NRCSS E-newsletter



Vol. 12 (6) **Seed Spices E-newsletter** **November-December, 2018**

From Director's Desk



Dear Readers,

Seed spices comprise of cumin, coriander, fennel, fenugreek, ajwain and some other minor crops occupying a significant place in Indian kitchens. Indian rather Asian food is incomplete without use of one or other seed spice during process of cooking. Majority of seed spices are winter season crops grown in south east Asia and Meditterranean region. November-December months need attention of farmers/spice growers towards application of various inter-cultural operations including nutrients and eco-friendly management of insect pests and diseases. We have to be very particular and precise about use of chemical pesticides because presence of pesticides residues in seed spices is harmful in both the ways economically and sociologically. Beneficial insects like honey-bees play a very vital role in cross pollination of crops and our aim should be to improve the floral visitors by reducing numbers of insecticide application at proper time. The efforts of ICAR-NRCSS, Ajmer towards eco-friendly and sustainable crop health management is evident from sale of biopesticides and biofertilizers worth Rs. 5.30 lakhs during 2018 alone.

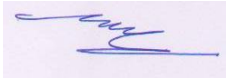
ICAR-NRCSS is also striving hard for technical upliftment of farmers of TSP area and significant impact is visible within short period due to concerted efforts of team of scientists from NRCSS, KVK and line departments officials. The adoption of improved prodcution technology of coriander and fenugreek through FLDs is very helpful for diversification of existing cropping system of tribal areas of Pratapgarh District of Rajasthan.

A District Seminar organized at Jaisalmer under MIDH was a great success in our efforts towards sustainable seed spices cultivation in arid and semi-arid regions of the country. I congratulate all participants of 21 days skill development course organized at ICAR-NRCSS Ajmer during 16 Oct-05 Nov., 2019. One day scientists and stakeholders interface meet for commercialization of technologies will lead to large scale adoptation of our varieties and technologies for the benefit of farmers.

I wish that the coming new year 2019 shall bring more prosperity and smile on face of all the stakeholders of seed spices.

CONTENTS

Director's Desk	1
Research Highlights/Case study	2
Events/Meetings/Field days/Trainings organized/ Extension/TOT and HRD/ Swachchta	3-8
Meetings/Trainings/ Seminars / Symposia /Conferences/ Lectures/ Awards	9



(Gopal Lal)

RESEARCH HIGHLIGHTS

Enhancement of Mass Production of Bio agents activities during 2018

Krishna Kant, Siya Ram Meena & B.K.Mishra

A modern biocontrol production laboratory has been working in NRCSS since 2012-13. The laboratory is engaged in mass production of various bioagents, botanicals and biofertilizer for safe and quality production of seed spices and other horticultural /agricultural crops. The bioagents produced at the centre were popularized among farmers through various extension services run by the Institute. During the year, 2018, total 11 types of different bioagents/ botanicals/ biofertilizers were produced and distributed through sale among farmers of different district of Rajasthan, Madhya Pradesh and Punjab. A large quantity of different bio agents were also distributed free to the farmers for demonstration of safe production of crops. The total sale of different bioagents was 5.13 tons which valued for Rs. 529900 (Five lakh twenty nine thousand nine hundred).

This enhancement in demand of biocontrol agents in reflection of increased awareness towards organic inputs among farmers especially protected cultivation and organic growers. The sustained quality and effectiveness of microbial strain also played a role in the huge sale of bioagents from NRCSS biocontrol laboratory.

Table: Sale of different bio agents during the year 2018

S. No.	Bio agents		Qua-ntity (Kg)	Value (Rs.)
1	***Entomo-pathogens***	*Verticillium lecanii*	58	5800
2		*Metarhiziu m anisopliae*	91	9100
3		*Beauveria bassiana*	65	6500
4	***Soil antago-nists***	*Trichoderm a viridi*	1502	150200
5		*Trichoderm a harzanium*	1050	105000
6		*Pseudomon as fluorescens*	850	85000
7	***Acari-pathogen***	*Hirsutella thompsonii*	28	2800
8	***Nemato-pathogens***	*Paecilomyc es lilacinus*	1304	130400
9		*Pochonia chlamydosp oria*	1.0	100
10	***Botanical***	*Botanical Insecticide Soap*	80	24000
11	***Microbial fertilizer***	*Phosphate solubilizing bacteria (PSB)*	110	11000
Total			**5139**	**529900**

CASE STUDY/EVENTS/MEETINGS/ FIELD DAYS/ TRAININGS ORGANIZED/ EVENTS

Impact of technological interventions of seed spices through FLDs in TSP area of Pratapgarh-A success story

G. Lal, N. K. Meena, R. S. Meena and Y. Kannojia

Seed spices constitute an important segment of agriculture commodities that play a momentous role in Indian economy. Since ancient, India has always been renowned as a land of spices. It account for nearly 50.31 per cent and 21.30 per cent of total area and production, respectively of total spices in the country. Amongst total seed spices, ICAR-NRCSS is working on ten crops *viz.*, coriander, cumin, fenugreek, fennel, ajwain, dill, nigella, anise, celery and caraway and developed a number technologies for improving quality production and productivity of these crops. In tribal areas of Rajasthan particularly Pratapgarh comprises clay soil with high carbon contents, good quality water and other weather parameters are very congenial for higher production of seed spices. However, the farmers of this region are still growing many other crops including coriander and fenugreek with local cultivars/varieties and espousing broadcasting method of sowing and other practices. There is no standard package for seed treatment, irrigation pattern, insect-pests, diseases and weed management for getting higher yield. In the area, no any seed supplying agencies is working to provide quality seed of improved varieties and also lacking in mechanization for seed sowing, weeding, harvesting, threshing and packaging.

A baseline survey of tribal farmers was conducted in tribal belt of Pratapgarh (Rajasthan) during 2013-14. The farmers' selection was made with the help Krishi Vigyan Kendra (MPUA&T), Pratapgarh as well as few interested farmers were directly selected by NRCSS for FLDs of these crops. All type of large, medium and small land holding farmers were included in the study. In the preliminary survey and discussion with selected farmers, causes of low yield of crop were identified and prioritized. In addition, it was also found that the majority of selected tribal farmers growing maize and few one are growing soybean crop with conventional



intercultural operations in *Kharif* season. In *Rabi*, they are mainly growing wheat (particularly small farmers) and also growing gram, fenugreek and coriander in traditional manner and getting very less return. Tribal farmers, particularly small farmers also rearing buffalo, goats 1-4 and poultry and 4-10 in number, respectively for their livelihood. Conventional method as well as other field practices in tribal area is responsible for poor yield and low return. Consequently, FLDs programmes, trainings and field days are effective tools for increasing the productivity of crop and changing knowledge, attitude and skill of farmers. This created greater awareness

and motivation among farmers to adopt improved practices of coriander and fenugreek.

In order to enhance the yield and productivity of seed spices in tribal area, ICAR-NRCSS, Ajmer were initiated various extension programmes in the year 2013-14 onward for dissemination of improved production technologies of seed spices to diversify the existing cropping pattern. In the sequence of impact of technological interventions, FLDs of seed spices were conducted on farmer's field in three different tribal villages of Arnod block in Pratapgarh district during *Rabi* season of the year 2013-14 to 2015-16. The area under each FLD was 0.25 ha. The all inputs like seeds, fenugreek (AFg-2) and coriander (ACr-1), fertilizers, pesticides etc., were given by the Institute for successful raising of crops. The follow-up programmes were also organised to make aware the farmers about improved technologies in their vicinity.

The data on impact of technology interventions showed that the yield of coriander and fenugreek under FLDs was found higher over local checks during all the years (2013-14 to 2015-16). Over a period of three years yield under FLDs appreciated by 26.26 and 44.06 per cent in coriander and fenugreek, respectively in comparison to local cultivars and practices. Likewise, in coriander, the net return of Rs. 60950/- per ha and B:C ratio of 2.87 and fenugreek the net return of Rs. 53308/- per ha and B:C ratio of 2.48 was recorded over local cultivars. The yield enhancement of crops was due to the improved technological interventions applied in FLDs. The cumulative effect of technological intervention for increasing yield over three years is on account of adoption of line sowing technique, optimum nutrient management, weeding before critical stage and plant protection measures for insect-pests and disease management. A comparative study of return between existing cropping pattern and FLDs of coriander (ACr-1) and fenugreek (AFg-2) was also conducted in same tribal farmers in Arnod block of Pratapgarh district. The results showed that farmers are growing maize and soybean in *Kharif* season, earning net return of Rs. 18000 and 23400/ha with benefit cost ratio of 2.29 and 1.62, respectively. In *Rabi*



season, wheat, gram and barley are the major growing crops and farmers are getting net return of Rs. 30300, 26500 and 22820 with benefit cost ratio of 2.15, 2.32 and 1.83, respectively. It was evident from data that the cultivation of above crops with farmers practices are giving very less return in comparison to coriander (net return 56121 and B:C ratio 3.09) and fenugreek (net return 41845 and B:C ratio 2.58). The technology gap was (4.84 q/ha), extension gap (3.51 q/ha) and technological index (21.82%) in coriander, whereas, the technology gap was (3.33 q/ha), extension gap (7.74 q/ha) and technological index (11.70%) in fenugreek was found in the region which emphasized

the need to educate the farmers through various extension means for adoption of improved agricultural technologies to revert the trend of extension gap. More and more use of latest seed spices production technologies with high yielding varieties will subsequently change this alarming trend of galloping extension gap. The new technologies will eventually lead to the





farmers to discontinue the old technology and adopt new technologies.

Thus, based on three year study, it is inferred that adoption of improved production technology of coriander and fenugreek in FLDs is highly beneficial for realizing higher yield, net return and BCR which is very helpful for diversification of existing cropping system of tribal area of Pratapgarh resulting enhancement in economic standard of tribal farmers.

Extension/TOT and HRD/Exhibited Stall

Two days district seminar was organized on "Improved cultivation practices of seed spices under climate change scenario" at Jaisalmer district. During 26-27 Dec., 2018. This seminar was conducted under MIDH scheme and sponsored by DASD, Calicut. Dr. Gopal Lal, Director, NRCSS, Ajmer presided over the programme. Dr. D. S. Godara, Deputy Director, Department of Agriculture, Govt. of Rajasthan hosted this programme. Dr. Lal addressed the farmers regarding potentials of seed spices cultivation in Jaisalmer and its sustainability there under the climate change scenario. He informed the gathering that recently cumin growing area in Jaisalmer has crossed 1 lakh hectare, being short duration crop with less input requirement, it was also emphasized that cumin can be a boon for the prosperity for the farmers of Jaisalmer. Dr. K. Kant, Dr. S. S. Meena and Dr. P. N. Dubey also shared their experience regarding various challenges and issues w.r.t. seed spice *viz.* pest and disease management, crop production and pesticide residue issues etc. Staff of state and line department member's *viz*. Department of Agriculture (Govt. of Rajasthan), ICAR-CAZRI, Regional Station, Jaisalmer and KVK, Jaisalmer also attended the programme and shared their views. Around 128 seed spice growing progressive farmers of Jaisalmer district participated in the programme.

Twenty one days skill development course organized at ICAR-NRCSS

A 21 days (200 hrs) skill development course on "Seed Processing Workers" was conducted successfully at ICAR-NRCSS, Ajmer during 16th October, 2018 to 05th November, 2018. This training was



sponsored by Agriculture Skill Council of India (ASCI). In all there were 20 participants in the course. The main aim of

this training was to develop skill among the trainees on a particular trade so that they could establish their own business. Out of 20 participants, 16 candidates were passed and got certificate from ASCI. Dr. Gopal Lal, Director, ICAR-NRCSS was the patron of this training course,



Mr. M. A. Khan, CTO was the Nodal Officer with two Coordinators,



Dr. Krishna Kant, Principal Scientist and Dr. A.K. Verma, Scientist and three Co-coordinators, Dr. Shiv Lal, Sr. Scientist, Sh. Ravi Y., Scientist and Sh. Shriram Balai, STA supported to perform this training programme successfully.

Organised One day Scientists-Stack-holders Interface meet for commercialization of technologies

One day "**Scientists-stakeholders interface meet for commercialization of technologies"** organized on December 17, 2018 by Intellectual Property and Technology Management Unit, ICAR-National Research Center on Seed Spices, Ajmer, Rajasthan (India) in collaboration with Ajaymeru Kisan Samruddhi Producers Co. Ltd., Kekari, Ajmer.

Following participants attended the interface meet held on 17-12-2018.

S.No.	Name of Scientist	Designation and organization
1.	Director Dr. Gopal Lal	Director Dr. G. Lal, NRCSS, Ajmer.
2.	Dr. N.S. Rathore	Former Director, Seed Department Govt of Rajasthan
3.	Dr. P. N. Dubey	Senior Scientist, NRCSS, Ajmer
4.	Dr.B.K .Mishra	Principal Scientist NRCSS, Ajmer
5	Dr.R.S .Meena	Senior Scientist, NRCSS, Ajmer
6.	Dr.S.N.Sexena	Principal Scientist NRCSS, Ajmer
7.	Dr.Y.K.Sharma	Principal Scientist NRCSS, Ajmer
8.	Dr. K.Kant	Principal Scientist NRCSS, Ajmer.
9.	Dr. S. S. Meena	Principal Scientist NRCSS, Ajmer.
10.	Dr.M.D .Meena	Senior Scientist, NRCSS, Ajmer
11.	Dr.A.K.Varma	Scientist, NRCSS, Ajmer
12.	Dr.Sushil Kumar Barolia	Research Associate NRCSS, Ajmer.

List of entrepreneurs/ stakeholders and farmers attended the program

S.No.	Name of Entrepreneurs	Company /Organization
1.	Shiv kumar Dhameja	Q-1, sector-6, Vashi, N Mumbai-400703
2.	Bhaskar Singh	79/11 Indian Grameen Services (BASIX Jaipur Rajasthan
3	Ashok Kumar Jain	4 B Subcity center Udaipur Rajasthan
4	Ajay Nahar	Sudarshan seed nahar Bajar corner, Delhi gate, Udaipur, Rajasthan
5	Brijendra Singh Boran	Shyampura, Ranoli Road,Sikar
6	Dhram Chand	Shyampura ,Ranoli, Road, Sikar.
7	Ishar Ullah Khan	Ayushraj Enterprises Pvt. Ltd. 35, Sushilpura South, Shyam Nagar II, Bridge Ajmer , Road, Jaipur, Rajasthan, 302019, India
8	Bhawani Singh	Ajaymeru Kisan Samruddhi Producer Co. Ltd. (A FPO under SFAC, MoA & FW, Govt. of India) Kekri, Ajmer.
9.	Om Niwash Sharma	Ajaymeru Kisan Samruddhi Producer Co. Ltd. (A FPO under SFAC, MoA & FW, Govt. of India) Kekri, Ajmer.
10.	Kailash Khendelwal	Sun seed, V.D. Nagar jaipur
11.	Rahul Gupta	Rajshree seeds, V.D. Nagar jaipur
12.	Heer Singh Shekhwat	Growing farmers Dumara Ajmer

One day training programme on "Good Agricultural Practices in Seed Spices at Nagaur district

ICAR-NRCSS, Ajmer organized one day training programme on" Good Agricultural Practices in Seed Spices" on 24/12/2018 at



Nagaur. This programme was conducted under MIDH scheme and sponsored by DASD, Calicut and arranged at Nagaur by Dr. Harjiram Choudhary, Deputy Director, Dept. of Agriculture Rajasthan Government at Nagaur. Dr. Y. K. Sharma, Pr. Scientist inaugurated the programme. Dr. S. S. Meena and Dr. Narendra Chaudhary were the Training Coordinators as well resource person for above said programme. Dr. Y. K. Sharma, Dr. P. N. Dubey, Dr. R. S. Meena, Mr. S. R. Meena shared their experience with the farmers regarding various alarming issues of seed spice cultivation *viz.* pest and disease management, crop production, varietal wealth and pesticide residue in seed spices. About 81 farmers of Nagaur district participated in the programme.

Training conducted during November and December, 2018

During November- December 2018 this centre conducted three 5 days farmers training from Tonk & Jhalawar districts of

Rajasthan and one week interaction training programme for B.Sc.(Ag.) 3rd year students from BHU, Varanasi (Uttar Pradesh). The details of the training are given below:

Sr. No.	Training Date	Coordinators	Sponsored by
1	13-17 Nov, 2018	Dr. P. N. Dubey, Dr. R.D. Meena and Sh. G.K. Tripathi	ATMA, Tonk, (Raj.)
2	26-30 Nov, 2018	Dr. S.S. Meena, Dr. M.D. Meena and P K Agrawal	ATMA, Tonk, (Raj.)
3	11-15 Dec, 2018	Dr. R. S. Meena and Dr. Narendra Chaudhary	ATMA, Jhalawar (Raj.)
4	27 Dec- 2 Jan, 2019	Dr. Gopal Lal, Dr. M.D. Meena and Dr. A.K. Verma	BHU Students 1 week interaction Varanasi (U.P.)

SWACHHCHATA ABHIYAN

Under the ambit of "**Swachhch Bharat Abhiyan",** cleanliness programme is continuously being organised on Friday of every week wherein, cleaning work in and around the office premises is being carried out.



The following activities were conducted during the "Swachhata Pakhwada" organized from 16-31 December, 2018.

- National Farmer's Day celebrated in the honor of Shri Chaudhary Charan Singh the former Prime Minister of India.
- Cleanliness and sanitation drive within campus and surroundings.
- Stock taking of waste management, including utilisation of organic waste, polythene free status, campaign on cleaning of sewerage and water lines.
- Debate on Swachhata Abhiyan, Quiz and essay competition for school children, promoting clean and green technologies and organic farming practices in community places.
- Water harvesting for agriculture and horticulture.

- Visits to community waste disposal sites, cleaning and creating awareness on treatment and safe disposal.

MEETINGS/TRAININGS/ SEMINARS /SYMPOSIA/ LECTURES/ CONFERENCES

-Dr. Gopal Lal, Director ICAR-NRCSS attended Sub-committee meeting on 'Crop Standards Notification and Release of Horticultural Crops during 4-5 Nov., 2018 at New Delhi.

-Dr. Gopal Lal, Director ICAR-NRCSS and Dr. N.K. Meena, Senior Scientist attended Annual Group Meeting of AINPOF workshop held at TNAU, Coimbatore (Tamil Nadu) during 26-29 Nov., 2018.

-Dr. Gopal Lal, Director ICAR-NRCSS attended second shadow committee meeting for the fourth session of codex committee on "Spices and culinary Herbs during 2-4 December, 2018 at Administrative Building Tambaram, Chennai.

-Dr. Gopal Lal, Director, ICAR-NRCSS organized two districts seminar in Jaisalmer districts of Rajasthan under MIDH and monitoring FLDs in western Rajasthan during 25-28 December 2018.

-Dr. P. N. Dubey participated and presented (oral) research paper in the 9th National Extension Education Congress-2018 on ***"Climate Smart Agricultural Technologies Innovations and Interventions"*** at Central Agricultural University, Imphal, CAEPHT (CAU), Ranipool, Sikkim during November, 15-17, 2018.

Publications/ Released material:

-A document named "ITMU- ICAR-NRCSS Calendar Profile containing all varieties, different technologies developed & Institute Memories & Important events" has been developed and released in "1st International Conference on climate change and adaptive crop protection for sustainable Agri-horticulture landscape" during 20-22 December, 2018 at ICAR-National Research Centre on Seed Spices, Ajmer 305206, Rajasthan (India), Organised by Society of Plant Protection Science, ICAR-NCIPM, New Delhi and ICAR-NRCSS, Ajmer.

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