizing higher profit. Prof. Sanwar Lal Ji Jat advised farmers to use water efficiently by adopting micro irrigation practices like drip and sprinkler irrigation. He also suggested to include seed spices in their cropping system so that more economic benefit can be obtained with less use of water. Sh. Dilip Pachar pointed out that farmers should increase production and productivity of seed spices with adoption of technologies developed by the scientists of National Research Centre on Seed Spices, Ajmer. Dr. R.H. Dahiya, Director, IHITC, Jaipur advised farmers to take seed spices with other horticultural crops so that resource use efficiency can be enhanced. Dr. S.M. K. Naqvi, thrown light on use of straw residue of seed spices in preparation of nutritional feed block so that nutritious and delicious feed can be made available for animals. During three days, programme, lectures were delivered by the scientists ofIARI, New Delhi, KVK, Ajmer and State department of agriculture, & NRCSS, Ajmer.





Inauguration of Kisan Mela and Krishak Mahaotsav-2015

Important Event

Rashtriya Kisan Beej Mela and Krishak Mahaotsav-2015

Scientists delivered lectures on various aspects of seed spice production, crop raising, flower and vegetable cultivation and animal rearing. In farmers and scientist interaction, feedback from farmers regarding various issues of crop and seed spices production were taken. Progressive farmers in seed spice production were recognized and honoured. About 25 exhibition stall representing from different ICAR institutes of Rajasthan, development departments and private agencies were exhibited for the benefit of the farmers. In the mela about 3500 farmers, extension officials, scientists and other delegates from Rajasthan and adjoining states like MP, Delhi and Gujarat had participated. In the Valedictory function Dr. Ram Chandra Choudhary, Chairman Ajmer dairy was the Chief Guest, Dr. Virendra Kumar Sharma Vice Chancellor, was president and Dr. V.K. Sharma, Deputy Director (Agriculture), Ajmer Rajasthan was Guest of Honour. Dr Ram Chandra Choudhury, advised farmers to rear good breed of livestock for enhancing their income. Dr. Balraj Singh advised farmers to take improved varieties of seed spices and adopt technologies on production and protection of seed spices developed by NRCSS, Ajmer. Dr. R.S. Mehta, Principal Scientist (Agronomy) was the Convener of the Mela and proposed vote of thanks to the dignitaries and all participants.





Prof. Sawarlal Jat, Chief Guest addressing the participants of the mela-2015





Prof. Sawarlal Jat honourable minister of state, Govt. of India at Knowledge Park, NRCSS

Important Event

Two days seminar on improved seed production technology for tribal farmers.

Two days seminar on "Improved Seed Spices Production Technology for Tribal Farmers" was organized (During the *Rashtriya Kisan Beej Mela evam Krishak Mahaotsav*-2015) on 28 & 29 September, 2015 at NRCSS, Ajmer. In this seminar 163 farmers and officials of KVKs from Dungarpur, Banswara and Pratapgarh were participated. Lectures on different aspects of seed spices production were delivered by the expert personnels of NRCSS, Ajmer, KVK, Ajmer and state department of agriculture. During the seminar problems and prospects of seed spices in tribal area were discussed. Dr. Balraj Singh, Director, NRCSS was the Chief Guest in valedictory function of the seminar on 29.09.2015 at 3.00 PM in the auditorium and Dr. V.K. Sharma, Deputy Director, Agriculture, Ajmer was Guest of Honour. Dr. G. Lal Principal Scientist (Hort.) and Organizing Secretary of the seminar convened the function. Dr. G. Lal welcomed all the participants of the seminar and appraised in brief about the seminar. Dr. V.K. Sharma, Guest of Honour, advised farmers to take up seed spices as an important enterprise in their cropping system. Dr. Balraj Sing Chief Guest of the function and Director NRCSS, highlighted the important achievements made by NRCSS for promotion of seed spice cultivation in tribal area. He advised farmers to take newly developed varieties of seed spices for enhancing production and productivity of seed spices. He also advised farmers to adopt protected cultivation of seed spices and vegetables. Farmers from tribal area also gave their feed back on performance of seed spices in the tribal area. Certificates were given to participants of the seminar. At the end Dr. G. Lal, Organizing Secretary rendered vote of thanks to the dignitaries and participants of the seminar.



Dr. G. Lal delivering lecture in seminar for tribal farmers

Important Event

Celebration of Vigilance Awareness Week-2015

Vigilance Awareness Week-2015 was observed during 26th – 31st October, 2015. The main focus of Vigilance Awareness Week was "Preventive vigilance- as a tool of good governance". During this week different activities like oath taking, essay writing, debate competitions and paragraph writing were organized. The themes of debate competition, essay writing and paragraph writing were: Preventive vigilance as a tool of good governance, Role of vigilance awareness in good governance and Vigilance Awareness: Duties of a common man, respectively. Officials of NRCSS, Ajmer participated in these events and prizes were also given to winners in different activities. During the week posters at important places were also displayed for creating awareness against corruption. On 31st October, 2015 a seminar on preventive vigilance as a tool of good governance was also organized. In the Seminar Dr. Balraj Singh, Director, NRCSS, Ajmer delivered very useful talk. He throw light on different facet of corruption for creating awareness against the corruption in our country. He highlighted the magnitude of corruption in India and World and compared the position of corruption in India with respect to other developing and developed countries of the world. He asked the officials of NRCSS for adopting various techniques of preventive vigilance, so that issue of vigilance may not arise for facilitating good governance in the organization.



Debate competition & Seminar on Preventive vigilance as a tool of good governance

Research Highlights

Abiotic and edaphic stresses: Proving causes of reddening and nonpathogenic mortality in cumin seedlings

O.P. Aishwath

Cumin wilt or reddening appears at juvenile stage, possible causes were explored like plant factors (age, root and shoot), edaphic factor (soil compaction, temperature and moisture) environment factor (temperature variation and humidity) besides the biotic factors. Root and shoot morphology was studied under compact or porous soil conditions and it has been observed that suppression of root growth beyond 5.0 cm depth due to higher compaction (BD 1.62cc) leads to wilt in plants. In the soil moisture study, it has been found that if moisture per cent went below 7 or above 8 caused reddening and ultimately wilting takes place. However, minimum and maximum soil surface temperature variation recorded ≈ 12-18 ^{o}C caused to reddening of seedlings, while prolong reddening causing seedlings mortality. Interaction of soil moisture and soil temperature beyond a certain level triggers reddening and seedlings mortality. Based on the findings of various investigations, Autecological equations were drawn for showing linking links of cumin mortality. Maintaining proper soil moisture and bulk density at ICAR-NRCSS farm and farmer's fields overcomes the problems of stresses induced physiological mortality and also improves vigor of cumin crop. Even maintaining proper soil porosity alone by incorporation of crop or weeds residues leads to improvement in yield from 2.5 q ha^{-1} to 5.0 q ha^{-1}. Moreover, this yield gap was more at farmer's fields. Hence, this technology gaining popularity among the cumin growers as it is multifaceted useful to them 1. Utilizes useless crop residue or weeds for useful means, 2. Improves the soil physical properties and ultimately cumin yield, 3. Decomposition of crop/weed residues improves the chemical properties of soil leads to a residual cum beneficial effect on succeeding crops and 4. This also an ecofriendly, economic and easily adoptive approach to farmers. This is an outcome from last five years studies conducted in lab, pot and field experiments.



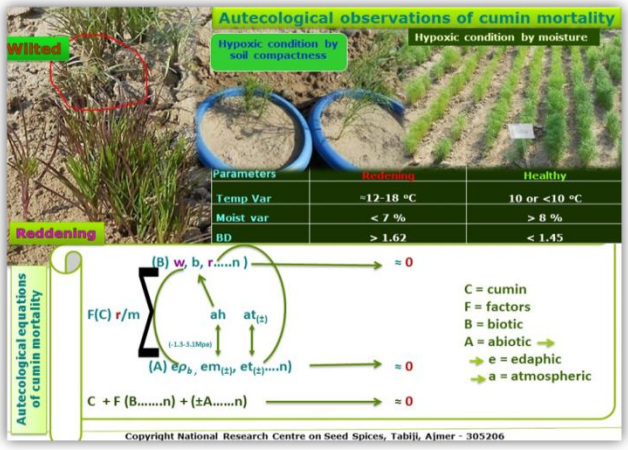


Fig. 1. Cumin crop stand at farmer's fields: Left side without incorporation of crop/weed residues and right side with crop/weed residues under in environment of Merta region.





Fig. 2. Cumin crop with and without crop residues at ICAR-NRCSS, Ajmer farm and also along with various irrigation methods.

Transfer of Technology

पाँच दिवसीय प्रशिक्षण कार्यक्रम ''बीजीय मसाला फसलों की उन्नत उत्पादन तकनीकी'' का आयोजन

पाँच दिवसीय प्रशिक्षण कार्यक्रम ''बीजीय मसाला फसलों की उन्नत उत्पादन तकनीकी'' का आयोजन दिनांक 5–9 अक्टूबर, 2015 के दौरान भा.कृ.अनु.प.–राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, अजमेर, (राज.) में किया गया। इस पांच दिवसीय कृषक प्रशिक्षण कार्यक्रम के निदेशक डॉ. बलराज सिंह (निदेशक) प्रशिक्षण समन्वयक डॉ. गोपाल लाल (प्रधान वैज्ञानिक) डॉ. बी.के. मिश्र (वरिष्ठ वैज्ञानिक) डॉ आर के सोलंकी (वैज्ञानिक) थे। इस प्रशिक्षण कार्यक्रम का प्रायोजन उप निदेशक, कृषि एंव पदेन परियोजना निदेशक, आत्मा, टोंक (राजस्थान) द्वारा किया गया था। प्रशिक्षण कार्यक्रम के दौरान प्रतिभागी किसानों को मसाला उत्पादकता वृद्धि हेतु नवीनतम कृषि विधाओं के बारें में विभिन्न विषय विशेषज्ञों ने पॉवर पॉइंट प्रस्तुतिकरण एवं व्याख्यानों के जरिये सारगर्भित जानकारी प्रदान की। इस कार्यक्रम में टोंक जिले की विभिन्न तहसीलों से कुल 32 प्रगतिशील कृषको ने हिस्सा लिया। इन पांच दिनों में प्रतिभागी किसानो को अनेक विषयों जैसेः बीजीय मसाला फसलों का उत्पादन बीजीय मसाला फसलों में अंतः सस्य प्रणाली बीजीय मसाला फसलों में संरक्षित खेती आदर्श जल प्रबंधन और संरक्षण तकनीकों के माध्यम से बीजीय मसालों की गुणवत्ता उत्पादकता बीजीय मसाला फसलों में मृदा उर्वरता और प्रमुख पोषक तत्वों का प्रबंधन बीजीय मसाला फसलों में समेकित कीट प्रबंधन मृदा सौरीकरण द्वारा बीजीय मसालों में मृदा जनित रोग, खरपतवार एवं कीटों का प्रबंधन पशु पालन एवं मिश्रित खेती का महत्व राजस्थान के प्रमुख रबी फसलों की उन्नत सस्य क्रियायें बीजीय मसाला फसलों के लिए मूल्य संवर्धन की उपयोगिता पुष्पों की उन्नत उत्पादन तकनीकी पर प्रशिक्षण दिया गया। समापन समारोह कार्यक्रम के अध्यक्ष डा. गोपाल लाल ने प्रतिभागी कृषको को प्रमाण –पत्र एवं पुरुस्कार वितरित किये एंव डा. बृजेश कुमार मिश्र ने धन्यवाद ज्ञापित किया।







Transfer of Technology

Five days farmers training on"*Beejya Masala Phasalon ki Vaigyanik Kheti" sponsored by* PD- ATMA, Hanumangarh

A five days farmers training programme from 27th October, 2015 to 01st November, 2015 was organized for the farmers of Hanumangarh district, Rajasthan at ICAR-NRC on Seed Spices, Tabiji, Ajmer under the financial assistance of Project Director, ATMA, Hanumangarh. In the programme, 34 farmers from different villages of Hanumangarh district along with 2 state department officials had actively participated and gained technical know how on "बीजीय मसाला फसलों की वैज्ञानिक खेती". During the event, expert personnel's from seed spices crop production, crop improvement, protection, post harvest processing, floriculture, vegetable cultivation, protected cultivation and animal husbandry had been invited to deliver and impart training on the above aspects so as to equip and update the farmers with recent advanced technologies and provide means to improve their economic wellbeing substantially. With a presumption of evaluating the gain in technical knowledge among the farmer participants, pre and post training examinations were conducted and interestingly the results reflected the fruitfulness of the training programme among the 80 per cent of the participants. Ultimately with positive feedback and realization among the farmer participants about their hazardous plant protection measures in pest management and other production practices, the farmer participants assured of following and sharing the gained scientific knowledge in their day to day venture for achieving sustainable economical production.





Inagural function of five days training sponsored by PD-ATMA, Hanumangarh

Transfer of Technology

Five days farmers training on"*Bijya Masala PhasalonKeUtapadan Ki Unnat Takinikiyan*"sponsored by PD- ATMA, Nagaur.

A training programme of five days duration from 27th Oct, 2015 to 01st Nov, 2015 was organized for the farmers of Nagaur district of Rajasthan at ICAR-NRC on Seed Spices, Tabiji, Ajmer sponsored by Project Director, ATMA, Nagaur. In the programme, 30 farmers from different villages of Nagore district along with one state department official actively participated and gained technical know how on "*Bijya Masala Phaslon Ke Utapadan Ki Unnat Takinikiyan*".During the event, resource persons from NRCSS, and KVK Ajmer were invited to impart training on seed spices production, crop improvement, protection, post-harvest processing, floriculture, vegetable cultivation, protected cultivation and animal husbandry to equip and update the farmers with recent advanced technologies. With a presumption of evaluating the gain in technical knowledge among the farmer participants, pre and post training examinations were conducted and interestingly the results reflected the fruitfulness of the training programme among the 80 per cent of the participants. The farmers who got first, second and third position were also recognised during valedictory function of the training programme. Ultimately with positive feedback and realization among the farmer participants about their hazardous plant protection measures in pest management and other production practices, the farmer participants assured of following and sharing the gained scientific knowledge in their day to day venture for achieving sustainable and economical production.



Price distribution to farmer by Director, NRCSS



Participant receiving certificate

Human Resource Development

Hello Kisan programme on DD Kisan Channel

Sr. No	Name of expert	Title of talk	Date	Media
1.	Dr.Balraj Singh & Dr.R.S.Mehta	Spice cultivation and water conservation	24.06.2015 at 6.00 to 7.00 PM	DD Kisan Channel in Hello Kisan programme
2.	Dr.Balraj Singh	Protected Cultivation	13.07.2015 at 6.00-7.00PM	DD Kisan Channel in Hello Kisan programme
3.	Dr.Balraj Singh	Protected cultivation of all types of horticultural crops	31.08.2015 at 6.00-7.00PM	DD Kisan Channel in Hello Kisan programme
4.	Dr. R.S.Mehta	Cultivation of Spice crops	2.09.2015 at 6.00 to 7.00 PM	DD Kisan Channel in Hello Kisan programme
5.	Dr.Balraj Singh	Commercial cultivation of Seed Spices	23.09.2015 at 6.00-7.00PM	DD Kisan Channel in Hello Kisan programme

Training/ short course attended

❖Mr. Siya Ram Meena, Sr. Tech. Officer attended short course on "Recent Advances in Mass Production of Bio control agents" at ICAR-National Research Centre for IPM, New Delhi, for 10 days (1 to 10 September).

❖Dr. Sharda Choudhary, Scientist, Biotechnology attended 21 days winter school on "Advances in Improvement of Vegetable Crops Using Biotechnological approaches" from September 18 to October 8, 2015 Sponsored by Indian Council of Agricultural Research, at Division of Vegetable Science, IARI, New Delhi

Symposia/seminars/conferences/workshop attended

❖Dr. R. D. Meena (Scientist), Plant Pathology attended a Workshop "Rapid Diagnostic Tools for *Phytophthora*" held on 8th September 2015 and also participated in "3rd International Symposium on *Phytophthora*: Taxonomy, Genomics, Pathogenicity, Resistance and Diseases Management" held at Indian Institute of Horticultural Research, Bangaluru from 9th to 12th September, 2015.

Alkylenebis (dithiocarbamates) residue analysis laboratory established

An analytical facility for estimation of dithiocarbamates fungicides residue in cumin and coriander seeds have been established and made functional in the institute. Dithiocarbamates commonly known with the generic name mancozeb ie. maneb, zineb, metiram, propineb are mostly used for the management of fungal diseases in seed spice crops. To harmonize and control the pesticide residue load in the harvested crops and guide the users towards proper management of pesticide residue load in the crop, this facility will be of immense help.



From the Director's Desk



ICAR – National Research Centre on Seed Spices, Ajmer since its inception is dedicatedly working towards the upliftment of seed spices stakeholders of the country. Over the recent years due to visible transformations, tremendous achievements have recognized NRCSS as a Flagship Institute under Horticulture Science of Indian Council of Agricultural Research, New Delhi. Being one of the premier farming and farmer oriented National Research Institute, any activity performed towards strengthening its stakeholders will be celebrated on festival mode with complete determination and enthusiasm from all the family members of the Centre.

As like previous year, in the present year under the chairmanship of Prof. Sanwar Lal Ji Jat, Honb'le Minister of State for Water Resources, River Development and Ganga Rejuvenation, GOI and other distinguished delegates of state and national importance, it was possible for the centre to celebrate one such mega fair "*Rashtriya Kisan Beej Mela Evam Krishak Mahaotsav*" and facilitate the farmers with quality planting materials, farm inputs and technical knowledge on one hand to improve their farm productivity and on the other hand the fair also served as a platform to honour and reward identified progressive farmers for their dedication and innovative farming. Despite of participation by the scientific experts of the centre in Live DD Kisan Television programs and farmer fairs, to be much more efficient in technology delivery and equip its stake holders with recent advancements, the centre hosted many five day residential training programmes and crop seminars for the farmers of neighboring province during the present period. With these efforts towards upliftment of its stakeholders, the centre also conducted many reward oriented debate, essay writing and paragraph writing competitions to all of its staff members while celebrating "Rajbhasha Hindi Pakhwada" during 15th – 30th Sept, 2015 and "Vigilance Awareness Week" during 26th – 31st Oct, 2015.

Cumin being an important export oriented crop, back in its habitat and under cultivation its immune is tested by majority of biotic and abiotic factors. In this regard, possible causes for reddening and nonpathogenic mortality of cumin seedlings under the present scenario of climate change have been explored by the scientist of the centre. Hence with the advancements in major challenges, simultaneous and further advanced scientific innovations and solutions are of immense need. In this line, few scientists and technical officer of the centre were able to equip, update and share the advanced technologies and instrumentations by participating in winter school, workshop, symposium and short course at various reputed institutes. With the growing concern and awareness on pesticide residues in our daily diet and foreign trade, as a means to have an overview on residual status of dithiocarbamate group of pesticide residues in seed spices, especially in major export earning crops like cumin and coriander of the region, I am happy to convey that an analytical laboratory with basic amenities for estimation of dithiocarbamate fungicides have been made functional at the centre.



Balraj Singh