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## 11. RAC and IRC Meetings

### 11.1 RAC Meetings

The 1<sup>st</sup> Meeting of 5<sup>th</sup> Research Advisory Committee of ICAR-NRCSS, Ajmer was held at the centre from 2-3 March, 2015 under the Chairmanship of Dr. B.B. Vashishtha, Ex-Director NRCSS, Ajmer. The other dignified RAC Members present in the meeting were Dr. M. Anandraj, Director IISR, Calicut; Dr. Jitendra Kumar, Director DMAPR, Anand; Dr. E.V.D. Sastri, Professor RARI, Durgapura; Dr. A.N. Maurya, Ex-Director, Institute of Agricultural Science, BHU, Varanasi; Dr. R.C. Dhadhich, Ex-Prof & Head, Dept. of Agronomy, MPUAT, Udaipur. In the meeting, from the centre Dr Balraj Singh, Director, ICAR-NRCSS was the Ex-Officio member and Dr. Gopal Lal, Principal Scientist was the Member Secretary, RAC. All the Scientists of centre were also present in the meeting.

To start with, RAC members visited the NRCSS Research Farm in the forenoon of 02.03.2015, respective scientists explained about the on-going research programmes before the committee. A healthy interactive session was held on the research farm, all the committee members appreciated the on-going activities and also suggested few points for improvement. After, field visit the meeting was commenced in the Committee Hall to brief about the ongoing research projects, salient findings and recommendation originated during for the academic year 2013-14.

Dr. Balraj Singh welcomed the Chairman and all the Members of the RAC. Honourable Chairman Dr. B. B. Vashishtha, in the opening remarks again appreciated the conduct of research trials carried out at centre. His notes, emphasized the importance of India as the leading



country with respect to production and export of seed spices and showed his concern to target quality aspects in these crops looking to the present scenario of international trade and marketing. Specified needs were also urged by him for evolving new varieties targeting, efficient production and protection technologies for sustainability of seed spices.

In continuation, Director NRCSS presented a glimpse of activities being undertaken by the centre including the ongoing programmes, salient achievements, status of plant genetic resources, varieties developed, standardized production and protection technologies, post-harvest management, value addition, ToT programmes and upcoming challenges cum strategies.

Before the presentation of research achievements for the year 2013-14 by each scientist, Dr. Gopal Lal, Member Secretary, RAC presented the action taken report of 3<sup>rd</sup> meeting of IV RAC, which was held during April 1-2, 2014 under the Chairmanship of Dr. V. A. Parthasarthy and the same was approved by the committee.

After approval of action taken report all the Principal Investigators of the research projects presented their research work and comments and recommendations made by RAC are enlisted here under:

1. The time spent on each project may be rationalized, so as to justify the time given for the research and other jobs of the Centre. Names of the scientists not directly related or contributing for the project may be withdrawn.
2. Inbred lines having desired characters should be used for heterosis breeding. To begin with, the work can be initiated in fennel.
3. Molecular markers may be developed to identify seed spices' varieties/accessions to help the breeders in marker assisted selection (MAS). Such markers can also be used to protect the selected varieties/accessions to safeguard IPR through PPV & FRA.
4. Germplasm exchange through the established channels may be obtained to enhance genetic base of seed spices.
5. While making value added products the provisions of



Food Safety and Standard Authority of India (FSSAI) may be confirmed.

6. The soil factors predisposing to *Fusarium* wilt may be elucidated. While working with newer isolates of PGPR the efficient isolates developed and tested for seed spices under AICRPS may be included as National check treatment.
7. Committee stressed the need for mission mode approach for problem solving and reiterated the QRT recommendation and the ICAR comments on that.

The first meeting of V RAC ended on 3<sup>rd</sup> March 2015 with the vote of thanks to Chairman, all the members and Director NRCSS by Dr. Gopal Lal, Member Secretary.

#### RAC members

S.No.	Name	Position
1	Dr. B.B. Vashishtha	Chairman
2	Dr. M. Anandraj	Member
3	Dr. Jitendra Kumar	Member
4	Dr. A.N. Mourya	Member
5	Dr. E.V.D. Shastri	Member
6	Dr. R.C. Dadhich	Member
7	Sh. D.A. Patel	Member
8	Sh. Subhash Meghwal	Member
9	Dr. T. Jankiram	Ex Officio Member
10	Dr. Balraj Singh	Ex Officio-Member
11	Dr. Gopal Lal	Member Secretary

#### 14<sup>th</sup> IRC Meeting, held on 5 May, 2014 and 29-30 Aug., 2014

The XIV (I) & XIV (II) Institute Research Council (IRC) meeting were held under the chairmanship of Dr. Balraj Singh, Director, NRCSS on 5<sup>th</sup> May, 2014 & 29-30<sup>th</sup> August, 2014 to discuss the recommendations made by XII RAC and to review the progress of ongoing in-house (Institutional) research projects as well as externally funded projects undergoing at NRCSS respectively. In the meeting, new project proposals were discussed and approved. All scientists and Technical Officers of ICAR-NRC on Seed Spices participated in the meetings. Apart from these five external members (Dr. Sai Das, Former Director, Directorate of Maize Research, New Delhi; Dr. M. D. Arha, Former Professor and Head, Seed Production Unit, SDAU, Dantiwada; Dr. R. S. Rathore, Retd. Professor & Head, Department of Plant Pathology, RCA, MPUAT,

Udaipur; Dr. B. R. Choudhary, Director Research, Jodhpur Agril. University, Mandor, Jodhpur and Dr. B. S. Tomar, Principal Scientist, IARI, New Delhi] were invited in XIV (II) IRC meeting held on 29-30 August, 2014.

In XIV (I) IRC meeting, Dr Y.K. Sharma (I/C PME Cell) presented the recommendations made by XII RAC and detail discussions were carried out in the house for incorporating all the suggestions/recommendations made by RAC in the research programmes.

In XIV (II) IRC meeting, Chairman IRC, Dr. Balraj Singh welcomed and introduced all the invited external members. In the opening remarks the Chairman briefed about the status of research and development activities undergoing at ICAR-NRC on Seed Spices, Ajmer. He also briefed about the reorganization and consolidation of number of Institute Research Projects as per the guidelines of ICAR vide letter No. F.No. Hort-1, 5-35/2014 dated 22.8.2014. All the ongoing projects will become part of the new six research projects. The chairman also highlighted various network and platform research programmes which are also approved in 12<sup>th</sup> Plan budget in which NRCSS is a partner. He advised to the concerned PIs of the network and platform research programmes to maintain all records related to the project and to intimate the progress periodically. During the meeting the progress of the ongoing sub-projects were presented by individual scientist working in different sections i.e., Crop Improvement, Crop Production, Crop Protection, Basic Sciences and Social Sciences. The progress of each projects were reviewed and thoroughly discussed in the house. Meeting ended with the vote of thanks to the chair and members.



### List of Research Programmes

Project 1: Conservation characterization and utilization of genetic resources in seed spices.

CI-1: Management of plant genetic resources of seed spices

(R.K. Kakani; R.S. Meena, R. K. Solanki, S.S. Meena, Y. K. Sharma, S. Choudhary, A. K. Verma, Harisha C.B., H. Asangi and Diwakar Y.; 20014-19)

CI-20: Cytogenetical and biochemical characterization of cumin:

(R. K. Solanki; S. S. Rathore; 2012-16)

Project 2: Genetic improvement of seed spices for improving productivity, quality and tolerance to biotic and abiotic stresses.

CI-4: Breeding for high yield, quality and resistance to biotic and abiotic stress in fennel:

(R.S. Meena; R. K. Kakani, R.S. Mehta, S. N. Saxena, R.D. Meena, Krishna Kant and Sharda Choudhary; 2009-15)

CI-7: Breeding for high yield, quality and resistance to biotic and abiotic stress in celery:

(R.S. Meena; R.K. Kakani, R.D. Meena, S. Choudhary and K. Kant; 2009-15)

CI-8: Breeding for high yield and quality in dill (*Anethum graveolens* L and *Anethum sowa* Kurz.):

(R.K. Kakani; R.S. Meena and Y.K. Sharma; 2009-15)

CI-9: Breeding for high yield and improved quality in ajwain for Rabi and Kharif season:

(S.S. Meena; R.K. Kakani, R.S. Meena, R.D. Meena, K. Kant and R.S. Mehta; 2008-15)

CI-15: Genetic enhancement of anise for yield and yield contributing traits:

(R.K. Solanki; O.P. Aishwath; 2011-16)

CI-18: Genomic study of seed spices (Fennel and Coriander):

(S. Choudhary; M.K. Vishal; 2012-15)

CI-19: Enhancing genetic variability in cumin:

(R.K. Solanki, R.S. Meena, Y.K. Sharma, R.K. Kakani, Arvind K. Verma, H. S. Mahla; 2012-18)

CI/13.2.1: Breeding for high yield, powdery mildew

resistance and suitability to limited moisture condition in fenugreek

(R.K. Kakani; S.N. Saxena, R.K. Solanki, Y.K. Sharma, S.S. Rathore, R. S. Mehta; 2013-18)

CI/13.2.2: Breeding for high yield, small seed size and stem gall resistance in coriander:

(R.K. Kakani; Y.K. Sharma, R.S. Meena, S.N. Saxena; 2013-18)

Project 3: Development and refinement of efficient crop production technologies of seed spices.

Sub-projects:

CPd-17: Identification of critical stage for weed management in seed spices (Coriander, ajwain and fennel)

(R. Singh; G. Lal, R. S. Mehta, S. Choudhary and O. P. Aishwath; 2010-15)

CPd-18: Standardization of sustainable and profitable cropping system with fruit crops

(S.S. Meena; R.S. Mehta, G. Lal, O.P. Ashwath, R. Singh, K. Kant, R.D. Meena; 2011-15)

CPd-19: Screening of plant growth promoting rhizobacteria for coriander (*Coriandrum sativum* L.):

(B.K. Mishra; Y.K. Sharma, O.P. Aishwath, K. Kant, M.K. Vishal; 2011-15)

CPd-20: Isolation and evaluation of phosphate solubilising microorganisms for fennel (*Foeniculum vulgare* L.):

(B. K. Mishra; O.P. Aishwath and S.S. Rathore; 2011-15)

CPd-24: Fertigation scheduling for efficient nutrient and water management in major and minor seed spices:

(R. Singh; B. Singh, G. Lal, R. S. Mehta, H. Asangi and S.P. Maheriya; 2012-15)

CPd-25: Nutrient management for sustainable seed spices production (coriander and fennel):

(O.P. Aishwath; R. Singh, B.K. Mishra, R.S. Mehta, P. N. Dubey, Harisha C. B.; 2012-17)

CPd-26: Evaluation of seed spices for edaphic stress (Coriander, Cumin, Fennel, Fenugreek, Anise, Nigella and Celery):



(O.P. Aishwath; R.S. Mehta, R.K. Yadav, R.L. Meena, B.K. Jha, P. N. Dubey; 2012-17)

CPd/13.6.1: Off Season production of coriander and fenugreek for green leaf:

(G. Lal; R.S. Mehta, R. Singh, R.K. Kakani, S.S. Rathore, N.K. Meena, S.P. Maheria; 2014-17)

CPd/13.7.1: Standardization of economical intercropping system of seed spices with vegetable:

(R.S. Mehta; S.S. Meena, R. Singh, J.K. Ranjan, Harisha C. B., S.P. Maheria; 2013-15)

CPd/13.10.1: Effect of non-edible oil cakes on coriander and cumin growth and yield:

(R.S. Mehta, G.Lal, R. Singh, O.P. Aishwath, B.K. Mishra, S.S. Meena, S.S. Rathore, R.D. Meena, H. Asangi; 2013-15)

CPd/14.3.1: Micronutrient management in cumin (*Cuminum cyminum* L.) and fennel (*Foeniculum vulgare* Mill.) for higher yield and quality :{ New Sub-project)

(Harisha, C. B.; Ravinder Singh, O.P. Aishwath, S. S. Rathore, Diwakar Y. 2014-17)

Project 4: Development and refinement of efficient crop protection technologies for production of safe seed spices.

Sub-projects:

CPT-1: Survey and surveillance of existing and emerging diseases of seed spices:

(R.D. Meena; Y.K. Sharma, R.S. Meena and N.K. Meena; 2012-15)

CPT-3: Survey & surveillance of insect pests in seed spices:

(Krishna Kant; N.K. Meena and S.R. Meena; 2012-15)

CPT/13.13.1: Management studies on emerging problems in cumin and fenugreek:

(Y.K. Sharma; R.D. Meena, R.K. Solanki, R.K. Kakani; 2013-16)

CPT/13.12.1: Sustainable management of insect pests in coriander and cumin:

(N.K. Meena; K.Kant, G.Lal, S. Choudhary, and M.A. Khan; 2013-16)

CPT/13.17.1: Impact of pollinators on yield and quality of coriander, fennel, ajwain & dill:

(N.K. Meena; K. Kant, R.D. Meena, R.K. Solanki, S.S. Rathore; 2013-17)

Project 5: Development and refinement of post-harvest handling, processing and value addition techniques in seed spices.

Sub-projects:

BS-6: Quality profiling of coriander and fenugreek germplasm:

(S.S. Rathore; S.N. Saxena, R.K. Kakani and J.K. Ranjan; 2011-15)

BS-7: Biochemical basis of defense mechanism in cumin (*Cuminum cyminum* L.):

(S.S. Rathore; S.N. Saxena and Y.K. Sharma; 2011-15)

BS-8: Physiological approaches for enhancing yield and quality in seed spices under biotic stresses:

(S.N. Saxena; R.K. Kakani, S. S. Rathore, S.S. Meena, R. K. Solanki; 2012-15)

CPd/13.8.1: Development of value added products from seed spices:

(G. Lal; B.K. Mishra, N. Garg; 2014-17)

Project 6: Improving knowledge and skill of stakeholders for improving productivity of seed spices.

CPd-21: Design and development of database for seed spices.

(M. K. Vishal; G. Lal, R. K. Kakani, S.N. Saxena, Y.K. Sharma, K. Kant, J. K. Ranjan and M.A. Khan; 2011-15)

SS/13.16.1: Dissemination of seed spices production and post-harvest technology through demonstrations, trainings, workshops and seminars under NEH and TSP:

(G.Lal; R.S. Mehta, R.S. Meena, N.K. Meena, S.P. Maheria; 2014-17)



### List of External Funded project

S.No.	Title	Project Incharge	Funded agency
1.	DUS testing guideline in seed spices crops	Dr. R.S. Meena	PPVFRA, New Delhi
2.	Centrally Sponsored Scheme -MIDH Development programme on Seed Spices	Dr. Y.K. Sharma	MIDH, Through DASD, Calicut
3.	Management of pest and diseases of seed spices crops using biocontrol products through on farm demonstration at farmers fields	Dr. K. Kant	DBT, GOI, New Delhi
4.	Exploitation of seed species as a potential source of natural antioxidants, essential oil and oleoresins of enhancing export of value added products	Dr. S.N. Saxena	NMPB, AYUSH, New Delhi

### List of CRP/Network/Outreach projects of ICAR, New Delhi

Title of Project	Project Incharge	Lead Centre
Exploration of microbial diversity in Seed Spices (Cumin and Coriander) in arid and semiarid regions of Rajasthan and Gujarat	Dr. S. Choudhary	NBAIM, Mau Nath Bhanjan
Outreach Programme on Management of Sucking Pests in Horticultural Crops (ORP-SP)	Dr. K. Kant	IIHR, Bangalore
Consortium Research Platform on Borers in Network Mode	Dr. K. Kant	IIHR, Bangalore
Development of Organic Production Technologies for Seed Spices under net-work project on organic horticulture	Dr. R.S. Mehta	IISR, Calicut
Outreach Project on Phytophthora, Fusarium and Ralstonia diseases of Horticultural & Field crops	Dr. Y.K. Sharma	IISR, Calicut
Phytochemicals/Hi-value compounds	Dr. S.S. Rathore	IISR, Calicut
Micronutrient management in horticultural crops (Seed Spices) for enhancing yield and quality	Dr. Q.P. Alshwath	IIHR, Bangalore
Standardization of production technologies for seed spices under protected conditions	Dr. Balraj Singh & Dr. Ravindra Singh	IIHR, Bangalore
Regeneration and characterization of ten seed spices germplasm	Dr. R.K. Kakani	NBPGR, New Delhi



## 12. Training and Capacity Building Programmes Attended

### 12.1 Training (International):

S.No.	Name of participant	Name of Training Programme/ Venue	Period
1.	Dr. P. N. Dubey & Dr. B. K. Mishra	"International Training programme on Pest Risk Analysis" jointly organized by USDA, USAID and Govt. of India at NIPHM, Hyderabad	Sept 1-5, 2014

### 12.2 Training/Refresher course (National)

S.No.	Name of the participant	Name of the Training Programme/ Venue	Period
1.	Dr. Balraj Singh	Training on "Project formulation and Appraisal" held at ISTM, New Delhi.	Jun 12-13, 2014
2.	Dr. R. S. Mehta	Training on "Leadership Development (a Pre-RMP Programme)" held at NAARM ,Hyderabad	Jul 15-26, 2014
3.	Dr. O.P.Aishwath	ICAR short course on 'Advances in nutrient dynamics in soil-plant atmosphere system for improving nutrient use efficiency' held at IISS, Bhopal.	Nov 02, 2014
4.	Dr. R. K. Solanki	RNA-Interference as a tool for plant functional genomics and crop improvement	May 6-25, 2015
5.	Dr. A. K. Verma	Professional Attachment Training on "Mutation Breeding Approaches for Crop Improvement at Bhabha Atomic Research Centre (BARC), Mumbai, Maharashtra. National Training on Pre & Post Harvest Management Techniques for Seed Quality Assurance, at National Seed Research and Training Centre, Varanasi, U.P.	May 12- Aug 11, 2014  Mar 9-13, 2015
6.	Sh. Diwakar Y.	Professional attachment training at AINP, Pesticide Residue Analysis Laboratory, Anand Agricultural University, Anand, Gujarat.	May 12-Aug 11, 2014
7.	Sh. Honnappa Asangi	Professional Attachment Training at Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad.	May 12-Aug 11, 2014
8.	Sh. Harisha C. B.	Professional Attachment Training at Department of Agricultural Chemistry and Soil Science, Micronutrient Laboratory, AAU, Anand, Gujarat.	May 12-Aug 11, 2014



## 12.3 Conference/Seminar / Symposia / Workshop/ Meetings

Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
Dr. Balraj Singh	International symposium on "Innovations in Horticulture for Nutritional Security, Conserving Biodiversity and Poverty Alleviation" held at BBAU, Lucknow.	Oct 16-18, 2014
	3rd International Conference on Agriculture and Horticulture at HICC, Hyderabad.	Oct 27-29, 2014
	International Conference on Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management at MPUA&T, Udaipur.	Nov 27-29, 2014
	National Seminar cum Workshop on "Strategies for improvement, enhancing productivity and utilization of cucurbits", IIHR, Regional Station, Bhubaneswar.	Aug 9, 2014
	6th Horticulture Congress held at TNAU, Coimbatore (TN).	Nov 6-9, 2014
	Silver Jubilee Symposium on "Strategic Approaches for Horticulture Research, Education and Development-Way Forward" held at NAAS, New Delhi.	Dec 26-27, 2014
	Quality Hybrid Seed Production of Vegetables under Protected Conditions at Indian Seed Congress-2015 held at Agra, Uttar Pradesh	Feb 13-14, 2015
	National Seminar on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" held at NRCSS, Tabiji, Ajmer.	Jan 19-20, 2015
	National Seminar on "Development and Export of Seed Spices", under MIDH organised by Spices Board, Govt. of India, Department of Horticulture, Govt. of Gujarat and APMC, Unjha, Gujarat.	Mar 24-25, 2015
	5th Technical Seminar on Agriculture Technology organized by Green House farmers Association held at Rajkot.	Jul 26, 2014
4th Seminar on Agricultural Technology organized by Green House Farmers Association held at Gandhinagar.	Apr 20, 2014	
2nd meeting of DAC-ICAR at State Govt. Interface held at Coconut Development, Kera Bhawan, Cochin, Kerala.	Jun 16-17, 2014	



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
	State level Seminar on "Hi-Tech Horticulture Management" held at Durgapura, Jaipur.	Feb 6-7, 2015
	National Seminar on "Strategies for enhancing production of quality spices for domestic use and export" held at SKNAU, Jobner, Rajasthan.	Mar 16-17, 2015
	National Conference on "Development & Export of Spices" organized by Spices Board and Ministry of Commerce and Industry, Govt. of India at IARI, New Delhi.	Jan 27, 2015
Dr. Gopal Lal	National Seminar on "Hi-tech horticulture for enhancing productivity, quality and rural prosperity", organised at ICAR-NRCSS.	Jan 19-20, 2015
	District level Seminar on "Quality production and post harvest management of seed spices" under Mission for Integrated Development of Horticulture (MIDH) at College of Horticulture and Forestry (Kota Agricultural University), Jhalrapatan, Jhalawar.	Feb 27-28, 2015
	First Meeting of Fifth Research Advisory Committee (V-RAC) of ICAR-NRCSS at NRCSS, Ajmer.	Mar 2-3, 2015
	XXV AICRPS Workshop organised by PC, AICRPS, Calicut at Uttarbanga Krishi Vishva Vidyalaya (UBKVV), Pundibari, Cooch Behar (WB).	Sep 25-27, 2014
	International Symposium on Innovations in Horticulture for Nutritional Security, Conserving Biodiversity and Poverty Alleviation. Organized by Department of Applied Sciences (Horticulture), School for Bio Sciences and Biotechnology at BB Ambedkar University, Lucknow.	Oct 16-18, 2014
	Farmer seminar cum exhibition at CRSS, SDAU, Jagudan, Gujarat.	Jan 2, 2015
	National Seminar on Hi-tech horticulture for enhancing productivity, quality and rural prosperity at ICAR-NRCSS, Ajmer.	Jan 19-20
	Scientific Advisory Committee meeting in respect to KVK, Danta, Barmer for the year 2014.	Apr 22, 2014
	Meeting of a committee to prepare POP of horticultural crops at Pant Krishi Bhavan, Jaipur, organised by Director (Hort), Jaipur.	Jun 04, 2014



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
	A meeting organised by Director CRIDA, Hyderabad at Pant Krishi Bhavan, Jaipur to enhance the preparedness for meeting the likely aberrant rainfall situations during the ensuing Kharif season-2014.	Jun 13, 2014
	State level awareness programme on NHB's Schemes in Rajasthan, organised by NHB (Ministry of Agriculture, Govt. of India) at Jaipur.	July 11, 2014
Dr. S. N. Saxena	National Seminar on Hi-Tech Horticulture for Enhancing Production, Quality and Rural Prosperity, held at ICAR- NRC on Seed Spices, Tabiji, Ajmer.	Jan 19-21, 2015
	Attended meeting at ICAR HQ for EFC presentation during,	Jul 7-8, 2014
	35th Project Screening Committee at meeting at AYUSH Bhavan, INA, New Delhi.	Nov 27, 2014
Dr. R. K. Kakani	Fenugreek Coordinated trial in XXV Workshop of All India Coordinated research Project on Spices held at UBKVV, Pundibairi.	Sep 25-27, 2014
	National Seminar on High Tech Horticulture for Enhancing, Productivity, quality and Rural Prosperity held at NRCSS, Ajmer.	Jan 19-20, 2015
Dr. Y. K. Sharma	Workshop on 'Priority Setting, Monitoring and Evaluation in National Agricultural Research System: Status, Experiences and Way forward' at NASC Complex, Pusa, New Delhi.	May 27, 2014
	International Workshop on Seed and seedling borne diseases of vegetable crops at NIPHM, Hyderabad.	Jun 2-5, 2014
	National Seminar on "Hi-Tech Horticulture for Enhancing Production, Quality and Rural Prosperity" at ICAR-National Research Centre on Seed Spices, Tabiji, Ajmer.	Jan 19-20, 2015
	Review Meeting of the schemes on spices & aromatic plants under NHM implemented through DASD held at Kerala Agril. University, Thrissur.	Jun 24-25, 2014
	5th Annual Review Meeting of Outreach Project on Phytophthora, Fusarium and Ralstonia diseases of Horticultural and Field crops held at ICAR-IISR, Calicut.	Mar 18, 2015
	District level seminar organized by ICAR- NRC on Seed Spices, Ajmer at College of Horticulture, Jhalawar.	Feb 27, 2015
	A Seminar organized by Spices Board, Cochin at Unjha.	Mar 24, 2015



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
Dr. R.S. Mehta	11th Rajasthan Science Congress held at Dr. K.N. Modi University, Niwai, Tonk (Rajasthan).	May 1-3, 2014
	National Seminar on "Hi-tech horticulture for enhancing productivity, quality and rural prosperity" held at NRCSS, Ajmer (Rajasthan).	Jan 19-20, 2015
	Group meeting of Net-work project on organic horticulture held at IISR, Calicut.	Aug 13, 2014
	XII Agricultural Science Congress held at ICAR-NDRI, Karnal (Haryana).	Feb 3-6, 2015
Dr. R. Singh	Workshop on "Impact of Capacity building Programs under NAIP" held at NAAS New Delhi organized by IFPRI and NAIP.	Jun 6-7, 2014
	Project Launching Workshop "New Initiative Project on Protected Horticulture" held at IIHR.	Sep 10-11, 2014
	RFD Workshop organised at NASC complex to discuss the RFD midterm achievements of ICAR institutes, under SMD Horticulture.	Nov 24, 2014
	National Seminar on "Hi-tech horticulture for enhancing productivity, quality and rural prosperity", organised at NRCSS, Ajmer.	Jan 19-20, 2015
	"3rd Rajasthan Science Congress 2015" held at Manipal University, Jaipur.	Feb 28 to Mar 2, 2015
	"Asian Solanaceous Roundtable 2014" held at Bangalore.	Sep 9-10, 2014
	3rd International Conference on "Agriculture & Horticulture" at Hyderabad International Convention Centre (HICC), India.	Oct 27-29, 2014
	International Conference on "Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management" at RCA, Maharana Pratap University of Agriculture and Technology, Udaipur.	Nov 27-29, 2014
Dr. Krishan Kant	National Entomological meets at Indian Institute of Natural Resin and Gum, Namkum, Ranchi-834010.	Feb 05-07, 2015
	International conference on changing scenario of pest problem in agri-horti ecosystem and their management. Maharana Pratap University of Agriculture & Technology, Udaipur.	Jun 27-29, 2014



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
	National Seminar on Hi tech horticulture for enhancing productivity, quality and rural prosperity. National Research Centre on Seed Spices, Tabiji, Ajmer.	Jan 19-20, 2015
Dr. O.P. Aishwath	79th Annual convention of Indian Society of Soil Science and national seminar on Developments in Soil Science held at Prof. Jayshankar Telangana State Agricultural University, Hyderabad.	Nov 24-27, 2014
	National Seminar on Hi-tech Horticulture for Enhancing Productivity Quality and Rural Prosperity held at NRCSS, Ajmer.	Jan 19-20, 2015
	National Seminar on Sustainable Management of Land Resources for Livelihood Security held at NBSS & LUP, Nagpur.	Jan 28-30, 2015
Dr. S. S. Meena	"3rd International Conference on Agriculture & Horticulture" HICC, Hyderabad.	Oct 27-29, 2014
	"Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity " on, ICAR-National Research Centre on Seed Spices, Tabiji, Ajmer.	Jan 19-20, 2015
	"XII Agricultural Science Congress" ICAR-National Dairy Research Institute, Karnal, Haryana.	Feb 3-6, 2015
Dr. S.S. Rathore	National Seminar on Hi-Tech Horticulture for Enhancing Production, Quality and Rural Prosperity, held at ICAR- NRC on Seed Spices, Tabiji, Ajmer.	Jan 19-21, 2015
	4th International Science Congress, held at Pacific University, Udaipur.	Dec 08-09, 2014
	International Conference on Agriculture, Veterinary and Life Science, held at Vikram University, Ujjain (M.P.).	Jan 30-31, 2015
	Group Meeting for Network project on High Value compounds/Phytochemicals at ICAR-IISR, Calicut (Kerala).	Aug 12, 2014
	35th Project Screening Committee at meeting at AYUSH Bhavan, INA, New Delhi.	Nov 27, 2014
Dr. B.K. Mishra	3rd International Conference on Impacting Food Value Chain and Leveraging Innovation, held at NIFTEM, Sonapat, Haryana.	Feb 26-28, 2015



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
	International Conference: Changing Scenario of Pest Problems in Agri-Horti Ecosystem and Their Management held at Department of Entomology, Rajasthan college of Agriculture, Udaipur.	Nov 27-29, 2014
	National Seminar on "Strategies for Enhancing Production of Quality Spices for Domestic Use and Export" during at SKN Agriculture University, Jobner, Rajasthan.	Mar 16-17, 2015
	21st meeting of Academic Council of Bhagwant University at Ajmer, Rajasthan.	Feb 19, 2015
Dr. P.N. Dubey	3rd International Conference on "Impacting Food Value Chain and Leveraging Innovation" held at NIFTEM, Sonapat, Haryana.	Feb 26-28, 2015
	International Conference on "Changing Scenario of Pest Problems in Agri-Horti Ecosystem and Their Management" held at Department of Entomology, Rajasthan college of Agriculture, Udaipur.	Nov 27-29, 2014
	National Seminar on "Sustainable Management of Land Resources for Livelihood Security" at ICAR-NBSS&LUP Campus, Nagpur.	Jan 28-30, 2015
	National Seminar on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" held at ICAR-NRCSS, Ajmer.	Jan 19-20, 2015
Dr. R.S. Meena	National Seminar on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" at NRCSS, Ajmer.	Feb 19-20, 2015
	DUS Meeting at Junagarh (Gujarat).	Mar 9-10, 2015
Dr. N.K. Meena	6th Indian Horticulture Congress: An International Meet-Horticulture for inclusive Growth held at CODISSIA Trade Fair Complex, Coimbatore.	Nov 6-9, 2014
	International Conference: Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management held at RCA (MPUA&T), Udaipur.	Nov 27-29, 2014
	National Seminar on Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity held at NRCSS, Ajmer.	Jan 19-20, 2015
Dr. R.K. Solanki	Winter School on New Paradigms in Heterosis Breeding: Conventional and Molecular Approaches at GBPUAT, Pant Nagar, UK	Sep 10-30, 2014
	National Seminar on Hi-Tech Horticulture for enhancing productivity, quality and rural prosperity held at NRCSS, Ajmer.	Jan 19-20, 2015



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
Dr. S. Choudhary	3rd International Conference on "Agriculture & Horticulture" at Hyderabad International Convention Centre (HICC).	Oct 27-29, 2014
	International conference on "Emerging Trends in Biotechnology and Sciences with Especial Reference to Climatic Change" at Banasthali University, Tonk, Rajasthan.	Feb 18-20, 2015
	International Conference on "Changing Scenario of Pest Problems in Agri-horti Ecosystem and their Management" at Maharana Pratap University of Agriculture and Technology, Udaipur.	Nov 27-29, 2014
	National Seminar On "Hi-tech horticulture for enhancing productivity, quality and rural prosperity" at ICAR-NRCSS, Ajmer.	Jan 19-20, 2015
Dr. R.D. Meena	National Seminar On "Hi-tech horticulture for enhancing productivity, quality and rural prosperity" at ICAR-NRCSS, Ajmer.	Jan 19-20, 2015
Sh. M.K. Vishal	Third NKN-Annual Workshop at IIT Guwahati The E4 (Encourage, Empower, Enable, Enrich) NGN Workshop.	Dec 15-17, 2014
	6th Chain-Reds workshop-"Co-ordination and Harmonization of Advanced e-Infrastructures for Research and Education Data sharing" supporting collaborative applications for global research organized under the AEGIS of the European Commission and in co-location with NKN 2014 at IIT Guwahati.	Dec 17, 2014
	workshop on Regional Training & Awareness Program on J-Gate@ CeRA on at NASC Conference Facility, New Delhi Jointly organized by ICAR-DKMA New Delhi & Informatics Publishing Ltd, Bangalore.	Sep 29, 2014
	Attended Webinar on 'Energy Efficiency in Existing Buildings', by TERI New Delhi	Dec 4, 2014
	Participated in National Seminar on "Hi-Tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity" at National Research Centre on Seed Spices, Ajmer.	Jan 19-20, 2015
	National Seminar on Sustainable Management of Land Resources for Livelihood Security during organized by ISSLUP Nagpur, Maharashtra.	Jan 28-30, 2015
Dr. A.K. Verma	6th India Horticulture Congress, TNAU, Coimbatore, Tamil Nadu.	Nov 6-9, 2014
	National Seminar on "Hi-tech Horticulture for Enhancing Productivity, Quality and Rural Prosperity", Ajmer, Rajasthan.	Jan 19-20, 2015



Name of participant	Name of Conference/Seminar / Symposia / Workshop/ Meetings/Venue	Period
	XII Agricultural Science Congress on "Sustainable Livelihood Security of Smallholder Farmers", National Dairy Research Institute, Karnal, Haryana.	Feb 3-6, 2015
Sh. Honnappa Asangi	Silver jubilee symposium on strategic approaches for horticulture research, education and development -way forward held on at National Academy of Agriculture Research, New Delhi.	Dec 26-27, 2014
	National Seminar on "Hi-tech Horticulture for Enhancing Productivity and Rural Prosperity" at ICAR-NRCSS, Ajmer, Rajasthan.	Jan 19-20, 2015
	XII Agricultural Science Congress "Sustainable Livelihood Security of Smallholder Farmers" Organized by ICAR, New Delhi, ICAR-National Dairy Research Institute, Karnal.	Feb 3-6, 2015
Sh. Diwakar Y.	"XII Agricultural Science Congress" themed on Sustainable Livelihood Security for Smallholder Farmers at ICAR- National Dairy Research Institute, Karnal, Haryana.	Feb 3-6, 2015
	National Seminar on "Hi-Tech Horticulture for Enhancing Productivity, Quality and rural Prosperity" at ICAR-NRCSS, Ajmer, Rajasthan.	Jan 19-20, 2015
	National Seminar on "Strategies for Enhancing Production of Quality Spices for Domestic Use and Export" conducted at Sri Karan Narendra Agriculture University, Jobner, Rajasthan.	Mar 16 - 17, 2015
Sh. Harisha C. B.	National Seminar on "Hi-tech Horticulture for Enhancing Productivity and Rural Prosperity" ICAR-NRCSS, Ajmer, Rajasthan.	Jan 19-20, 2015
	XII Agricultural Science Congress "Sustainable Livelihood Security of Smallholder Farmers" National Dairy Research Institute, Karnal.	Feb 3-6, 2015
Sh. S. P. Mahiria Sh. M.A. Khan Sh. S. R. Meena Sh. G. K. Tripathi	National Seminar on HI-Tech Horticulture for enhancing Productivity, Quality and Rural Prosperity, organized by ISSS, Ajmer and ISPC, New Delhi and held at NRCSS, Ajmer.	Feb 19-20, 2015



## 13. Training and Capacity Building Programmes Organized

### 13.1 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, Pusa, New Delhi on 19-20 January, 2015 at National Research Centre on Seed Spices, Ajmer. This 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, New Delhi. The Inaugural function of the seminar was chaired by Dr. N. Krishan Kumar, Deputy Director General (Horticulture Science) ICAR, New Delhi. Other dignitaries were Padam Shree Dr. K.L. Chadha, President, Horticulture Society of India, New Delhi Padam Shree Dr. Brahma Singh, President, Indian Society for Protected Cultivation. Dr. N. K. Krishan Kumar, Chief Guest of inaugural function highlighted the importance and potentiality of Hi-tech horticulture for enhancing resource use efficiently of precious limited resources. He further emphasized 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 cultivation technology in horticultural crops is need of the time for getting quality produce with efficient utilization of precious resource in season as well as in off season. He advocated to popularise 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 processor, 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 farming, post harvest management, trade markets and export of horticulture crops were presented by eminent scientist of 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 magazine of Indian Society for Protected Cultivation were released. On valedictory function Dr. T. Janki Raman, Assistant Director General (HS), appreciated efforts of Dr. Balraj Singh, Chairman organizing committee for excellent achievement of the institute and nice arrangements of various events during seminar. Dr. R.S. Mehta, Principal Scientist (Agronomy), was the organizing secretary of the seminar.



Dr. K.L. Chadha and Dr. N. Krishan Kumar, DDG (HS) ICAR Inaugurating Seminar by lighting lamp



Release of seminar publications



### District Seminar under MIDH at CHF Jhalawar

ICAR-National Research Centre on Seed Spices, Ajmer, Rajasthan in collaboration with Directorate of Arecanut and Spices Development organized district level seminar on "Quality production and post harvest management in seed spices" during 27-28, February 2015 at College of Horticulture and Forestry, Jhalrapatan, Jhalawar, Rajasthan under the project 'Mission for Integrated Development of Horticulture' sponsored by Directorate of Arecanut and Spice Development, Calicut, Kerala.

Dr. L. K. Dashora, Dean, College of Horticulture and Forestry, Jhalawar, was the chief guest of the inaugural session which was presided over by Dr. Balraj Singh, Director, ICAR-National Research Centre on Seed Spices, Ajmer, Rajasthan. Mr. Devendra Choudhary, Joint Director, Department of Agriculture, Jhalawar, Dr. Gopal Lal, Principal Scientist, ICAR-NRCSS, Ajmer and Local organizing secretary, Dr. K. L. Jingar, Programme Coordinator, KVK, Jhalawar and Mr. Paramashiviah, progressive farmer, Kota were also present on dais.

Dr. Devendra Chaudhary, Joint Director, Agriculture, Jhalawar, stressed upon the availability of improved varieties and technologies of seed spices. Dr. L. K. Dashora, Dean, CHOF, Jhalawar, highlighted the importance and intervention of cutting edge technologies in seed spices production particularly coriander and nigella which are the main crops of this region. He emphasized on introduction of improved varieties developed by NRCSS, Ajmer to this region for management of Stem gall disease in Coriander. Dr. Balraj Singh, Director of ICAR-NRCSS, Ajmer elaborated the scope, importance, problems and prospects of seed spices in Indian economy. The seminar was conducted for two days (February 27-28, 2015) and there were two technical sessions viz., technical session I and II. About 193 participants were present including scientists, teachers, and officials from state agriculture and horticulture department, students and farmers. Total 14 lectures were delivered by Scientists from ICAR-NRCSS, Ajmer, professors from CHF, Jhalawar and Subject Matter Specialists from KVK, Jhalawar.



Inaugural Session of Seminar



Participants of Seminar



Address of Director, NRCSS



Distribution of Certificates to participants



## 14. Distinguished Visitors

S. No	Name	Designation	Date
1	Dr Anil Kumar	Ex- Dean, PGS, SKRAU, Bikaner (Raj.)	02/04/2014
2	Dr. M.N. Khare	Ex- Dean, JNKUV, Jablpur (MP)	02/04/2014
3	Dr. S.R. Bhat	Principal Scientist, ICAR- NRCPB, New Delhi	02/04/2014
4	Dr. U.A. Parthasarathy	NPC, Bioversity International (IIHR) Bangalore	02/04/2014
5	Prof. A.P. Singh	Vice-Chancellor, CUR, Kishangarh, Ajmer (Raj.)	16/07/2014
6	Dr. C.B. Gena	Ex- VC, MGS University, Bikaner (Raj.)	16/07/2014
7	Prof. A.K. Sharma	Director, ICAR- NBAIM, Mau (UP)	24/07/2014
8	Dr. S.K. Sharma	Director, ICAR- CIAH, Bikaner	25/07/2014
9	Dr. Bramha Singh	Ex- Director, life Sciences, DRDO, New Delhi	25/07/2014
10	Dr. S. Ayyappan	Secretary, DARE and DG, ICAR, New Delhi	09/09/2014
11	Dr. J.S. Samara	CEO, National Rainfed Area Authority, GOI, India	27/09/2014
12	Sh. R.C. Choudhary	Chairman, Dairy Board, Ajmer (Raj.)	30/09/2014
13	Dr K.L. Chadha	Former DDG (Horticulture), ICAR, New Delhi	18/01/2015
14	Dr N Krishna Kumar	DDG (Horticulture Science), ICAR, New Delhi	18/01/2015
15	Dr. T. Jankiram	ADG (Horticulture Science), ICAR, New Delhi	20/01/2015
16	Dr. S.S. Chahal	Ex- VC MPAUT, Udaipur (Raj.)	20/01/2015
17	Dr. B.R. Chhipa	VC, SKRAU, Bikaner (Raj.)	31/01/2015
18	Dr. S.L. Mehta	Ex- VC, MPAUT, Udaipur (Raj.)	16/02/2015
19	Sh. R.K. Mishra	GM, NABARD, Jaipur (Raj.)	16/02/2015
20	Dr. G.D. Singh	Ex- Director Agri. Extn., SKRAU, Bikaner (Raj.)	17/02/2015
21	Dr. M. Anandraj	Director, ICAR-IISR, Calicut (KR.)	02/03/2015
22	Dr. B.B. Vashistha	Ex- Director, ICAR-NRCSS, Ajmer (Raj.)	02/03/2015
23	Dr. A.N. Maurya	Ex- Director, Institute of Agri. Sciences, BHU, Varanasi	03/03/2015
24	Dr. R.C. Dadheech	Member RAC, ICAR-NRCSS	02/03/2015
25	Dr. Jitendra Kumar	Director, ICAR-DMAPR, Anand (Guj.)	02/03/2015
26	Dr M M Anwer	Ex- Director, ICAR-NRCSS, Ajmer (Raj.)	29/03/2015



## 15. Empowerment of Women

Women farmers are the key in success of farming in Indian perspective. Indian Agriculture is revolving around women farmers contribution particularly in Rajasthan state. They contributed agricultural production by their involvement in every step of farming. As a policy NRCSS always tries to educate women farmers about scientific crop production technologies and social aspects as well. Emphasis is given to enhance participation of women farmers in

the events organized by NRCSS for extension of improved production technologies. During the reporting year many training programmes were organized exclusively for women farmers. They were not only provided scientific crop production techniques but also educated about importance of sanitation, nutrition and other social problems and their remedies.



Women participants during various training programmes organised at NRCSS, Ajmer



Director NRCSS interaction with farmer women visiting NRCSS, Ajmer



Women participants of Kisan Mela at NRCSS Stall & Training Programme organised at NRCSS, Ajmer



## 16. Infrastructure development

### 16.1 Works under Plan

- Replacement of Conductors and Up-gradation of control Panel in Main Building at NRCSS Tabiji, Ajmer preliminary estimate for Rs. 6,48,509/- was obtained from CPWD (EI) and approval conveyed for compliance.
- Installation of fire safety systems in NRCSS premises that included 2 kg capacity ABC MAP 90 fire extinguishers in vulnerable laboratories, critical indoor locations and office rooms besides 4.5kg capacity CO<sub>2</sub> Squeeze Grip fire extinguisher mobile systems units in corridors of the main laboratory building.
- Fabrication of tubular roof truss and vertical columns with the help of old building ferrous scrap and construction of open sheds measuring 250 M<sup>2</sup> area on North side terrace of the Main building, threshing floor and parking area of scientist training hostel.

- Recovery of nearly 1Ha waste land by constructing a culvert, providing MS grided gates in Northern boundary wall, constructing protection wall and modifying Nallah route by excavation and bunds earthwork departmentally for facilitating natural water course passing through research farm more smoothly.

### 16.2 Agricultural Knowledge Management Unit (AKMU) Lab

Agricultural Knowledge Management Unit (AKMU) Lab was inaugurated by Dr. Balraj Singh, Director of the centre in the presence of all staff members. This lab has sitting capacity of 25 people at a time. In this Lab state of art facility are provided for the purpose of training and other computing facilities especially softwares for statistical analysis. This lab has access of CeRA and all ICAR centralized online services as well as government of India.



AKMU Lab



Students working in the Lab



## 17. Personnel

### 17.1 Scientific Staff

S.No.	Name	Designation
1.	Dr. Balraj Singh	Director
2.	Dr. Gopal Lal	Principal Scientist (Horticulture)
3.	Dr. S.N. Saxena	Principal Scientist ( Plant Physiology )
4.	Dr. R.K. Kakani	Principal Scientist (Plant Breeding)
5.	Dr. Y.K. Sharma	Principal Scientist ( Plant Pathology )
6.	Dr. R.S. Mehta	Principal Scientist (Agronomy)
7.	Dr. Ravindra Singh	Senior Scientist (Agronomy)
8.	Dr. O.P. Aishwath	Senior Scientist (Soil Science)
9.	Dr. Krishan Kant	Senior Scientist (Entomology)
10.	Dr. S.S. Meena	Senior Scientist (Horticulture)
11.	Dr. S.S. Rathore	Senior Scientist (Biochemistry)
12.	Dr. B.K. Mishra	Senior Scientist (Microbiology)
13.	Dr. P.N. Dubey	Senior Scientist (Ag. Chemistry)
14.	Dr. R.S. Meena	Senior Scientist (Plant Breeding)
15.	Dr. N.K. Meena	Scientist (Entomology)
16.	Dr. R.K. Solanki	Scientist (Plant Breeding)
17.	Dr. S. Choudhary	Scientist (Biotechnology)
18.	Sh. M.K. Vishal	Scientist (Ag. Statistics)
19.	Dr. R.D. Meena	Scientist (Plant Pathology)
20.	Dr. A.K. Verma	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )
21.	Sh. H. Asangi	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )
22.	Sh. Harisha C. B.	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )
23.	Sh. Diwakar Y.	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )

### 17.2 Technical Staff

S.No	Name	Designation
1.	Sh. S.P. Mahena	Chief Tech. Officer
2.	Sh. M.A. Khan	Asstt. Chief Tech. Officer
3.	Sh. S.R. Meena	Sr. Tech. Officer
4.	Sh. G.K. Tripathi	Sr. Tech. Asstt.
5.	Sh. Pramod Agarwal	Technical Assistant
6.	Sh. Sri Ram Balai	Technical Assistant
7.	Sh. Ajit Singh	Technical Assistant



### 17.3 Administrative, Audit & Accounts

S.No	Name	Designation
1.	Sh. Ravindra Singh	Administrative Officer
2.	Sh. Bhim Singh	Asstt. Administrative Officer
3.	Sh. S.K. Agrawal	AF&AO
4.	Sh. Sanjeev Sharma	Assistant
5.	Sh. R.K. Kanwaria	Upper Divisional Clerk
6.	Sh. Amit Kumar Gupta	Lower Divisional Clerk
7.	Sh. Mukesh Kandari	Lower Divisional Clerk

### 17.4 Skilled Sporting Staff

S.No	Name	Designation
1.	Smt. Sarfa Devi	SSG-I
2.	Sh. Pukhraj Paroda	SSG-I

### 17.5 New appointment

S.No	Name	Designation	Date of Appointment
1.	Dr P. N. Dubey	Senior Scientist (Ag. Chemistry)	19.05.2014
2.	Dr. A.K. Verma	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )	09.04.2014
3.	Sh. Honnappa Asangi	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )	09.04.2014
4.	Sh. Harisha C. B.	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )	09.04.2014
5.	Sh. Diwakar Y.	Scientist (Spice, Plantation, Medicinal & Aromatic Plants )	09.04.2014
6.	Sh. Mukesh Kandari	Lower Divisional Clerk	28.11.2014

### 17.6 Retirement/ Superannuation

S.No	Name	Designation	Date of Superannuation
1.	Sh. L.K. Sharma	Asstt. Administrative Officer	31.12.2014



## 18. Other Information

### 18.1 Director General, ICAR visited National Research Centre on Seed Spices, Ajmer

Hon'ble Secretary Department of Agriculture, Research and Education, Ministry of Agriculture, Govt. of India and Director General, Indian Council of Agricultural Research, New Delhi Dr. S. Ayyappan, visited National Research Centre on Seed Spice, Tabiji, Ajmer on 09<sup>th</sup> September, 2014. He spent about 04 hrs at the centre and visited Research Farm, Laboratories, Office Building etc. He visited the research farm area and critically seen the crops. During his visit to various laboratories Hon'ble DG, ICAR discussed one-to-one scientists about the research programs and projects going on in the respective labs related to their field of expertise. He also visited administrative block, seed spice knowledge area, agriculture knowledge management lab apart from other laboratories. Dr. Ayyappan also hold a meeting with entire staff of NRCSS including scientist, technical and administrative personnels. He addressed on the issues related to diversified approach, total factor productivity, secondary agriculture, technology impact study, bio fortification, value addition, farming system models, use of bioinformatics, phenomics, commercialisation of technologies and attracting & retaining youths in agriculture etc. He emphasised that the institute should give a major focus for enhancing the productivity and quality in seed spice production. At the end, the Hon'ble DG, ICAR expressed his high satisfaction on the achievements related to research and development in the institute particularly in the last two years.



### 18.2 15<sup>th</sup> Foundation Day celebrated

ICAR-NRC on Seed Spices celebrated its 15<sup>th</sup> Foundation Day on 18<sup>th</sup> January, 2015. Padma Shri Dr. K.L. Chadha, President Horticulture Society of India was the Chief



Guest of the function and delivered the Foundation Day Lecture. The function was also graced by Padma Shri 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 have participated in the function. On the occasion, Dr. Balraj Singh, Director, NRCSS welcomed the guests and Highlighted the research activities and achievements made by the centre in last 15 years. The centre has taken new initiatives on various aspects of crop improvement, production, 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 aspects in Horticulture in detail. He shared his critical views and experiences in the field of horticulture. Dr. Y.K. Sharma, I/C PME Cell proposed vote of thanks to the guests and participants. NRCSS Newsletter published bi-annually by the centre was also released by the chief guest Dr. K.L. Chadha.

### 18.3 राजभाषा हिन्दी पखवाड़ा कार्यक्रम

राष्ट्रीय बीजीय मसाला अनुसंधान केन्द्र, तबीजी, अजमेर में हिन्दी दिवस के उपलक्ष्य में दिनांक 15 सितम्बर, 2014 से 30 सितम्बर 2014 तक राजभाषा हिन्दी पखवाड़ा मनाया गया। इस क्रम में दिनांक 15 सितम्बर, 2014 को एक दिवसीय हिन्दी तकनीकी सगोष्ठी कार्यक्रम किया गया। इस राजभाषा हिन्दी पखवाड़ा कार्यक्रम 2014 के दौरान संस्था के निदेशक, डॉ. बलराज सिंह द्वारा हिन्दी भाषा के महत्त्व को ध्यान में रखकर कार्यालय के सभी आवश्यक कार्य एवं पत्रावलियों का हिन्दी में प्रकाशन करने पर ध्यान आकृष्ट किया। इसी क्रम में संस्था के सभी वैज्ञानिकों एवं सहायक कर्मचारियों के लिए विभिन्न प्रतियोगिताएँ आयोजित की गयीं। दिनांक 24 सितम्बर, 2014 को प्रेस विज्ञापित लेखन



प्रतियोगिता, निबंध लेखन एवं सहायक कर्मचारी वर्ग हेतु हिन्दी में प्रार्थना पत्र लेखन प्रतियोगिता की गयी। इन विभिन्न प्रतियोगिताओं में सभी वैज्ञानिकों, अधिकारियों एवं कर्मचारियों ने भाग लेकर प्रतियोगिताओं को सफल बनाया। इन विभिन्न प्रतियोगिताओं के प्रतिभागियों के मूल्यांकन हेतु निर्णायक मण्डल के सदस्यों डॉ. बलराज सिंह, डॉ. एस.एन. सक्सेना, डॉ. वाई.के. शर्मा एवं डॉ. बी.के. मिश्र ने अपना अमूल्य योगदान दिया। हिन्दी पखवाड़ा कार्यक्रम-2014 विजेता प्रतिभागियों को केन्द्र के निदेशक, डॉ. बलराज सिंह ने पुरस्कार प्रदान कर उन्हें इसी तरह प्रतियोगिताओं में भाग लेने के लिए प्रोत्साहित किया। हिन्दी पखवाड़ा के अन्तर्गत कार्यक्रमों का आयोजन डॉ. बृजेश कुमार मिश्र ने संस्थान के सभी अधिकारियों एवं कर्मचारियों की सहभागिता में किया।



### हिन्दी पखवाड़ा कार्यक्रम-2014 के विजेता प्रतिभागियों की सूची

- वाद-विवाद प्रतियोगिता:**  
प्रथम (पक्ष एवं विपक्ष): सजीव शर्मा / एम.के. विशाल  
द्वितीय (पक्ष एवं विपक्ष): शारदा चौधरी / जी.के. त्रिपाठी  
तृतीय (पक्ष एवं विपक्ष): आर.एस. मीणा / एस.पी. महेरिया
- तत्काल / आशु भाषण प्रतियोगिता:**  
प्रथम भीम सिंह  
द्वितीय: पी.एन. दुबे  
तृतीय प्रिया गुला
- प्रेस विज्ञप्ति लेखन प्रतियोगिता:**  
प्रथम एस.एस. राठौड़  
द्वितीय: आर.डी. मीणा  
तृतीय: सियाराम मीणा
- सहायक कर्मचारी वर्ग हेतु हिन्दी लेखन प्रतियोगिता:**  
प्रथम अमित गुप्ता  
द्वितीय: राजकुमार कांवरिया  
तृतीय पुखराज परोदा  
सात्पना सरला देवी
- निबन्ध लेखन:**  
प्रथम सुनील अग्रवाल  
द्वितीय एम.के. विशाल  
तृतीय एस.एस. राठौड़

### 18.4 एक दिवसीय हिन्दी तकनीकी संगोष्ठी

राजभाषा हिन्दी पखवाड़ा 2014 के अंतर्गत एक दिवसीय हिन्दी तकनीकी संगोष्ठी का आयोजन दिनांक 15 सितम्बर, 2014 को किया गया, जिसमें डॉ. बलराज सिंह, निदेशक, राष्ट्रीय बीजोद्योग मसाला अनुसंधान केन्द्र, तबीजी, अजमेर ने "मृदा उर्वरता प्रबंधन: एक समसामयिक आवश्यकता" पर पॉवर पॉइंट प्रस्तुतिकरण किया। इस एक दिवसीय हिन्दी तकनीकी संगोष्ठी में संस्थान के सभी वैज्ञानिकों एवं अधिकारियों एवं कर्मचारियों ने भाग लेकर मृदा उर्वरता प्रबंधन जैसे महत्वपूर्ण विषय पर हिन्दी में व्याख्यान एवं राजभाषा संगोष्ठी कार्यक्रम को सफल बनाया। मृदा उर्वरता प्रबंधन जैसे जटिल विषय को बहुत विस्तृत रूप में सहज एवं शुद्ध हिन्दी के वैज्ञानिक एवं तकनीकी शब्दों के प्रयोग के माध्यम से प्रस्तुत किया गया। डॉ. बलराज सिंह, निदेशक, राष्ट्रीय बीजोद्योग मसाला अनुसंधान केन्द्र, तबीजी, अजमेर ने वैज्ञानिकों द्वारा हिन्दी में किये जा रहे कृषि प्रसार के कार्यों की सराहना की और कार्यलय सम्बन्धी कार्यों में राजभाषा हिन्दी के अधिकारिक उपयोग पर विशेष महत्व एवं बल देने की बात कही। राजभाषा प्रमारी डॉ. बृजेश कुमार मिश्र ने वैज्ञानिक एवं तकनीकी लेखों में मानक हिन्दी के प्रयोग पर बल दिया तथा कार्यक्रम की सफलता के लिए सभी लोगों का आभार व्यक्त किया।



### 18.5 हिन्दी व्याख्यान एवं राजभाषा संगोष्ठी

राष्ट्रीय बीजोद्योग मसाला अनुसंधान केन्द्र, तबीजी, अजमेर में दिनांक 22 मार्च, 2015 को विश्व जल दिवस के उपलक्ष्य में एक दिवसीय संगोष्ठी का आयोजन किया गया। देश में वर्तमान एवं भविष्य में जल की उपलब्धता एवं उपयोगिता एक महत्वपूर्ण चुनौती है इसी बात को ध्यान में रखते हुए निदेशक डॉ. बलराज सिंह द्वारा "जल उपलब्धता, उपयोग एवं धारणीय विकास में चुनौतियाँ" विषय पर एक विस्तृत व्याख्यान प्रस्तुत किया। डॉ. बलराज सिंह, ने अपने अन्तर्राष्ट्रीय एवं राष्ट्रीय अनुभवों को "जल ही जीवन है" के नारे के साथ वैज्ञानिकों एवं मावी युवा पीढ़ी के शिक्षित युवाओं एवं युवतियों के साथ साझा किया। आपने व्याख्यान के माध्यम से यह रेखांकित किया कि हमारी पृथ्वी पर तीन-चौथाई जल होने के बाद भी पीने योग्य जल एक सीमित मात्रा में ही है, जिसका मानव जाति द्वारा अवाधुंध दोहन किया जा रहा है। जलाशयों, नदियों, झीलों एवं समुद्र तक को आधुनिक विकास की दौड़ में हम प्रदूषित करते जा रहे हैं। शहरीकरण, औद्योगिकीकरण एवं जलवायु परिवर्तन के कारण निकट भविष्य में जल की उपलब्धता एवं सातुलित उपयोग एक बहुत विकट समस्या हो सकती है। आज इस विश्व जल दिवस के अवसर पर संस्थान



के सभी वैज्ञानिकों, तकनीकी अधिकारियों एवं कर्मचारियों ने जल संरक्षण के महत्व को विस्तृत रूप में पहचाना और सभी ने इस क्षेत्र में मिल-जुल कर इस कार्य को आगे बढ़ाने पर जोर दिया। कृषि के क्षेत्र में भी कई स्थानों पर पानी का समुचित प्रबंधन नहीं किया जा रहा है, जबकि कृषि कार्य पूरी तरह से जल पर आधारित है। डॉ. बलराज सिंह जी ने सूक्ष्म सिंचाई, टपक सिंचाई एवं सरसकत खेती के माध्यम से कृषि में सीमित जल के आधुनिक प्रबंधन पर विशेष जोर देने तथा ज्ञान एवं ग्राम स्तर पर राष्ट्रीय जल संरक्षण नीति के तहत वैज्ञानिक अक्षर पर कृषि उत्पादन का जोरदार समर्थन किया। अपने कृषकों एवं वैज्ञानिकों का अवहन किया कि वे प्रति बूंद कृषि उत्पादकता का ही अपना सही मापदण्ड समझकर अनुसंधान कार्यों को प्राथमिकता प्रदान करें।

इस परिचर्चा के दौरान वैज्ञानिकों के द्वारा बनायी गयी नई तकनीक जैसे प्लास्टिक मल्टिचिंग, हाइड्रोजेल एवं लैजर लेवल द्वारा भूमि का समतलीकरण तथा संरक्षण कृषि के विधियों द्वारा कृषि में जल उत्पादकता बढ़ाने की आवश्यकता है। यदि हम आधुनिक कृषि तकनीकों का इस्तेमाल प्रोषण जल उत्पादकता के सिद्धान्त को कृषि में लागू करते हुये प्रति बूंद पानी द्वारा अधिक अन्न उत्पादन कर सकते हैं।

आधुनिक जीवनशैली में जल की बर्बादी को रोकने के लिये युद्धस्तर पर जागरूकता एवं जल संरक्षण नीतियां बनाने की जरूरत पर सभी लोगों ने सहमति जताई। इसी परिपेक्ष्य में यह भी ध्यान देने योग्य है कि भारत में प्रतिव्यक्ति जल उपभोग का सर्वाधिक 30 प्रतिशत जल शौचालय फलिंग में ही बर्बाद हो जाता है, जबकि प्रतिव्यक्ति जल उपभोग का केवल 1-2 प्रतिशत जल ही पीने एवं भोजन बनाने में इस्तेमाल किया जाता है।

जल संरक्षण को अपने जीवन-धर्म का हिस्सा बनाना होगा, क्योंकि आपका एक छोटा-सा प्रयास कई जीवों की प्यास बुझा सकता है। किसी भी राष्ट्र की सुरक्षा उसके प्राकृतिक संसाधनों जैसे- जल, जंगल और जमीन के साथ गहरे तौर पर जुड़ी हुई है तथा इनका संरक्षण करना प्रत्येक नागरिक का दायित्व है। जल का प्रत्येक स्तर पर समुचित बचाव तथा पुनर्भरण व परिक्षोषण के साथ कृषि, चरलू और औद्योगिक क्षेत्रों में के रूप में जल संरक्षण की आवश्यकता है। कार्यक्रम संचालन एवं शन्यवाद ज्ञान डॉ. बृजेश कुमार मिश्र, बरिष्ठ वैज्ञानिक एवं राजभाषा प्रनारी ने किया तथा सभी उपस्थित अधिकारियों एवं कर्मचारियों ने व्यक्तिगत स्तर पर जल बचाने का संकल्प लिया।

### 18.6 हिन्दी में प्रकाशन

1. वार्षिक प्रतिवेदन (2013-14)
2. शुष्क एवं अर्द्धशुष्क जलवायु क्षेत्रों की मृदाओं का बीजीय मसाला उत्पादन के लिए प्रबंधन (तकनीकी बुलेटिन 01 / 2014)
3. बीजीय मसाला फसलों की उन्नत उत्पादन प्रौद्योगिकियां (सम्पादित पुस्तक)
4. विदर्भ क्षेत्र के जिला चन्द्रपुर में बीजीय मसाला फसलोत्पादन हेतु

उन्नत प्रौद्योगिकियां (द्विभाषी पुस्तक)

5. उत्तर भारत में मसाला फसलोत्पादन की उन्नत प्रौद्योगिकियां (सम्पादित पुस्तक)

### 18.7 ICAR Day celebrated

86<sup>th</sup> ICAR day was celebrated on 16 July 2014 at ICAR-NRCSS auditorium. Dr. A. P. Singh, Vice Chancellor of Rajasthan Central University, Bandarsindari, Ajmer was the chief guest of function and Dr. Balraj Singh, Director NRCSS was president of the function. Dr. A.P. Singh expressed satisfaction on agriculture research conducted by ICAR institutes and appreciated the efforts made by ICAR for welfare of farming community of India. Dr. Balraj Singh elaborated the role of ICAR in agriculture education, research and extension. The function was attended by scientist and other staff of NRCSS, KVKs, staff of State Agriculture Departments, Ajmer and students.



### 18.8 National Science Day celebrated

National Science Day was celebrated in ICAR-NRCSS, Ajmer with great enthusiasm on 28th Feb, 2015. On this occasion apart from NRCSS staff, school children from Govt. school, saradhna were also present. Dr. S.N. Saxena highlighted the significance of celebrating science day to commemorate the invention of the Raman Effect by the Indian physicist Nobel laureate Sir C.V. Raman. In the presidential remark Dr. Balraj Singh elaborated about the theme of the year 2015 "Science for the Nation Building". He also encouraged school children for doing science in the cause of human welfare. Dr. S.S. Rathore, Organiser of the event proposed vote of thanks to all participants.



### 18.9 Swachh Bharat Abhiyan at NRC on Seed Spices, Ajmer

NRCSS with its whole staff joined the *Swachh Bharat Abhiyan* - a massive cleaning movement initiated by honorable PM, Shri Narendra Modi Jee. On this occasion all staff gathered at centre in morning and Dr. Balraj Singh, Director NRCSS detailed about the movement to all staff and also council initiatives. All staff took the *Swachhata Shapath* and decided to start the cleanliness drive in surrounding villages also to aware people having special focus to clean home as well as their farm. All staff participated and started their movement by cleaning the Ajmer Beawer road side infested with *Parthenium* grass (Gajar Ghas). *Parthenium* grass is very dangerous to human as well as cattle health. Contact with this plant causes dermatitis and respiratory malfunction in humans, dermatitis in cattle and domestic animals, due to the presence of toxin parthenin. People living in city are not aware of the hazardous effect of this grass and in cleanliness drive it is need to understand effects of grass. In a great achievement from last one year the whole NRCSS campus has been kept *Parthenium* free. All staff also celebrated Rashtrapita Mahatma Gandhi birth day as well as former PM, Shri Lal Bahadur Shastri birthday and remembered their contribution for India.



### 18.10 Celebration of Vigilance Awareness Week-2014

In accordance to the instruction of Central Vigilance Commission, Vigilance Awareness Week-2014 was observed during 28th October to 1st November, 2014. The main focus of Vigilance Awareness Week was "Combating Corruption. Technology as an enabler". During the week different activities like taking oath, essay writing, debate competition, and paragraph writing were organized. The themes of debate competition was : Combating corruption-Technology as an enabler, Essay writing : Role



Events organized during Vigilance Awareness Week

of vigilance awareness on combating corruption, and Paragraph writing .Eradicating corruption: A personal responsibility. All the officials of NRCSS 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 31<sup>st</sup> October, 2014 a seminar on Combating Corruption: Technology as an enabler was also organized. In the Seminar Dr. Balraj Singh, Director, NRCSS, Ajmer delivered very useful presentation and he through light on different facets 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 country of the world.

### 18.11 Rashtriya Ekta Diwas

On 31<sup>st</sup> October, 2014 birth day of honorable late Sardar Vallabh Bhai Patel, Ex- home minister of our country was celebrated as National Unity Day (*Rashtriya Ekta Diwas*). On this occasion pledge taking ceremony was organized on 31.10.2014 at 11.00 AM. After taking pledge for national unity National Anthem was chanted. Dr. Balraj Singh, Director, NRCSS, Ajmer highlighted about the main contribution of Late Sardar Vallabh Bhai Patel in the integration of our country.



Annexure I

Monthly mean temperature, relative humidity, evaporation and rainfall during 2013

Year 2013 Month	Mean Temperature (°C)		Relative humidity (%)		Evaporation mm/day	Mean rainfall (mm)
	Minimum	Maximum	7.40 am	2.40 pm		
January	5.5	23.0	70.2	51.5	2.1	10.0
February	10.8	24.5	75.6	61.5	2.8	18.0
March	14.7	30.8	66.2	41.5	4.2	0.0
April	24.5	36.4	40.2	30.4	8.7	0.0
May	28.7	40.5	27.0	21.5	13.1	0.0
June	29.9	37.8	69.4	54.3	11.1	82.0
July	27.3	33.5	89.1	78.5	6.5	194.9
August	25.6	31.0	85.4	81.8	4.0	166.0
September	25.4	33.4	75.9	67.3	4.6	167.2
October	19.2	31.9	67.4	47.2	3.7	0.0
November	12.2	28.0	65.6	38.3	2.8	0.0
December	7.8	24.0	72.5	54.1	2.3	0.0
<b>Average</b>	<b>19.3</b>	<b>31.2</b>	<b>67.0</b>	<b>52.3</b>	<b>5.5</b>	<b>638.1</b>

Monthly mean temperature, relative humidity, evaporation and rainfall during 2014

Year 2014 Month	Mean Temperature (°C)		Relative humidity (%)		Evaporation mm/day	Mean rainfall (mm)
	Minimum	Maximum	7.40 am	2.40pm		
January	6.5	21.7	74.1	56.7	1.7	0.0
February	8.9	24.4	73.1	48.1	2.5	9.0
March	14.7	30.8	66.2	41.5	4.2	0.0
April	22.3	36.7	67.3	45.6	7.4	12.0
May	28.1	38.0	65.8	45.1	10.6	29.0
June	31.0	40.2	30.4	37.1	1.3	0.0
July	28.3	35.2	27.6	34.6	0.8	43.7
August	26.0	31.7	93.6	81.3	4.8	203.6
September	24.8	31.9	91.4	84.5	4.9	197.0
October	21.4	34.3	88.0	77.2	6.0	0.0
November	13.2	30.7	84.5	51.1	4.0	0.0
December	7.4	24.3	81.8	66.7	2.2	0.0
<b>Average</b>	<b>19.4</b>	<b>31.6</b>	<b>70.3</b>	<b>55.8</b>	<b>4.2</b>	<b>494.3</b>



## Annexure II

## Item wise export of spice from India (2013-14) (Qty. in tonnes &amp; value in Lakhs)

Item	QTY (Tonnes)	VALUE (Lakhs)	Export quantity % share	Export value % share
Coriander	45,750	37,185.65	18.05	15.14
Cumin	121,500	160,006.00	47.92	65.13
Celery	5,600	3,661.48	2.21	1.49
Fennel	17,300	16,001.42	6.82	6.51
Fenugreek	35,575	13,378.37	14.03	5.45
Other seeds (1)	27,800	15,425.65	10.97	6.28
Total	253,525	245,658.57	100	100

(1) include Bishops weed (Ajwain seed), Dill seed, Poppy seed, Aniseed, Mustard etc.  
Source: DGC&S Calcutta/shipping bills/exporters' returns.

## Seed Spices Area and Production 2012-13

Spices	Area (ha)	Area Share among Seed Spices %	Production (tonnes)	Production share among seed spices %
Coriander	531070	38.39	503240	41.62
Cumin	593980	42.94	394330	32.61
Celery	4070	0.29	5510	0.46
Fennel	99610	7.20	142940	11.82
Fenugreek	93110	6.73	112870	9.33
Ajwan	39690	2.87	26620	2.20
Dill seed	21900	1.58	23632	1.95
Total	1383430	100	1209142	100

Source: Spice Board of India



Annexure III

S. No.	English name	Scientific name	Hindi name	Kannada	Malyalam	Tamil	Telgu
1.	Coriander	<i>Coriandrum sativum</i> L.	Dhaniya, Kothamir	Dhaniya, Havija, Kambari, Kottambari	Kothamalli, Kottampal, Malli	Kottamali, Kothamali	Dhaniyalu, Kotimer, Kotimic, Kustumburu
2.	Cumin	<i>Cuminum cyminum</i> L.	Jira, Jeera, Saphed jira	Jirige	Jeeragam, Jirakam, Nallajirakam	Jiragam	Jiakara, Jilakarra
3.	Fenugreek	<i>Trigonella foenum-graecum</i> L.	Methi	Mente, Mentya	Uluva, Venthayari	Meti, Vendayam, Vetani	Mentikura, Mentulu
4.	Fennel	<i>Foeniculum vulgare</i> Mill.	Saumf, Saumph	Badesopu, Badasompu, Dodde jirige	Perunjeerakam/Perunjakam, Perum jirakam	Perunjiragam, Solhikiri, Sombu	Pedda jilakarra, Soppu
5.	Carrom seed	<i>Trachyspermum ammi</i> (L.) Sprague	Ajwain	Ajamada, Orna	Ayamodagam	Ornam	Ornamu, Vamu, Vayu
6.	Dill	<i>Anethum graveolens</i> L.	Sowa, Sovn	Sabbasigi soppu, Sabbasige bija	Chathokuppa	Sataguppi, Guppi	Shatapushpamu, Vakabara
7.	Celery	<i>Apium graveolens</i> L.	Ajmada	Not available	Not available	Callari	Not available
8.	Nigella	<i>Nigella sativa</i> L.	Kalaunji, Kalonji	Kari jirige	Karunjeeragam, Karula jirakam	Karunjiragam	Nallajilakarra
9.	Caraway	<i>Carum carvi</i> L.	Sha jeera	Not available	Sajirakam, Sajiragam	Not available	Not available
10.	Aniseed	<i>Pimpinella anisum</i> L.	Vilayati saunf	Lakko sompu	Not available	Anisu, Magambu, Natchattirajiragam	Sompu
11.	Mustard	<i>Brassica nigra</i> (L.) Koch	Kali rai, Kali sarson, Lal sarson, Rai, Sarson	Sasive	Kadu, Kadugu	Kadugu	Avaiu
12.	Poppy	<i>Papaver somniferum</i> L.	Aphim posta, Khaskhas, Posta	Aphimu, Gasagase	Kaskasu	Casacasa, Kasakasa, Postakkal	Abhini, Gasagasaalu/Postukaya
13.	Sesame	<i>Sesamum indicum</i> L.	Til	Acchellu, Ellu, Tila	Chitelu, Ellu, Thilam	Ellu, Yellu	Nuvvulu, Tilla
14.	Parsley	<i>Petroselinum crispum</i> (Mill.) Nymen ex A. W. Hill	Ajmod, Ajrud, Khurasani	Not available	Not available	Not available	Not available
15.	Black Cumin	<i>Bunium persicum</i> (Boiss.) B. Fedtsch.	Shahajira	Shahajirige	Not available	Not available	Not available



Hailstorm Damage on 28th Feb, 2014





# NRCSS



(AN ISO 9001:2008 Certified Institute)

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